Lucent Technologies
Bell Labs Innovations

LambdaUnite® MultiService Switch (MSS)

Release 7.0

Operations System Engineering Guide

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Declaration of Conformity

The Declaration of Conformity (DoC) for this product can be found in the Applications and Planning Guide in the chapter “Quality and reliability”, or at: http://www.lucent.de/ecl.

Ordering information

The order number of this document is 365-374-180 (Issue 1).

Technical support

Please contact your Lucent Technologies Local Customer Support Team (LCS) for technical questions about the information in this document.

Information product support

To comment on this information product online, go to http://www.lucent-info.com/comments or email your comments to ctiphotline@lucent.com.

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About this information product

Purpose

This document describes the external TL1 interface for *LambdaUnite*® MultiService Switch (MSS) in terms of TL1 command, responses, and notification definitions.

This document does not cover the specification of the TL1 protocol itself or that of underlying protocols of the OSI or IP stack.

Reason for reissue

The present release "1"is the first version of this manual.

Safety information

This information product contains hazard statements for your safety. Hazard statements are given at points where safety consequences to personnel, equipment, and operation may exist. Failure to follow these statements may result in serious consequences.

Conventions used

See "Conventions used in message descriptions" (p. 3-2) for detailed information.

Overview of the document

This manual is structured as follows:

- Chapter 1 contains introductional information (TL1 message index and command state diagram)
- Chapter 2 contains AID definitions, used to address entities with TL1 commands or notifications
- Chapter 3 contains data type definitions, used to define parameters in TL1 commands or notifications
- Chapter 4 contains the detailed requirements for the TL1 commands listed in alphabetical order

- Chapter 5 to chapter 13 contain the TL1 commands separated by the functional areas:
  - Administration & security
  - Configuration management
  - Fault management
  - Transmission and cross connect handling
  - Protection
  - Performance monitoring
  - Synchronization
  - Software and database management
  - Data communications network.
- Chapter 14 contains a list of error codes and the related links to the corresponding TL1 commands.
- Chapter 15 contains a list of TL1 commands and the corresponding user privilege codes in alphabetical order.
- Chapter 16 contains detailed information about the TL1 commands related to the Optical Network Navigation System (ONNS) feature.

Documented feature set

This manual describes *LambdaUnite*® MultiService Switch (MSS) release 7.0. For technical reasons some features have been documented that will not be available until later software versions. For precise information about the availability of features, please consult the Software Release Description. This provides details of the status at the time of software delivery.

Intended use

This equipment shall be used only in accordance with intended use, corresponding installation and maintenance statements as specified in this documentation. Any other use or modification is prohibited.

Optical safety

IEC Customer Laser Safety Guidelines

Lucent Technologies declares that this product is compliant with all essential safety requirements as stated in IEC 60825-Part 1 and 2 “Safety of laser products” and “Safety of optical fibre telecommunication systems”. Futhermore Lucent Technologies declares that the warning statements on labels on this equipment are in accordance with the specified laser radiation class.

Optical Safety Declaration (if laser modules used)

Lucent Technologies declares that this product is compliant with all essential safety requirements as stated in IEC 60825-Part 1 and 2 “Safety of Laser Products” and “Safety of Optical Fiber Telecommunication Systems”. Furthermore Lucent Technologies declares that the warning statements on labels on this equipment are in accordance with the specified laser radiation class.

Optical Fiber Communications

This equipment contains an Optical Fiber Communications semiconductor laser/LED transmitter. The following Laser Safety Guidelines are provided for this product.

General Laser Information

Optical fiber telecommunication systems, their associated test sets, and similar operating systems use semiconductor laser transmitters that emit infrared (IR) light at wavelengths between approximately 800 nanometers (nm) and 1600 nm. The emitted light is above the red end of the visible spectrum, which is normally not visible to the human eye. Although radiant en at near-IR wavelengths is officially designated invisible, some people can see the shorter wavelength energy even at power levels several orders of magnitude below any that have been shown to cause injury to the eye.

Conventional lasers can produce an intense beam of monochromatic light. The term “monochromaticity” means a single wavelength output of pure color that may be visible or invisible to the eye. A conventional laser produces a small-size beam of light, and because the beam size is small the power density (also called irradiance) is very high. Consequently, lasers and laser products are subject to federal and applicable state regulations, as well as international standards, for their safe operation.

A conventional laser beam expands very little over distance, or is said to be very well collimated. Thus, conventional laser irradiance remains relatively constant over distance. However, lasers used in lightwave systems have a large beam divergence, typically 10 to 20 degrees. Here, irradiance obeys the inverse square law (doubling the distance reduces the irradiance by a factor of 4) and rapidly decreases over distance.

Lasers and Eye Damage

The optical energy emitted by laser and high-radiance LEDs in the 400-1400 nm range may cause eye damage if absorbed by the retina. When a beam of light enters the eye, the eye magnifies and focuses the energy on the retina magnifying the irradiance. The irradiance of the energy that reaches the retina is approximately 105, or 100,000 times more than at the cornea and, if sufficiently intense, may cause a retinal burn.

The damage mechanism at the wavelengths used in an optical fiber telecommunications is thermal in origin, i.e., damage caused by heating. Therefore, a specific amount of energy is required for a definite time to heat an area of retinal tissue. Damage to the retina occurs only when one looks at the light long enough that the product of the

retinal irradiance and the viewing time exceeds the damage threshold. Optical energies above 1400 nm cause corneal and skin burns, but do not affect the retina. The thresholds for injury at wavelengths greater than 1400 nm are significantly higher than for wavelengths in the retinal hazard region.

Classification of Lasers

Manufacturers of lasers and laser products in the U.S. are regulated by the Food and Drug Administration's Center for Devices and Radiological Health (FDA/CDRH) under 21 CFR 1040. These regulations require manufacturers to certify each laser or laser product as belonging to one of four major Classes: I, II, lla, IIIa, lllb, or IV. The International Electro-technical Commission is an international standards body that writes laser safety standards under IEC-60825. Classification schemes are similar with Classes divided into Classes 1, 1M, 2, 2M, 3R, 3B, and 4. Lasers are classified according to the accessible emission limits and their potential for causing injury. Optical fiber telecommunication systems are generally classified as Class I/1 because, under normal operating conditions, all energized laser transmitting circuit packs are terminated on optical fibers which enclose the laser energy with the fiber sheath forming a protective housing. Also, a protective housing/access panel is typically installed in front of the laser circuit pack shelves The circuit packs themselves, however, may be FDA/CDRH Class I, IIIb, or IV or IEC Class 1, 1M, 3R, 3B, or 4.

Laser Safety Precautions for Optical Fiber Telecommunication Systems

In its normal operating mode, an optical fiber telecommunication system is totally enclosed and presents no risk of eye injury. It is a Class I/1 system under the FDA and IEC classifications.

The fiber optic cables that interconnect various components of an optical fiber telecommunication system can disconnect or break, and may expose people to laser emissions. Also, certain measures and maintenance procedures may expose the technician to emission from the semiconductor laser during installation and servicing. Unlike more familiar laser devices such as solid-state and gas lasers, the emission pattern of a semiconductor laser results in a highly divergent beam. In a divergent beam, the irradiance (power density) decreases rapidly with distance. The greater the distance, the less energy will enter the eye, and the less potential risk for eye injury. Inadvertently viewing an un-terminated fiber or damaged fiber with the unaided eye at distances greater than 5 to 6 inches normally will not cause eye injury, provided the power in the fiber is less than a few milliwatts at the near IR wavelengths and a few tens of milliwatts at the far IR wavelengths. However, damage may occur if an optical instrument such as a microscope, magnifying glass, or eye loupe is used to stare at the energized fiber end.

CAUTION

Laser hazard

Use of controls, adjustments, and procedures other than those specified herein may result in hazardous laser radiation exposure.

Laser Safety Precautions for Enclosed Systems

Under normal operating conditions, optical fiber telecommunication systems are completely enclosed; nonetheless, the following precautions shall be observed:

1. Because of the potential for eye damage, technicians should not stare into optical connectors or broken fibers
2. Under no circumstance shall laser/fiber optic operations be performed by a technician before satisfactorily completing an approved training course
3. Since viewing laser emissions directly in excess of Class I/1 limits with an optical instrument such as an eye loupe greatly increases the risk of eye damage, appropriate labels must appear in plain view, in close proximity to the optical port on the protective housing/access panel of the terminal equipment.

Laser Safety Precautions for Unenclosed Systems

During service, maintenance, or restoration, an optical fiber telecommunication system is considered unenclosed. Under these conditions, follow these practices:

1. Only authorized, trained personnel shall be permitted to do service, maintenance and restoration. Avoid exposing the eye to emissions from un-terminated, energized optical connectors at close distances. Laser modules associated with the optical ports of laser circuit packs are typically recessed, which limits the exposure distance. Optical port shutters, Automatic Power Reduction (APR), and Automatic Power Shut Down (APSD) are engineering controls that are also used to limit emissions. However, technicians removing or replacing laser circuit packs should not stare or look directly into the optical port with optical instruments or magnifying lenses. (Normal eye wear or indirect viewing instruments such as Find-R-Scopes are not considered magnifying lenses or optical instruments.)
2. Only authorized, trained personnel shall use optical test equipment during installation or servicing since this equipment contains semiconductor lasers (Some examples of optical test equipment are Optical Time Domain Reflectometers (OTDR's), Hand-Held Loss Test Sets.)
3. Under no circumstances shall any personnel scan a fiber with an optical test set without verifying that all laser sources on the fiber are turned off
4. All unauthorized personnel shall be excluded from the immediate area of the optical fiber telecommunication systems during installation and service.

Consult ANSI Z136.2, American National Standard for Safe Use of Lasers in the U.S.; or, outside the U.S., IEC-60825, Part 2 for guidance on the safe use of optical fiber optic communication in the workplace.

For the optical specifications please refer to the chapter “Technical specifications” in the Applications and Planning Guide.

Technical Documentation

The technical documentation as required by the Conformity Assessment procedure is kept at Lucent Technologies location which is responsible for this product. For more information please contact your local Lucent Technologies representative.

How to comment

To comment on this information product, go to the Online Comment Form (http://www.lucent-info.com/comments/enus/) or email your comments to the Comments Hotline (comments@lucent.com).

1 General information

Overview

Purpose

This chapter contains introductional information.

Contents

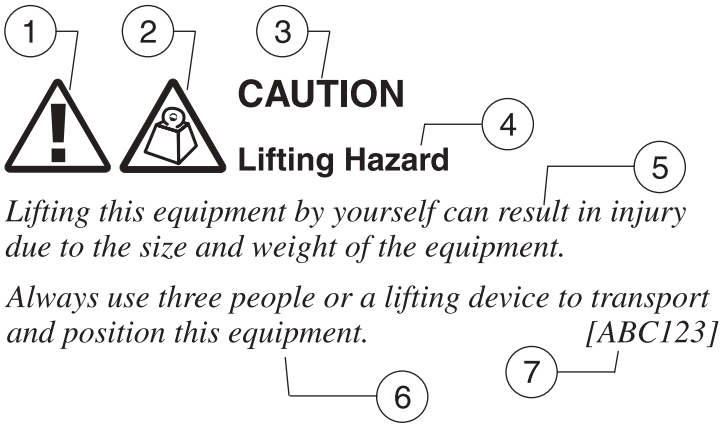
Structure of hazard statements

Overview

Hazard statements describe the safety risks relevant while performing tasks on Lucent Technologies products during deployment and/or use. Failure to avoid the hazards may have serious consequences.

General structure

Hazard statements include the following structural elements:



Item	Structure element	Purpose
1	Personal injury symbol	Indicates the potential for personal injury (optional)
2	Hazard type symbol	Indicates hazard type (optional)
3	Signal word	Indicates the severity of the hazard
4	Hazard type	Describes the source of the risk of damage or injury
5	Damage statement	Consequences if protective measures fail
6	Avoidance message	Protective measures to take to avoid the hazard
7	Identifier	The reference ID of the hazard statement (optional)

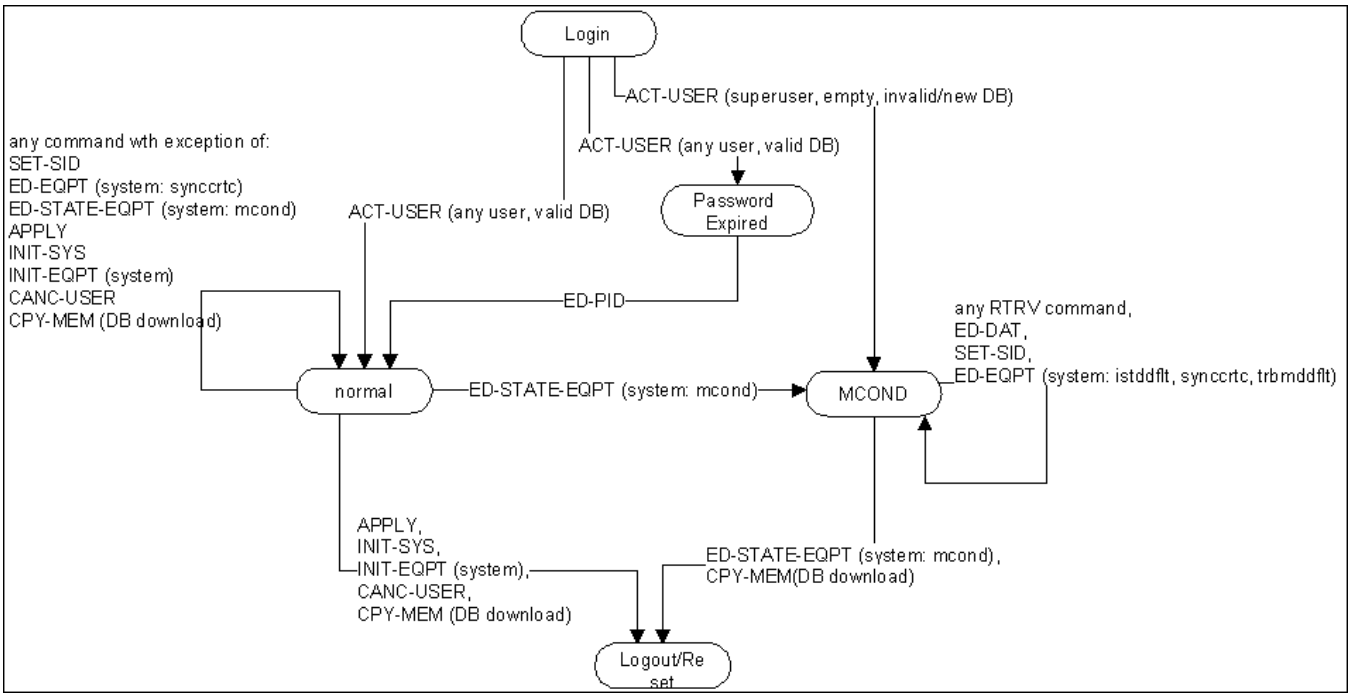
Signal words

The signal words identify the hazard severity levels as follows:

Signal word	Meaning
DANGER	Indicates an imminently hazardous situation (high risk) which, if not avoided, will result in death or serious injury.
WARNING	Indicates a potentially hazardous situation (medium risk) which, if not avoided, could result in death or serious injury.
CAUTION	*When used with the personal injury symbol:* Indicates a potentially hazardous situation (low risk) which, if not avoided, may result in personal injury. *When used without the personal injury symbol:* Indicates a potentially hazardous situation (low risk) which, if not avoided, may result in property damage, such as service interruption or damage to equipment or other materials.

TL1 command state diagram

The following state diagram provides an overview in which system states which TL1 commands are allowed. States and transitions are explained below the figure.



States

- *Login*: initial state, creation of user session
- *Password expired*: entered after login with valid database and when the user's password has expired
- *MCOND*: system is in maintenance condition (see parameter *mcond* in RTRV-STATE-EQPT (system))
- *normal*: system is in normal mode (see parameter *mcond* in RTRV-STATE-EQPT (system)
- *Logout/Reset*: termination of a user session via logout or a command which leads to a system or CTL controller reset

Transitions

Transitions between the states are performed upon execution of the TL1 command(s) on the arrows between the states. An exception are the transitions from the *Login* state, which are automatically performed based on the database state (see parameter *dbstate* in RTRV-STATE-EQPT (system)) and the password expiration information (see parameter page in RTRV-USER-SECU).

□

Data base change notifications

Object creation - ENT notification

The creation/establishment of an entity/instance is reported by means of an ENT (Enter) notification. It shall consists of:

- entity class name
- instance/identifier/key
- all attribute values of the instance as defined in the notification section; example: ENT-OC48 notification
- entity class name: OC48
- instance/identifier/key: port AID
- attribute values: all attribute values as defined in the corresponding ENT-OC48 notification section.

The attributes for an entity can be classified as follows:

- inputted: the reported attribute value is specified in the corresponding command request
- modifiable: the reported attribute value is the specified default value (with semantics of initial value) and the attribute itself is modifiable by means of corresponding ED command
- state: the reported attribute value is the specified default value (with semantics of initial value) and the attribute itself is modifiable directly by means of corresponding ED command. The modification can ever be triggered as side affect of a command or by anautonomous event.

Examples for the different attribute classes

- inputted: 1+1 line/ms protection group: attribute wkg - worker port
- modifiable: 1+1 line/ms protection group: attribute wkg - worker port
- state: port: attribute crstat - Constituent Rates Status list (autonomous change) in case of adaptive mode
- port: attribute: fsflpbkstat - Far Side Facililiy Loopback Status(side effect of command)

Note: Protection state information is not contained in any db change notification.

Object modification - ED notification

The modification for some attributes of an entity/instance is reported by means of an ED (Edit) notification. It shall consists of:

- entity class name
- instance/identifier/key

- all attribute values which were modified
  This includes all attributes which came into existance by modifing another attribute. (see example below). This also means, that attributes which are already handled internally but where not applicable up to now and therefore were not reported to the manager, must not be reported to the manager, if they became applicable. Reason: The manager can not know the internal default values. If an ED command for an (or the) entity/instance attribute(s) does not modify the attribute(s) value, because (for each individual attribute) new_attribute_value = old_attribute_value, no ED notification shall be sent per requirement ID 61381. However, empty notifications, i.e. notifications with no attributes and attribute values, can occur. These empty notifications do not impact the managers, but nevertheless should be avoided. Example: ED-OC48 notification
- entity class name: OC48
- instance/identifier/key: port AID
- attribute values: all attribute values which have been modified.
  Thus the corresponding ED notification section describes only the superset of attributes where changes are reported. Which attributes are really contained in a concrete scenario is described either in the detailed behaviour section (if the change is triggered by a command) or in autonomous event section (if the changes it triggered by an spontaneous event). Example: ED-OC48 notification of new attributes.
- entity class name: STM16
- instance/identifier/key: port AID
- action: istd is set from SDH to SONET
  This action causes that attributes come into existance by modifying *istd*. In detail this means: - attributes, which are named differently in the two standards - attributes, which are only applicable in one standard must be reported. E.g. for the change from SDH to SONET: - *sdthr* (in SDH called *degthr*) - *felpm* (in SDH called *femspm*) - *z0outmode* (new parameter in SONET) must be reported.

Note: Sometimes TL1 uses a different command verb instead of ED for modification commands (e.g. SET). Nethertheless, the statements of this chapter is also valid for these.

Object deletion - DLT notification

The deletion/removal of an entity/instance is reported by means of an DLT (Delete) notification. It shall consists of:

- entity class name
- instance/identifier/key

Example: DLT-OC48 notification

- entity class name: OC48
- instance/identifier/key: port AID.

Sequence constraints

In order to allow the manager a proper interpretation of the received notifications, the NE must assure same sequence constraints. This section specifies these sequence constraints.

Report object creation first

The first notification for an entity is the *db change* reporting that a new entity has been created/established. After this *establish* notification, all other types of notifications may be issued for this instance.

Report creation according to AID hierarchy

If several instances of entities are created in the context of one stimuli, the order of the *establish* notification is according to the hierarchy of the AID structure. The *establish* notification for a subordinate entity is not reported before the *establish* notification of a superior entity.

Example: The *establish* notification for a port should be sent before the *establish* notification of a tributary being a member of this port.

Report object deletion last

The last notification for an entity is the *dbchange* reporting that an entity has been deleted/removed.

Report deletion according to AID hierarchy

If several instances of entities are deleted in the context of one stimuli, the order of the *delete* notification is according to the hierarchy of the AID structure. The *delete* notification for a superior entity is not reported before the *delete* notification of a subordinate entity.

Example: The *delete* notification for a tributary should be sent before the *delete* notification of a port containing that tributary.

□

2 AID structure

Overview

Purpose

This section contains the requirements for Access IDentifiers (AID) for the TL1 interface of the *LambdaUnite*® MSS.

Contents

Introduction

Overview

Purpose

This section defines the names which will be used to identify physical and logical entities for input and output at the TL1 Interface for the *LambdaUnite*® MSS products.

This document re-uses the general terminology and BWM Access Identifier (AID) Syntax. It is assumed that the reader is familiar with the terms and syntax.

Contents

AID syntax

General

The following specification characters will be used throughout this document as a vehicle for defining the syntax.

Rule	Description
::=	Assignment of a lexical rule to a token or token class.
`literal`	Characters which must appear literally as typed appear in bold..
|	The ″exclusive or″ token means that exactly one item in the list must be present.
{}	Items in {} means one of the items in the set must be present.
[]	Items in [] means one of the items in the set may optionally be present.
()	Items in () can be used for grouping to define different precedence for the operators |, ^{n} and *.
-	A dash indicates a range of values where any item in the range may be present.
,	A ″,″ is used as a list item separator in the specification grammar.
a^{*}	A superscript * specifies 0 or more repetitions of the previous token that can be present.
a^{+}	A superscript + specifies 1 or more repetitions of the previous token that can be present.
a^{n}	A superscript n is a number which specifies the number of repetitions of the previous token that can be present.
″ ″	Blanks between tokens in an expression means to concatenate the tokens.

Access Identifier (AID) syntax

AIDs can be either Simple_AIDs, or Compound_AIDs. AID definitions will use the following syntax:

let ::= {A-Z,a-z,_}

dig ::= {0-9}

AID_field ::= (let (let | dig)*)

Simple_AID ::= (AID_field [Simple_AID]) | #

Compound_AID ::= Simple_AID(–Simple_AID)*

The character ″–″ (dash) will be used as the Simple_AID separator in compound AIDs.

AID_List::=AID_unit(, AID_unit)*

AID_unit::=Simple_AID | Compound_AID

The character ″,″ (comma) will be used as the Simple_AID, Compound_AID separator in AID_Lists.

If a Simple_AID is <null>, the ″#″ character is used to specify a value of <null> for an AID_field.

Groups of entities of the same type can be specified by using the value `all` or *someprefix* `all` in a Simple_AID.

The legal places to use this value are specified in the appropriate commands below. The convention used in the command descriptions is that the value `all` is not allowed unless explicitly stated otherwise.

In general `all` is only allowed for input AIDs, i.e. when used in a TL1 request.

For the following requirements see also the definition of compound AIDs below.

The value `all` on bay and shelf level is only allowed for RTRV-EQPT on bay and shelf level. It is not allowed on this positions for entities further down in the hierarchy like slot, port, tributary.

Example 1

valid: `all-all`

invalid: `all-all #-#-1-3-1`

The value `all` on the AID field for slot, CP, port or tributary is only allowed

- when it is the last AID field or
- when there is already an `all` on the AID field following the AID field.

Example 2

valid: `1-1-#-#-1-3-all`

valid: `1-1-#-#-1-all`

valid: `1-1-#-#-all-cp`

valid: `1-1-#-#-1-all-all`

invalid: `1-1-#-#-1-all-1`

Examples for lower order tributaries:

valid: `1-1-#-#-1-3-1-all` (all LO tributaries for one path termination)

valid: `1-1-#-#-all-all-all-all`(all lower order tributaries)

valid: `1-1-#-#-all-all-all-1`

□

System level AIDs

Overview

Purpose

This section contains all system level AIDs.

Contents

System AID

To identify the entire system the following AID is used:

SystemAID ::= `system`

□

MDI/MDO

General

The system has miscellaneous discrete outputs and inputs which are named without any hierarchical, positional information in the AID.

The system provides 8 input and 8 output miscellaneous discrete alarm points which can be assigned user-friendly names so that when the user wants to assert an output point, or receives an alarm from one of the input points, a name is used which reflects what the alarm point is physically connected to.

AIDs for MDIs, MDOs

The following AIDs are used to identify the MDIs/MDOs:

Miscellaneous_in_discreteAID ::= `misc_in{1-8} | misc_inall`
Miscellaneous_out_discreteAID ::= `misc_out{1-8} | misc_outall`

□

Timing

AIDs for external timing references

The timing references can come from two external DS1 or E1 (2MHz or 2Mbit/s) or 64kbit/s (future) signals:

External_timing_ref_AID ::= `extref1 | extref2 | extrefall`

In the system maximal 32 I/O slots are present. Every I/O slot can supply one timing reference signal extracted from the incoming data. Out of those six can be used as line timing input reference.

AIDs for line timing references

The AIDs which can be used for the input selection are:

Line_timing_ref_AID ::= `line{1-6} | lineall`

AIDs for timing input ports

The system has two timing input ports. The AIDs for these timing input ports are:

External_Timing_input_port_AID ::= `exttmg0 | exttmg1 | exttmgall`

AIDs for timing output ports

The system has two timing output ports. The AIDs for these timing output ports are:

External_Timing_output_port_AID ::= `exttmg0_out | exttmg1_out | exttmg_outall`

AID for timing output

The AID for timing output is

Timing_Output_AID ::= `outtmg`

For provisioning or retrieving information related to the system clock the SystemAID is to be used.

□

OSI nodes

AIDs for OSI nodes

The system can support up to 8 OSI nodes, which are used to allow that the system is part in several routing domains.

The AIDs to access the OSI nodes are:

OSI_node_AID ::= `osinode{1-8}` | `osinodeall`

□

SCN node

AID for SCN node

The system shall support one SCN node, which is used to implement the IP stack for SCN communication related to ONNS.

The AID to access the SCN node is:

SCN_node_AID ::= `scnnode`

□

General node

General Node AID

The system supports a general node AID, which can be used to address any of the particular node AID types of above.

The general node AID is defined as:

Node_AID ::= `OSI_node_AID | SCN_node_AID`

□

ASTN node

ASTN Node AID

The system supports an ASTN node AID, which can be used to address a ONNS node

The ASTN node AID is defined as:

ASTN_Node_AID ::= last 4 bytes of the `backpl`, seperated by ″-″ (dash).

□

Link

Link AID

To identify the entire communication link for ONNS between two nodes the following AID is used:

- Initiator_ASTN_Node_AID ::= ASTN_Node_AID
- Responder_Node_AID ::= ASTN_Node_AID
- LinkAID ::= Initiator_ASTN_Node_AID, Responder_ASTN_Node_AID

□

Hierarchically specified AIDs

Overview

Purpose

Below the system level AIDs, other entities are specified in a hierarchical structure.

Contents

Compound AID syntax overview

The AID structure defined for a compound AID is shown in the next table. For each AID Field further information is to be found in the subsequent subsections. Examples of compound AIDs can be found in "AID examples" (p. 2-53).

Entity	AID Field						
	Bay/ Rack	Shelf/ Subrack	Prot Grp	Side Line	Slot	CP/ SPort/ EPort/ VCG/ NVM	STS-1/ AU-3/ VCG Trib
Bay/Rack	1						
Shelf/ Subrack	1	1					
Protection Group	1	1	Simple_ Protection-GroupAID				
Fan Unit	1	1	Simple_FanAID				
PI	1	1	Simple_PowerAID				
TI	1	1	Simple_ TimingInter-faceAID				
ECI	1	1	Simple_ EciInterfaceAID				
Backplane	1	1	Simple_ BackplaneAID				
User Panel	1	1	Simple_ UserPanelAID				
CI-CTL	1	1	Simple_CiCtlAID				
User Byte Ports	1	1	Simple_ UserBytePortAID				
LAN Ports	1	1	Simple_ LanPortAID				
Slot	1	1	#	#	Simple_ SlotAID		
CP	1	1	#	#	Simple_ SlotAID	cp	
Socket	1	1	#	#	Simple_ SlotAID	Simple_ SocketAID	
Optical Module	1	1	#	#	Simple_ SlotAID	Simple_ SocketAID	om
NVM	1	1	#	#	{ctlw| ctlp}	nvm	
SPort	1	1	#	#	Simple_ SlotAID	Simple_ SPortAID	

Entity	AID Field						
	Bay/ Rack	**Shelf/ Subrack**	**Prot Grp**	**Side Line**	**Slot**	**CP/ SPort/ EPort/ VCG/ NVM**	**STS-1/ AU-3/ VCG Trib**
EPort	1	1	#	#	Simple_ SlotAID	Simple_ EPortAID	
VCG	1	1	#	#	Simple_ SlotAID	Simple_ VCGAID	
STS-1/ AU-3 Trib	1	1	#	#	Simple_ SlotAID	Simple_ SPortAID	Simple_STS1_ NumAID *
STS-3c/ AU-4 Trib	1	1	#	#	Simple_ SlotAID	Simple_ SPortAID	Simple_STS1_ NumAID *
STS-12c/ AU-4-4c Trib	1	1	#	#	Simple_ SlotAID	Simple_ SPortAID	Simple_STS1_ NumAID *
STS-48c/ AU-4-16c Trib	1	1	#	#	Simple_ SlotAID	Simple_ SPortAID	Simple_STS1_ NumAID *
STS-192c/ AU-4-64c Trib	1	1	#	#	Simple_ SlotAID	Simple_ SPortAID	Simple_STS1_ NumAID *
STS-768c/ AU-4-256c Trib	1	1	#	#	Simple_ SlotAID	Simple_ SPortAID	Simple_STS1_ NumAID *
VCG Trib	1	1	#	#	Simple_ SlotAID	Simple_ VCGAID	Simple_ VCG NumAID
* See table below .							

The STS-3c/AU-4, STS-12c/AU-4-4c, STS-48c/AU-4-16c, STS-192c/AU4-64c, STS-768c/AU4-256c tributaries also use the STS-1/AU-3 AID field. They are identified by the first STS-1/AU-3 number of the signal as indicated by the table below:

Signal	MS2.5G/S3[-x] Adaptation (x in {3c, 12c, 48c})	MS10G/S3[-x] Adaptation (x in {3c, 12c, 48c, 192c})	MS40G/S3[-x] Adaptation (x in {3c, 12c, 48c, 192c, 768c})
S3 (STS-1/AU-3)	1, 2, 3, ..., 48	1, 2, 3, ..., 192	1, 2, 3, ..., 768
S3-3c (STS-3c/AU-4)	1, 4, 7, ..., 46	1, 4, 7, ..., 190	1, 4, 7, ..., 766
S3-12c (STS-12c/AU-4-4c)	1, 13, 25, 37	1, 13, 25, ..., 181	1, 13, 25, ..., 757
S3-48c (STS-48c/AU-4-16c)	1	1, 49, 97, 145	1, 49, 97, ..., 721
S3-192c (STS-192c/AU-4-64c)	n/a	1	1, 193, 385, 577
S3-768c (STS-768c/AU-4-256c)	n/a	n/a	1

AID field lengths

The following table lists the AID field length specifications. The maximum length of an AID, including the separating –, must not exceed 23 characters:

Field	AID definitions	Length (char)
Bay (Rack)	BayID	1
Shelf (Subrack)	Simple_ShelfID	1
Slot	Simple_SlotAID	5
CP	Simple_CpAID | Simple_NvmAID	3
Socket	Simple_SocketAID	5
Optical Module	Simple_OmAID	3
Port	Simple_SPortAID | Simple_EPortAID | Simple_VCGAID	2
Trib	Simple_STS1NumAID | Simple_VCGNumAID	3

Range specifications

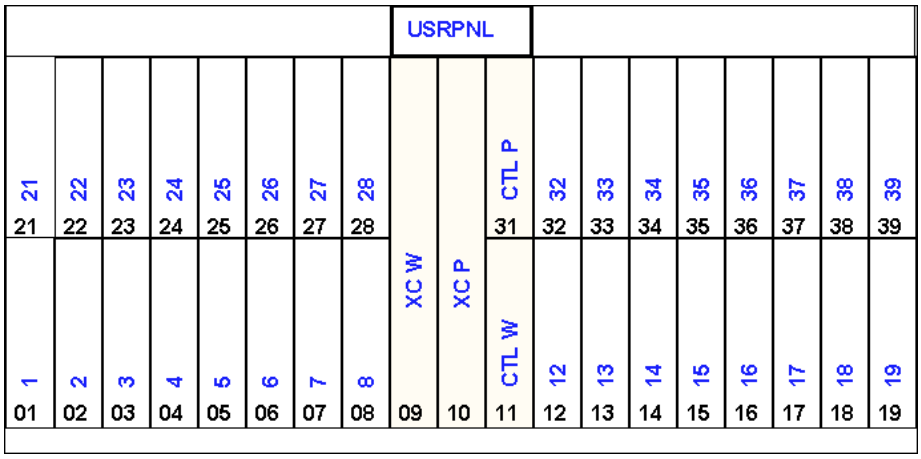
Various TL1 commands allow for the specification of a range of entities as input parameters. These ranges are specified in the AID definitions in this document which allow the use of the term all in one or more AID Fields within a Simple_AID. Details of where these values are allowed is detailed in the AID parameter description per command.

□

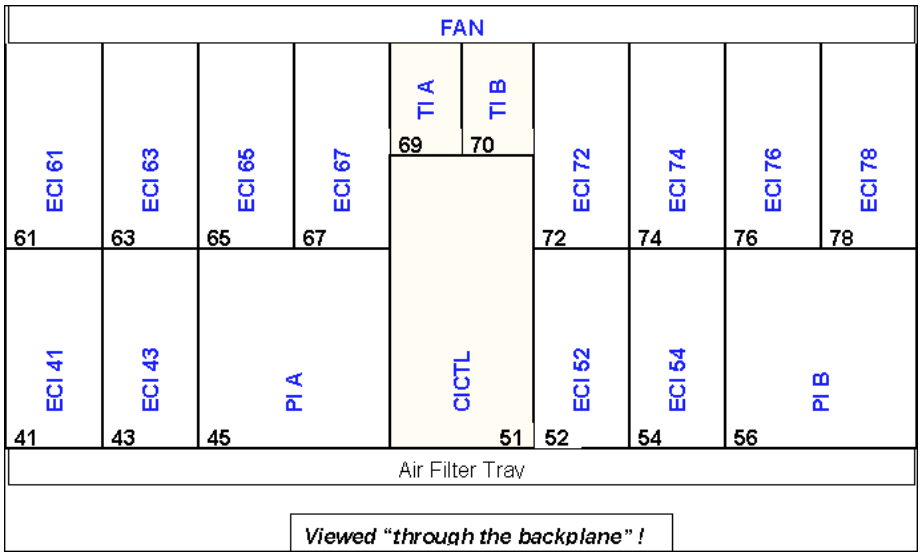
Physical layout

Frontside

The following graphics show the physical layout of the dual unit row (DUR) subrack (frontside) and the naming conventions:



Rearside



Bay (rack) and shelf (subrack)

The *LambdaUnite*® MSS system uses a single unit row (SUR) subrack in the REG40 configuration or a dual unit row (DUR) subrack in the LXC40 configuration.

Up to two DUR, three SUR or combinations 2 SUR/1DUR, 1SUR/1DUR fit into one rack (bay). From the AID definition this relationship will not become visible.

AID for bay (rack)

The BayAID is used to identify the rack (bay) of the system:

BayAID ::= `1 | all`

AID for shelf (subrack)

The ShelfAID is used to identify the subrack type (shelf):

Simple_ShelfAID ::= `1 | all`

ShelfAID ::= BayAID–Simple_ShelfAID

Note: Different configurations will be distinguished by a the parameter *shlftp* in RTRV-EQPT for subrack (shelf).

□

Fans

AIDs for fan

There is one fan unit in the system. The FanAID is used to identify the fan unit in the subrack:

Simple_FanAID ::= `fan` | `fanall`

FanAID ::= BayAID–Simple_ShelfAID–Simple_FanID

□

Power interface

AIDs for power interfaces

There are two power interface units PI(A) and PI(B) in the subrack, which are located at the rear side. The PowerAID is used to identify the power interface in the subrack:

Simple_PowerAID ::= `pia` | `pib` | `piall`

PowerAID ::= BayAID–Simple_ShelfAID–Simple_PowerAID

□

Backplane

AID for backplane

The subrack has a backplane with an inventory EEPROM. The BackplaneAID is used to identify the backplane in the subrack:

Simple_BackplaneAID ::= `backpl`

BackplaneAID ::= BayAID–Simple_ShelfAID–Simple_BackplaneAID

□

User panel

AID for user panel

There is one user panel in the subrack. The UserPanelAID is used to identify the user panel in the system:

Simple_UserPanelAID ::= `usrpnl`

UserPanelAID ::= BayAID–Simple_ShelfAID–Simple_UserPanelAID

□

CI-CTL

AID for CI-CTL

The system has a connection interface with e.g. LAN and user byte ports (CI-CTL). The CiCtlAID is used to identify the CI-CTL in the subrack:

Simple_CiCtlAID ::= `cictl`

CiCtlAID ::= BayAID–Simple_ShelfAID–Simple_CiCtlAID

□

User byte ports

AIDs for user byte ports

The system has six ports to access user bytes which are located on the CI-CTL. The UserBytePortAID is used to identify a user byte port in the subrack:

Simple_UserBytePortAID ::= `ubio1` | `ubio2` | `ubio3` | `ubio4` | `ubio5` | `ubio6` | `ubioall`

UserBytePortAID ::= BayAID–Simple_ShelfAID–Simple_UserBytePortAID

□

LAN ports

AIDs for LAN ports

The system has four LAN ports which are located on the UPL (LAN1) and CI-CTL (LAN2, LAN3). A LAN4 is currently only HW prepared and has no further functionality. The LanPortAID is used to identify a LAN port in the subrack:

Simple_LanPortAID ::= `lan1` | `lan2` | `lan3` | `lanall`

LanPortAID ::= BayAID–Simple_ShelfAID–Simple_LanPortAID

□

Timing interfaces (TI)

AIDs for timing interfaces

The system has up to two timing interfaces TI(A) and TI(B) located on the rear side of the subrack. The TimingInterfaceAID is used to identify a timing interface in the subrack:

Simple_TimingInterfaceAID ::= `tia | tib | tiall`

TimingInterfaceAID ::= BayAID–Simple_ShelfAID–Simple_TimingInterfaceAID

□

Electrical Connector Interface (ECI)

The system has up to 12 electrical connector interfaces (ECI) located on the rear side of the subrack. Note: Only the upper shelf row can be used for EP155 and EP51 configurations.

AIDs for electrical connector interfaces

The EciAID shall be used to identify a electrical connector interface in the subrack:

Simple_EciAID::= `eci61 |eci63 | eci65 |eci67 | eci72 | eci74 | eci76 | eci78 | eciall`

EciAID::=BayAID–Simple_ShelfAID–Simple_EciAID

Legal Simple_EciAIDs depend on the type of ECI as shown in the following table:

ECI type	Legal ECI AIDs
ECI (for EP155)	eci61 | eci63 | eci65 | eci67 | eci72 | eci74 | eci76 | eci78
ECI51 (for EP51)	eci61 | eci65 | eci72 | eci76

Slot

The *LambdaUnite*® MSS in a DUR subrack has in total two rows of circuit packs as shown in figure in "Frontside" (p. 2-22). The slots for the cross connect pack (XC) and for the controller pack (CTL) are distinguished from the universal slots (US). The postfix P(rotection) or W(orking) for the XC and CTL indicates its role in the 1+1 equipment protection relationship.

AIDs for universal slots

The UnivSlotAID is used to identify a universal slot in the system:

Simple_UnivSlotAID ::= {1 … 8, 12 … 19, 21 … 28, 32 … 39} | usall | all

UnivSlotAID ::= BayAID–Simple_ShelfAID–#–#–Simple_UnivSlotAID

Note: The us-prefix and leading zeroes have to be removed from Simple_UnivSlotAID. This change is not reflected in all examples below.

Note: The value "all" was added as an additional option to iterate over all slots not considering the type of slot.

AIDs for cross-connect slots

The XCSlotAID is used to identify a slot useable for an XC circuit pack in the system:

Simple_XCSlotAID ::= xcp | xcw | xcall | all

XCSlotAID ::= BayAID–Simple_ShelfAID–#–#–Simple_XCSlotAID

Note: The value "all" was added as an additional option to iterate over all slots not considering the type of slot.

AIDs for controller slots

The CTLSlotAID is used to identify a slot useable for a CTL circuit pack in the system:

Simple_CTLSlotAID ::= ctlp | ctlw | ctlall | all

CTLSlotAID ::= BayAID–Simple_ShelfAID–#–#–Simple_CTLSlotAID

Note: The value "all" was added as an additional option to iterate over all slots not considering the type of slot.

AIDs for slots

The SlotAID is used to identify a slot in the system:

Simple_SlotAID ::= Simple_UnivSlotAID | Simple_XCSlotAID | Simple_CTLSlotAID | all

SlotAID ::= BayAID–Simple_ShelfAID–#–#–Simple_SlotAID

The "#" in the SlotAID were used in the CG to identify protection group information for ports and tributaries. This addressing scheme is not supported.

OP40G slot restrictions

Since the OP40 is four slot wide, only the following Simple_UnivSlotAIDs are allowed:

Simple_SlotAIDOP40 ::= {4, 8, 15, 19, 24, 28, 35, 39}

SlotAIDOP40 ::= BayAID–Simple_ShelfAID–#–#–Simple_SlotAIDOP40

□

Circuit pack

AIDs for circuit packs

cp can be used in the port field to identify a circuit pack:

Simple_CpAID ::= cp

CpAID ::= SlotAID–cp

The AID for circuit packs does not include the LOXC packs.

AIDs for LOXC packs

loxc can be used in the port field to identify a LOXC pack:

Simple_LoxcAID ::= loxc

LoxcAID ::= SlotAID–loxc

The special LOXC circuit pack AID is needed to distinguish the LOXC pack from the I/O packs in the universal slots.

AIDs for all circuit packs

cp can be used in the port field to identify a circuit pack independent of the circuit pack type:

Simple_CpAID ::= cpall

CpAllAID ::= SlotAID–cpall

The AID for all circuit packs includes the LOXC packs.

□

Socket

Circuit packs may contain sockets where pluggable interfaces can be plugged in.

AIDs for sockets

The Simple_SockedAID shall be used in the port field to identify a socket contained on a circuit pack which is inserted in a slot.

Simple_SocketAID ::= `sc1 | sc2 | sc3 | sc4 | sc5 | sc6 | sc7 | sc8 | scall`

SocketAID ::=BayAID-Simple_ShelfAID-#-#-Simple_UnivSlotAID-Simple_SocketAID

Legal Simple_SocketAIDs depend of the CP provisioned for the slot as shown in the following table:

Circuit Pack Type Functional Name / Qualifier	Legal Socket AIDs
OPLB/PAR8	sc1 | sc2 | sc3 | sc4 | sc5 | sc6 | sc7 | sc8 | scall
OP2G5/PAR8	sc1 | sc2 | sc3 | sc4 | sc5 | sc6 | sc7 | sc8 | scall
OP10D/PAR2	sc1 | sc2 | scall
OPT2G5/PAR3	sc1 | sc2 | sc3 |scall

The system supports only a one to one relation between sockets and ports. Example: port no. 1 (1-1-#-#-1-1) is related to a socket no.1 (1-1-#-#-1-sc1) .

SDH/SONET port

AIDs for SDH/SONET ports

The SPortAID is used to identify SDH/SONET ports in the system:

Simple_SPortAID ::= {1 - 36 | all}

SPortAID ::= UnivSlotAID–Simple_SPortAID

Legal Simple_SPortAIDs depend on the type of CP provisioned for the slot as shown in the following table:

Functional Name	Legal Port AIDs	Restrictions
EP155	{1, 2, 3, 4, 5, 6, 7, 8} | all	none - valid for all supported qualifiers
OP155	{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16} | all	none - valid for all supported qualifiers
OP622	{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16} | all	none - valid for all supported qualifiers
OPLB	{1, 2, 3, 4, 5, 6, 7, 8} | all	none - valid for all supported qualifiers
OP2G5	{1, 3} | all	qualifier = PARENT
OP2G5	{1, 2, 3, 4} | all	qualifier != PARENT
OP2G5D	{1, 2, 3, 4, 5, 6, 7, 8} | all	none - valid for all supported qualifiers
OPT2G5	{1, 2,3} | all	none - valid for all supported qualifiers
OP10G	1 | all	none - valid for all supported qualifiers
OP10D	{1, 2} | all	none - valid for all supported qualifiers
OP40G	1 | all	none - valid for all supported qualifiers
LOXC	{1 - 96 } | all	none

The table above does not take into account the release information when a certain pack is supported.

The number of legal port AIDs shown in the table above does not necessarily reflect the capabilities of the actual circuit pack w.r.t. port numbers. Additional rows are added for the packs if they differ in terms of port numbers. The functional qualifier is then used as identification criteria - see restriction column.

The definition and range of *SPortAID* for OP10 also applies to a 10GE_WANPHY port variant of a OP10 pack due to reasons of simplicity.

□

Asynchronous ports

AIDs for asynchronous ports

The APortAID is used to identify asynchronous ports in the system: Simple_APortAID ::= { 1 - 36 }| all

APortAID ::= UnivSlotAIDæSimple_APortAID

Legal Simple_APortAIDs depend on the type of CP provisioned for the slot as shown in the following table:

Circuit Pack Type	Legal Port AIDs
EP51	{1 -36} | all

GbE port

AIDs for gigabit Ethernet ports

The EPortAID can be used to identify gigabit Ethernet LANports in the system:

Simple_EPortAID ::= `1 | 2 | 3 | 4 | all`

EPortAID ::= UnivSlotAID–Simple_EPortAID

Legal Simple_EPortAIDs depend on the type of CP provisioned for the slot as shown in the following table:

Circuit Pack Type	Legal Port AIDs
GE1	{1, 2, 3, 4} | all

Virtual concatenation group (VCG)

Virtual concatenation groups (VCG) represent the interface between the Ethernet Switch and the Ethernet over SDH/SONET function. Sometimes they are also denoted as WAN ports.

AIDs for VCG

The VCGAID can be used to identify VCG ports in the system:

Simple_VCGAID ::= `v1 | v2 | v3 | v4 | vall`

VCGAID ::= UnivSlotAID–Simple_VCGAID

Legal VCG AIDs depend on the type of CP provisioned for the slot as shown in the following table:

Circuit Pack Type	Legal VCG Port AIDs
GE1	`{v1, v2, v3, v4}	vall`

AU-3/STS-1 tributary

AIDs for AU-3/STS-1 tributaries

The STS1NumAID can be used to identify SDH/SONET tributaries in the system:

Simple_STS1NumAID ::= { 1, 2, …, 768 } | all

STS1NumAID ::= SPortAID–Simple_STS1NumAID

Legal Simple_STS1NumAIDs (STS-1/AU-3 numbers) depend on the type of CP provisioned for the slot and may depend on the provisioned pluggable interface as shown in the following table:

Circuit Pack Type	Legal STS-1/AU-3 Number	Restriction
EP51	1	none
EP155	{1 ...3}	none
OP155	{1 ...3}	none
OP622	{1 ... 12}	none
OPLB	{1 ...3}	Pluggable Interface = OM155
OPLB	{1 ...12}	Pluggable Interface = OM622
OP2G5	{1 … 48}	none
OP2G5D	{1 … 48}	none
OP10	{1 … 192}	none
OP10D	{1 … 192}	none
OP40	{1 … 768}	none

Virtual concatenation group (VCG) tributary

AIDs for VCG tributaries

The VCGNumAID can be used to identify VCG tributaries in the system:

Simple_VCGNumAID ::= { 1, ..., 51 } | all

VCGNumAID ::= VCGAID–Simple_VCGNumAID

VCG tributaries denote a group of X virtually concatenated STSs/VCs which depends on the type of CP provisioned for the slot and the VCG mapping.

- GE1: STS-1-Xv (X ε {1, ..., 21} or VC-4-Xv (X ε{1, ..., 7})
- OPT2G5: VC-4-17v

Legal Simple_VCGNumAIDs (VCG numbers) depend on the type of CP provisioned for the slot and the VCG type (mapping) as shown in the following table:

Circuit Pack Type / VCG mapping	Legal VCG Number
GE1/STS1-VC3	{1 … 21}
GE1/STS3c-VC4	{1, 4, 7, 10, 13, 16, 19}
OPT2G5/STS3c-VC4	{1, 4, 7, 10, 13, 16, 19, 22, 25, 28, 31, 34, 37, 40, 43, 46, 49}

The actual value is also dependent on the actual configuration.

□

HO Path Terminations

AIDs for Higher Order Path Terminations

The PTNumAID shall be used to identify HO path terminations in the system:

Simple_PTNumAID ::= { 1, 2, ..., 768 } | all

PTNumAID ::= SPortAID-Simple_PTNumAID

Legal Simple_PTNumAIDs depend on the type of CP provisioned for the slot and may depend on the provisioned Pluggable Interface as shown in the following table:

Circuit Pack Type / VCG mapping	Legal PT Number	Restrictions
EP155	1	none
OP155	{1 ... 3}	none
OP622	{1 ... 12}	none
OPLB	{1 ... 3}	Pluggable Interface = OM155
OPLB	{1 ... 12}	Pluggable Interface = OM622
OP2G5	{1 ... 38}	none
OP2G5D	{1 ... 48}	none
OP10	{1 ... 192}	none
OP10D	{1 ... 192}	none
OP40	{1 ... 768}	none

The type of HO path termination depends on the interface standard of the related port:

- STS1 for SONET ports
- VC4 for SDH ports

The VC4 path terminations use the same PTNumAIDs as the STS1 path terminations, but only every 4th PTNumAID is valid. The valid PTNumAIDs for the HO path termination types are:

HO Path Termination Type	Valid PTNumAIDs
STS1	1,2,3,4,5,6 .....
VC4	1, 4, 7, 10, ...

Lower Order Tributaries

The LONumAID shall be used to identify Lower Order Tributaries in the system.

Simple_LONumAID ::= { 1, ... 63 } | all

LONumAID ::= PTNumAID-Simple_LONumAID

Legal Simple_LONumAIDs depend on the type of HO path termination as shown in the following table:

HO Path Termination	Legal LO Tributary Numbers	LO Tributary Type
STS1 (SONET)	{1 ... 26}	VT1.5
VC4 (SDH)	{1 ... 63}	LO VC3, VC12

The LO VC3 tributaries use the same LONumAIDs as the VC12 tributaries, but only every 21st LONumAID is valid. The valid LONumAIDs for the LO tributaries are:

LO Tributary Type	Valid LONumAIDs
VC 12 (SDH)	1,2,3,4,5,6 63
LO VC3 (SDH)	1, 22, 43
VT1.5 (SONET)	1,2,3,4,5,6 28

Generic tributary

AIDs for generic tributaries

In some scenarios the specific tributary type is not of interest. The GenTribAID is used to identify generic tributaries in the system:

Simple_GenTribAID ::= Simple_STS1NumAID | Simple_VCGNumAID | all

Simple_GenTribPortAID ::= Simple_SPortAID | Simple_VCGAID | all

GenTribAID ::= BayAID–Simple_ShelfAID–#–#–Simple_UnivSlotAID–Simple_GenTribPortAID–Simple_GenTribAID

□

Generic Lower Order Tributaries

The Generic Lower Order Tributaries are the set of all types of lower order tributaries. The Generic Lower Order Tributaries can be used in the definition of TL1 commands when the command is applicable for all 3 types of lower order tributaries.

Generic Lower Order Tributary definition:

GenLOTribAID ::= LONumAID

□

Protection groups

Simple protection group AID

The system supports equipment and transmission protection. The ProtGrpAID can be used to identify equipment and transmission protection groups:

Simple_ProtGrpAID ::= eEquipmentProtGrpID | eall| {o|n|t|f} TransProtGrpID | oall | nall| tall| fall| all

ProtGrpAID ::= BayAID–Simple_ShelfAID–Simple_ProtGrpAID

The first character in the Simple_ProtGrpAID is denoted as *entity type qualifier*. It determines the type of protection as described in the following table:

Entity Type Qualifier	Protection Type
e (quipment)	1+1 or 1:1 (future) equipment protection group
o (ne plus one)	1+1 linear MSP/APS
n (by one)	1:n linear MSP/APS (including 1:1) – future
t (wo fibre)	2 fibre MS SPRING / BLSR
f (our fibre)	4 fibre MS SPRING / BLSR

The *EquipmentProtGrpID* is described in the following subsections.

Transmission protection group ID

The *TransProtGrpID* is a three digit identifier which will be assigned to the group when it is created by the user:

TransProtGrpID ::= { 001, …, 999 }

Types of transmission protection AIDs

The following types of transmission protection AIDs are defined according to the rules above:

OnePlusOne_ProtGrpAID ::=

BayAID–Simple_ShelfAID–oTransProtGrpID | BayAID–Simple_ShelfAID–oall

NByOne_ProtGrpAID ::=

BayAID–Simple_ShelfAID–nTransProtGrpID | BayAID–Simple_ShelfAID–nall

TwoFibre_ProtGrpAID ::=

BayAID–Simple_ShelfAID–tTransProtGrpID | BayAID–Simple_ShelfAID–tall

FourFibre_ProtGrpAID ::=

BayAID–Simple_ShelfAID–fTransProtGrpID | BayAID–Simple_ShelfAID–fall

Path protection group AIDs

The output tributary AID of the associated protected cross-connection is used to identify a path protection group AID.

□

Switch and timing equipment protection group

AID for switch and timing equipment group

The system can have a 1+1 equipment protection group for the XC320 CP which implements the switch and timing function. The SwitchAndTmgProtGrpAID can be used to identify the 1+1 equipment protection group for the XC320:

Simple_SwitchAndTmgProtGrpAID ::= `estgrp`

SwitchAndTmgProtGrpAID ::= BayAID–Simple_ShelfAID–`estgrp`

□

Controller equipment protection group

AID for controller equipment group

The system can have a 1+1 equipment protection group for the CTL CP which implements the system controller function (SCF) and data communications function (DCF).The CtlProtGrpAID can be used to identify the 1+1 equipment protection group for the CTL:

Simple_CtlProtGroupAID ::= `ectlgrp`

CtlProtGroupAID ::= BayAID–Simple_ShelfAID–`ectlgrp`

□

General equipment protection groups

Equipment Protection Group ID

The *EquipProtGrpID* is a two digit identifier which shall be assigned to the group when it is created by the user:

EquipProtGrpID ::= { 01, ..., 99 }

AID for EP155 equipment group

The *EP155ProtGrpAID* shall be used to identify the 1+1 equipment protection group for the EP155:

Simple_EP155ProtGroupAID::= eepEquipProtGrpID

EP155ProtGroupAID::=BayAID-Simple_ShelfAID-eepEquipProtGrpID

AID for EP51 equipment group

The EP51ProtGrpAID shall be used to identify the 1+1 equipment protection group for the EP151:

Simple_EP51ProtGroupAID::=eepEquipProtGrpID

EP51ProtGroupAID::=BayAIDæSimple_ShelfAID-eepEquipProtGrpID

AID for LOXC equipment group

LOXCProtGrpAID shall be used to identify the 1+1 equipment protection group for the LOXC:

Simple_LOXCProtGroupAID::=eloxc1

LOXCProtGroupAID::=BayAIDæSimple_ShelfAID-Simple_LOXCProtGroupAID

□

Examples

AID examples

The following tables gives examples for the various AIDs described in the previous sections:

Entity	Example AID
Bay / Rack	1
Shelf / Subrack	1–1
Equipment protection group (Switch and Timing Function)	1–1–estgrp
Equipment Protection Group (Controller)	1–1–ectlgrp
Equipment Protection Group EP155	1–1–eep01
1+1 MSP / APS protection group	1–1–o100
Two Fiber MSSPRING/BLSR protection group	1–1–t110
Fan Unit	1–1–fan
PI	1–1–pia
TI	1–1–tia
EI	1–1–eci61
Backplane	1–1–backpl
User Panel	1–1–usrpnl
CI-CTL	1–1–cictl
User Byte Port	1–1–ubio3
LAN Ports	1–1–lan2
Slot	1–1–#–#–2
CP	1–1–#–#–xcw-cp
Socket	1-1-#-#-5-sc2
NVM	1–1–#–#–ctlw-nvm
SPort	1–1–#–#–1–3
APort	1–1–#–#–21–4
EPort	1–1–#–#–2–1
VCG Port	1–1–#–#–2–v1
STS-1 / AU-3 Trib	1–1–#–#–1–3–1
VCG Trib	1–1–#–#–2–v1–1

3 Common data types

Overview

Purpose

The following data types are used in the description of TL1 messages, the definition is given in Backus-Naur Form (characters of the Backus-Naur Form are enclosed in ″ ″ when they are meant as literal in the definition):

Contents

Conventions used in message descriptions

GR-831-CORE Definition	Name used in TL1 messages	Definition
nil	nil	`nil`, symbolizes the absence of any other thing
let	letter	A | B | … | Z | a | b | … | z
dig	digit	0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9
ident	identifier	<letter> (<letter> | <digit>) *
sym name	symbolic name	<digit>* ((<letter> | ″+″ | # | %) <digit>*)+
alphanum	alphanumeric string	(<letter> | <digit>) +
dec num	decimal number	[D″]<digit>* [.] <digit>+
arith exp	arithmetic expression	″(″ [″+″ | –] <digit>*[.]<digit>+ ″)″
hex num	hexadecimal number	[H″] (<digit> | A | B | C | D | E | F)+
oct num	octal number	[O″] (0 | 1 | 2 | 3 | 4 | 5 | 6 | 7)+
bin num	binary number	[B″] (0 | 1)+
keyed num	keyed number	[K″] (<digit> | A | B | C | D | ″*″ | #)+
num str	numeric string	<digit>+
integer	integer	<numeric string> | ″(″ [″+″ | -] <digit>+ ″)″
text str	text string	″(\″ | \\ | <any character except ″ or \>)* ″
inner str	inner string	\″ (″″ | \\ | <any character except ″ or \>)* \″
aid	AID	see Chapter 2, “AID structure”.
	AID list	<AID> (&<AID>)*
tid	TID	<identifier>(-<identifier>) *|<text string> see also RTRV-HDR for *LambdaUnite*® MSS specific constraints
	character string	any character except: ; , : ″
	value set	set of predefined <character strings>
	alphanumeric value set	set of predefined <alphanumeric strings>
	numeric value set	set of predefined <numeric strings>
	AID string	(letter | digit | _ | - | & | #)+

4 TL1 commands - alphabetical order

Overview

Purpose

This section contains the TL1 commands definition in alphabetical order.

Contents

ACT-USER: Activate user

The ACT-USER command must be initiated to set up a login session with the NE.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): Any

Priority: 4

Abortable: No

Input format

Command Syntax: `ACT-USER`:*tid*:*uid*:*ctag*::*pid*;

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. uid – User Identifier
   This is the unique user login identifier for which the ACT-USER login command is intended. Grouping and/or ranging of *uid* values for the ACT-USER command are not allowed. Valid *uid* values for the ACT-USER command are case-sensitive alphanumeric strings which have been previously provisioned as valid login IDs in the NE.
   Type: alphanumeric string (case-sensitive)
   Range: 5 – 10 characters
   The *uid* ALL is not allowed in any combination of upper or lower cases.
   Default: not applicable
3. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
4. pid – Password Identifier
   This required parameter is the confidential password authenticator for the given *uid.* Password strings are transmitted in non-encrypted form in the ACT-USER command; are encrypted when stored in the NE; and are never transmitted from the NE.
   Type: character string (case-sensitive)
   Range: 6 to 10 legal characters. Valid passwords consist of at least two non-alphabetic characters with at least one special character. The special character can be one of the required non-alpha characters. For example, TEST1+ is a valid password. The first character of a password must be a letter.
   Default: For the two superusers the default password is: UNITE+01 for User ID LUC01 and UNITE+02 for User ID LUC02. For other users: not applicable.

Output format

Normal Completion Message without Customer Proprietary Banner:

When a user logs in successfully while *no* customer proprietary has been provisioned, then the following response is returned:

```
   sid date time
M  ctag COMPLD
   "uid:lastdate,lasttime,attempts,systype,release,
   upc:spec_block"
   /* Lucent Technologies LambdaUnite MSS Release release
   User Privilege Code: upc
   LUCENT TECHNOLOGIES - PROPRIETARY
   THIS SOFTWARE CONTAINS INFORMATION OF LUCENT
   TECHNOLOGIES AND IS NOT TO BE DISCLOSED OR USED
   EXCEPT IN ACCORDANCE WITH APPLICABLE AGREEMENTS.
   NOTICE: THIS IS A PRIVATE COMPUTER SYSTEM.
   USE OF THIS SOFTWARE IS GOVERNED SOLELY AS EXPRESSLY
   AUTHORIZED IN THE RELEVANT AGREEMENT BETWEEN
   LUCENT TECHNOLOGIES AND CUSTOMER.
   UNAUTHORIZED ACCESS OR USE MAY LEAD TO PROSECUTION.
   */
;
```

Normal Completion Message with Customer Proprietary Banner:

When a user logs in successfully while *a* customer proprietary has been provisioned, then the following response is returned:

```
   sid date time
M  ctag COMPLD
   "uid:lastdate,lasttime,attempts,systype,release,
   upc:spec_block"
   /* Lucent Technologies LambdaUnite MSS Release release
   User Privilege Code: upc
   LUCENT TECHNOLOGIES - PROPRIETARY
   THIS SOFTWARE CONTAINS INFORMATION OF LUCENT
   TECHNOLOGIES AND IS NOT TO BE DISCLOSED OR USED
   EXCEPT IN ACCORDANCE WITH APPLICABLE AGREEMENTS.
   NOTICE: THIS IS A PRIVATE COMPUTER SYSTEM.
   USE OF THIS SOFTWARE IS GOVERNED SOLELY AS EXPRESSLY
   AUTHORIZED IN THE RELEVANT AGREEMENT BETWEEN
   LUCENT TECHNOLOGIES AND CUSTOMER.
   UNAUTHORIZED ACCESS OR USE MAY LEAD TO PROSECUTION.
   */
   /*
   <LINE1>
   <LINE2>
    ...
    ...
```

```
   ...
   <LINE10>
   <LINE11>
   */
;;
```

Expired password:

If the login request would otherwise complete successfully, but the user password has expired or it is the first login, the following partial completion response is returned:

```
   sid date time
M  ctag PRTL
   "uid:lastdate,lasttime,attempts"
   /* Your password has expired. Until you change your password (ED-PID)
      you will not be allowed further access to this Network Element.
   */
;
```

Advance notice of password expiration:

If the user password is about to expire, the following line is added at the bottom of the login banner, where 'x' is a number from 1 to 5:

```
   ...
   Your password will expire in x days.
   */
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section for the RTRV-HDR command.

Output parameters

Command parameters

1. uid – User Identifier
   This is included in the command by the OS/CIT and repeated by the NE as a confirmation that the given user identifier is successfully logged in.
2. lastdate – Last uid Login Date
   This is the date of the last session established by this *uid.*
   Type: value set of the format YY-MM-DD
   Range: Y, M, D are digits. Leading zeros are not suppressed. YY represents the last two digits of the year, MM the month, DD the day.
   Default:
   Date of the User Id creation for the first login after the User Id has been created
   Date of the User Id enabling for the first login after the User Id was disabled.

3. lasttime – Last uid Login Time
   This is the time of the last session established by this *uid.*
   Type: value set of the format HH-MM-SS
   Range: H, M, S are digits. Leading zeros are not suppressed. HH represents the hours, MM the minutes, SS the seconds. The 24 hour format is used.
   Default:
   Date of the User Id creation for the first login after the User Id has been created
   Date of the User Id enabling for the first login after the User Id was disabled.
4. attempts – Unsuccessful Login Attempts
   This is the number of unsuccessful login attempts since the last successful login session on this ne.
   Type: integer
   Range: 0 – 98
5. systype – System Type
   This specifies the type of system.
   Type: value set
   Range: WaveStar_UNITE
   Default: WaveStar_UNITE
6. release – Release
   This is the software Release number of the system.
   Type: value set in the form xx.yy.zz
   Range: x, y, z are digits. Leading zeros are not suppressed. The version number ranges from 01.00.00 … 99.99.99
   Example: 01.02.03
   Default: 01.00.00
7. upc – User Privilege Code List
   This parameter specifies the user privilege code UCFC/UCAL pair assigned to a user. Multiple UCFC/UCALs can be specified using single ampersands (&). If a user try to operate a command with a privilege code higher than assigned to the user for the category of the command the command will be denied.
   Type: alphanumeric string Also allowed is '&' for concatenation. Range: Pi, Mi, Ti, Si, PMi, Di where i is an integer ranging from 0 to 5, with i=0 implying that there is no authorization for the functional category. S0 is not allowed.
   Default: P1&M1&T1&S1&PM1 except for super users: P5&M5&T5&S5&PM5.
   Note: The system does not support commands for the D (DEBUG) category.
   Setting this privilege code does not have any effect on the system behavior and it will not be visible in output direction. It is only for compatibility.

8. line1 - Line 1 of the Customer Provisionable Banner.
   Setting line1 to an empty string will suppress the output of the Customer Provisionable Banner in the resonse to the ACT-USER command.
   Type: text string
   Range: 2 ... 62 characters, case-sensitive. The beginning and ending double quotes are included.
   Default: none. The initial value shall be an empty string.
9. line 2 .... line 11 - Line 2 (....Line 11) of the Customer Provisionable Banner.
   Type: text string
   Range: 2 ... 62 characters, case-sensitive. The beginning and ending double quotes are included.
   Default: none. The initial value shall be an empty string.

Spec block parameters

1. sysavst - System Availability Status
   Because logins are only possible after the system has finished the recovery, the only possible value of sysavst is AVAILABLE.
   Type: alphanumeric value set.
   Range: AVAILABLE
2. tmleft – Time left before password expires
   Time left before password expires. If there are more than 5 days left before the password expires, this parameter is omitted.
   Type: integer
   Range: 1 … 5

Detailed behavior description

An active TL1 access login session is required at each NE in order to interact with that NE (including receiving autonomous message output as well as using TL1 commands).

A maximum of one login per active session is allowed. Any subsequent attempt on the same session is denied. But the user can login several times on different sessions.

Until a successful login attempt is complete for a given NE, there is no communication (autonomous or command responses) outbound from the NE except to DENY unsuccessful login attempts.

If a user password has expired upon execution of the ACT-USER command, the ACT-USER will be accepted but that user will not be able to perform any function or receive any autonomous message output until the associated password has successfully been modified. This will also occur if the user logs in the first time.

A special banner message will be displayed as part of the command completion response, informing the user that the password has expired and must be updated (see the OUTPUT FORMAT section). The user is allowed to use either ED-PID to update the password identifier or CANC-USER to terminate the session.

When the NE receives an ACT-USER command, the given login ID will initiate a login session on the NE provided that a provisioned login ID and correct password are entered.

When the communication with the NE fails, all active logins to that NE are terminated without notice to the user. Similarly, all active logins to a targeted NE are terminated if a communication failure occurs between the local NE and that remote NE or if an intermediate NE is reset or initialized.

The ACT-USER command does not generate a REPT DBCHG message. Each ACT-USER TL1 command is entered in the Security Information Log.

The Customer Provisionable Banner shall be displayed only if LINE1 of the Customer Provisionable Banner is not an empty string; otherwise the Customer Provisionable Banner shall be omitted.

Example input/output

The following example shows a successful login session initiation attempt with no Customer Provisionable Banner.

```
ACT-USER:LT-UNITE-123:nbguser1:123456::kj5lee+3;
   LT-UNITE-123 03-12-19 08:00:00
M  123456 COMPLD
   "nbguser1:03-12-18,09-00-00,1,WaveStar_UNITE,
   05.00.00,P3&M3:sysavst=AVAILABLE"
   /* Lucent Technologies LambdaUnite MSS Release 05.00.00
   User Privilege Code: P3&M3
   LUCENT TECHNOLOGIES - PROPRIETARY
   THIS SOFTWARE CONTAINS INFORMATION OF LUCENT TECHNOLOGIES
   AND IS NOT TO BE DISCLOSED OR USED EXCEPT IN ACCORDANCE
   WITH APPLICABLE AGREEMENTS.
   NOTICE: THIS IS A PRIVATE COMPUTER SYSTEM.
   USE OF THIS SOFTWARE IS GOVERNED SOLELY AS EXPRESSLY
   AUTHORIZED IN THE RELEVANT AGREEMENT BETWEEN
   LUCENT TECHNOLOGIES AND CUSTOMER.
   UNAUTHORIZED ACCESS OR USE MAY LEAD TO PROSECUTION.
   */
;
```

The following example shows a partial completion response to a login session initiation attempt:

```
ACT-USER:LT-UNITE-123:nbguser1:123456::kj5lee+3;
   LT-UNITE-123 01-01-01 08:00:00
M  123456 PRTL
   "nbguser1:00-12-31,09-00-00,23"
   /* Your password has expired. Until you change your password (ED-PID)
    you will not be allowed further access to this Network Element */
```

;

Note: A blank line in front of the terminator ″;″ can be ignored.

Error responses

The general error responses defined in “RTRV-HDR: Retrieve header” (p. 4-1736) are also valid for this command.

Validation rule: Maximum logins exceeded

If a user attempts to login after the maximum number of login sessions has been reached, the following error message will be displayed.

Error code: `SARB - Status, All Resources Busy`

Validation rule: Invalid uid and/or pid

If the NE receives an ACT-USER command with an invalid *uid* (*uid* not in the NE database or *uid* syntactically incorrect), invalid *pid* or both.

Error code: `IDNV - Input, Data Not Valid`

Validation rule: Disabled User ID

If a user attempts to log in using a disabled User ID, the login is denied and the following error message will be displayed:

Error code: `IDNV - Input, Data Not Valid`

Validation rule: Expired password and unsuccessful change of password

The user will be allowed three attempts to change their password. If the third attempt fails, the user will be logged out and the association dropped. The execution of any command prior to the successful change of the password will be counted as one of the three attempts to change the password. This includes failures of the ED-PID command due to incorrect data, attempts to execute valid commands other than the ED-PID command, or invalid commands, possibly due to a data entry error. In all cases, the system will return the following error response.

Error code: `IDNV - Input, Data Not Valid`

Validation rule: Login on established session

If the system receives an ACT-USER command on an already established session the system responds with the following error response:

Error code: `ICNV - Input, Command Not Valid`

Validation rule: Maximum number of user sessions via T-TD on Gateway NE

If a user session shall be established via T-TD on a Gateway NE with CTL/- or CTL/2 with 20 TCP sessions and while already 300 user sessions are existing through the T-TD, then the following error response shall be sent:

Error code: `SSRE - Status, System Resources Exceeded (sent by T-TD, TL1_TTD)`

This error response is sent by the Gateway NE, but contains the TID from the ACT-User command.

Validation rule: Maximum number of user sessions via T-TD on Gateway NE with CTL/4

If a user session shall be established via T-TD on a Gateway NE with CTL/4T or CTL/4S with 20 TCP sessions and while already 300 user sessions are existing through the T-TD, then the following error response shall be sent::

Error code: `SSRE - Status, System Resources Exceeded (sent by T-TD, TL1_TTD)`

This error response is sent by the Gateway NE, but contains the TID from the ACT-User command.

Validation rule: Maximum number of user sessions via T-TD on Gateway NE

If a user session shall be established via T-TD on a Gateway NE with CTL/3 with 20 TCP sessions and while already 600 to 603 user sessions are existing through the T-TD, then the following error response shall be sent:

Error code: `SSRE - Status, System Resources Exceeded (sent by T-TD, TL1_TTD)`

This error response is sent by the Gateway NE, but contains the TID from the ACT-User command.

Validation rule: maximum number of user sessions via T-TD on Gateway NE per TCP connection

If a user session shall be established via T-TD on a Gateway NE using a TCP connection on which already 300 user sessions are existing, then the following error response shall be sent:

Error Code: `SSRE - Status, System Resources Exceeded (sent by T-TD, TL1_TTD)`

This error response is sent by the Gateway NE, but contains the TID from the ACT-User command.

Related TL1 messages

- “CANC-USER: Cancel user” (p. 4-39)
- “CANC-USER-SECU: Cancel user security” (p. 4-41)
- “ED-PID: Edit password identifier” (p. 4-546)
- “DLT-USER-SECU: Delete user security” (p. 4-197)
- “ED-USER-SECU: Edit user security” (p. 4-945)

- "ENT-USER-SECU: Enter user security" (p. 4-1410)
- "RTRV-USER-SECU: Retrieve user security" (p. 4-2240)
- "RTRV-PRMTR-SFTWR: Retrieve parameter software" (p. 4-1991)

References

TR-NWT-000835, OTGR Section 12.5: Operations Applications Messages – NE and Network System Security Administration Messages.

□

ALW-MSG: Allow message

The ALW-MSG command allows the NE to resume the forwarding of autonomous messages previously suspended with the INH-MSG command.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M3

Priority: 1

Abortable: no

Input format

Command Syntax: `ALW-MSG-ALL`*:tid::ctag*[::,,,,*sessions*];

The purpose of the commas in case the optional parameter *sessions* is present is that the format is compliant with non-supported position defined parameters in GR-833.

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
3. sessions – Affected sessions
   Refer to the definition of output parameter *sessions* in "RTRV-ATTR-MSG: Retrieve attribute message" (p. 4-1627).

Output format

If the ALW-MSG request completes successfully, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The command enables autonomous message reporting for *sessions*.

If this command is executed when autonomous messages are already being transmitted, it is complete successfully.

Example input/output

The following is an example of the INH-MSG command:

```
ALW-MSG-ALL:LT-UNITE::123456;
   LT-UNITE 00-11-15 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the ALW-MSG command.

Related TL1 messages

- "INH-MSG: Inhibit message" (p. 4-1444)
- "RTRV-ATTR-MSG: Retrieve attribute message" (p. 4-1627)

References

GR-833-CORE

□

APPLY: Apply software generic

The APPLY command can be used to install a copy of a software generic stored in the NE, overwriting the currently executing software. Installation of the software causes the system to reset.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S4

Priority: 2

Abortable: No

Input format

Command Syntax: `APPLY`:*tid*::*ctag*::*[,,qualifier]*;

The two commas before *qualifier* are kept for compatibility reasons for products, for which scheduling of an APPLY command is possible.

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
3. qualifier
   Description: The *qualifier* selects the software generic to be installed..
   - INSTALL causes the software download to be installed. This is the default action if no value is specified for *qualifier*. Prior to installation, the software state must be equal to DOWNLOADED. The software state can be retrieved by RTRV-PRMTR-SFTWR.
   - TRIAL causes the downloaded software to be installed in a trial phase. During the trial phase, it is possible to switch back to the previously installed software and database. Prior to installation, the software state must be equal to DOWNLOADED. The software state can be retrieved by RTRV-PRMTR-SFTWR.

- COMMIT terminates the trial phase of a newly installed software. When the trial phase is terminated, a switch back to the previously installed software and database is no longer possible. The termination of the trial phase is allowed with any state of the previous SW generic and the previous database.
- REVERT forces the system to switch back to the previously installed software and database. The switch back is only possible during trial phase. All provisioning done during the trial phase will be lost. Prior to the switch back, the state of the previous SW generic and the state of the previous database must be PRESERVED. The software and database states can be retrieved by RTRV-PRMTR-SFTWR and RTRV-PRMTR-DATA.

Type: alphanumeric value set.
Range: INSTALL, TRIAL, COMMIT, REVERT
Default: INSTALL.

Output format

If the NE fully complies with the APPLY command successfully, then the following completion response is given:

```
   sid date time
M  ctag COMPLD
   /* New software generic installation in progress */
;
```

Detailed behavior description

APPLY being denied during installation

If an installation is already in progress, then another request for an installation will be denied.

Generation of REPT DBCHG message

The APPLY command generates a REPT DBCHG message. This message will be generated before the command causes the system to be reset.

Installation recorded in history log

The initiation of an installation is recorded in history log.

Reactions after installation completed

When a NE receives an APPLY command and as a result successfully installs a new software generic, the NE loses any command messages that were pending and all alarms are cleared. All performance monitoring bins are cleared, and any conditions are cleared.

SW Generic Installation with Trial Phase

The qualifier value TRIAL shall prepare the installation of the downloaded SW generic in trial phase. With the trial phase, the user keeps the option to switch back to the

previous software and database. The trial phase must be explicitely invoked with qualifier TRIAL. If the qualifier is omitted, or INSTALL, the system does not enter the trial phase and a switch back to the previous software is not possible.

SW Generic Running in Trial Phase - Software and database state during trial phase

During trial phase, the software and database state shall be:

- SW state in current NVM: RUNNING
- SW state in previous NVM: PRESERVED
- DB state in current NVM: RUNNING
- DB state in previous NVM: PRESERVED.

Any other combination of state values shall not be considered as trial phase. If the system detects during start up that only one of the previous NVM states is PRESERVED, then the state PRESERVED shall be modified to PREVIOUS.

SW Generic Running in Trial Phase - Commands not allowed in trial phase

As long as the software is running in trial phase, the system shall not allow to execute commands that will make a switch back to the previous software impossible. The commands not allowed in trial phase are:

- Software Download via CPY-MEM or COPY-RFILE
- Database Restoration via CPY-MEM or COPY-RFILE
- Activation of ONNS with ED-EQPT (System).

SW Generic Running in Trial Phase - Termination of the trial phase

The qualifier value COMMIT shall terminate the trial phase. The SW state and DB state in previous NVM shall be set to PREVIOUS. After the trial phase is terminated, the system shall allow the exection of TL1 commands for Software Download, Database Restoration and ONNS activation.

An attempt to terminate a trial phase shall always succeed, independent, whether the system is in trial phase or not. If the system is not in trial phase, and either the SW state or the DB state of the previous NVM is still PRESERVED, then the system shall only set this state from PRESERVED to PREVIOUS.

The SW is in trial phase, as long as the SW and the DB state of the previous NVM is PRESERVED. If only one of the states is PRESERVED, while the other is PREVIOUS, the trial phase is assumed to be terminated. When the APPLY command with the qualifier COMMIT is executed, the remaining PRESERVED state is also changed to PREVIOUS. This clean-up action removes the inconsistent SW or DB state.

SW Generic Running in Trial Phase - Switch back to the previous software and database

As long as the newly installed software is in trial phase, the system shall allow to switch back to the previously installed software and database. The qualifer value REVERT forces the system to swap current and previous NVM for software and database.

After the switch back to the previous software and database has been performed, the software and database state shall be:

- SW state in current NVM: RUNNING
- SW state in previous NVM: PREVIOUS
- DB state in current NVM: RUNNING
- DB state in previous NVM: PREVIOUS.

With the switch back to the previous software and database, any provisioning done during the trial phase will be lost.

Example input/output

The following example shows an APPLY command requesting installation of a new generic:

```
APPLY:LT-UNITE::123456;
   LT-UNITE 00-11-01 09:45:28
M  123456 COMPLD
   /* New Software generic installation in progress */
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command error response section. The error responses listed there also apply to the APPLY command. Additional error responses that specifically apply to this command are defined in the following:

Validation rule: Temporary system exhaustion

If the system is experiencing temporary exhaustion of allocated resources, the system responds with:

Error code: `SARB - Status, All Resources Busy, system limit exceeded`

Validation rule: APPLY already in progress

If an APPLY request is issued and an installation is already in progress or a resource is busy for other reasons, the system responds with:

Error code: `SARB - Status, All Resources Busy`

Validation rule: Non-Hardware system difficulties

If the command cannot be completed due to system difficulties other than hardware or equipment, the system responds with:

Error code: `SROF - Status, Requested Operation Failed`

The following list identifies conditions that will cause an SROF error response:

- Install failure

Validation rule: Generic not available

If the command failed because the generic is not available, the following error response is returned:

Error code: `ENSG - Equipage, Not Software Generic, generic not available`

Validation rule: APPLY applied on corrupted software

If an APPLY request is entered and an uncorrupted copy of software does not reside in the NE, then the following error response is given:

Error code: `SROF - Status, Requested Operation Failed, other system failure`

Validation rule: Second APPLY on same software

If an APPLY request is entered and the software copy has been previously installed (that is, its state is PREVIOUS), then the following error response is given:

Error code: `SNVS - Status, Not in Valid State`

Validation rule: File inappropriate

If the type of file is inappropriate for installation to the NE, then the following error response is given:

Error code: `SDNC - Status, Data Not Consistent`

Validation rule: SW installation in trial phase while ONNS is active

Execution of the command with qualifier = TRIAL shall not be allowed if the parameter xcsetup has the value ″SWISS″.

Error code: `SNVS - Status, Not in Valid State, ONNS is active`

Validation rule: Switch back to previous SW only during trial phase

The switch back to the previously installed software and database shall only be allowed while the system is in trial phase, i.e. the software has been installed using the qualifer value TRIAL and the trial phase has not been terminated with COMMIT.

Error code: `SNVS - Status, Not in Valid State, switch back to previous software only allowed in trial phase`

Related TL1 messages

- "CPY-MEM: Copy memory" (p. 4-76)
- "RTRV-PRMTR-DATA: Retrieve parameter data" (p. 4-1982)
- "RTRV-PRMTR-SFTWR: Retrieve parameter software" (p. 4-1991)

□

APPLY notification

Syntax

The APPLY notification has the following specific syntax:

Command Syntax: `APPLY:,,`*qualifier*;

The output parameters sid, date, time, and atag are described in the REPT DBCHG notification.

Output parameters

Command parameters

1. qualifier
   Description: The *qualifier* selects the software generic to be installed..
   - INSTALL causes the software download to be installed. This is the default action if no value is specified for *qualifier*. Prior to installation, the software state must be equal to DOWNLOADED. The software state can be retrieved by RTRV-PRMTR-SFTWR.
   - TRIAL causes the downloaded software to be installed in a trial phase. During the trial phase, it is possible to switch back to the previously installed software and database. Prior to installation, the software state must be equal to DOWNLOADED. The software state can be retrieved by RTRV-PRMTR-SFTWR.
   - COMMIT terminates the trial phase of a newly installed software. When the trial phase is terminated, a switch back to the previously installed software and database is no longer possible. The termination of the trial phase is allowed with any state of the previous SW generic and the previous database.
   - REVERT forces the system to switch back to the previously installed software and database. The switch back is only possible during trial phase. All provisioning done during the trial phase will be lost. Prior to the switch back, the state of the previous SW generic and the state of the previous database must be PRESERVED. The software and database states can be retrieved by RTRV-PRMTR-SFTWR and RTRV-PRMTR-DATA.

   Type: alphanumeric value set.
   Range: INSTALL, TRAIL, COMMIT, REVERT.
   Default: INSTALL.

Example output

The following is an example for an APPLY notification using the qualifier INSTALL:

```
   LT-UNITE 00-11-01 15:00:00
A  000 REPT DBCHG
   "TIME=15-00-00,DATE=00-11-03:APPLY::,,INSTALL"
;
```

AUD: Perform audit data

Overview

The AUD-mod command requests ONNS data to be compared either with local host NE or with the rest of network for audit. Any discrepancies in data shall be notified as a result in the response. The audit results provide users with information to perform synchronization (either manually or automatically by NN) to improve overall integrity of NN data.

The targeted NN data for audit process are cross-connect map, port object, and path data. The modifier of the AUD-mod command indicates the scope of data to be checked.

AUD-LOCAL

AUD-LOCAL triggers local data-audit that is to identify any differences in local NN data from host NE data with respect to port object and cross-connect map. Depending on the result, if any discrepancies found, user can ED-SyncData-LOCAL command to request automated data synchronization process by ONNS.

The AUD-LOCAL command requests to perform an audit for local host/NN data comparison.

AUD-PATHNBR

AUD-PATHNBR triggers path neighbor data-audit that is to identify any differences in path data kept locally with the neighboring nodes. NN will exchange the current path information with its neighboring NN nodes (in terms of transport network topology) about the NN paths that traverse through this node. For this cross multiple-NE process, NN provides only data-audit without automated process for synchronization. However, based on the result of data-audit, user can fix pathID via ED-SyncData-path command only if the correct value is clearly known.

The AUD-PATHNBR command requests to perform an audit for local path data with neighbor node path data comparison.

Properties

User Privilege Code (UCFC/UCAL): P3.

Abortable: No

Input format

Command Syntax of AUD-LOCAL: `AUD-LOCAL:`*srcTid:srcAid:ctag;*

Command Syntax of AUD-PATHNBR: `AUD-PATHNBR:`*srcTid:srcAid:ctag;*

Input parameters

Command parameters

1. srcTid – Target Identifier
   Target Identifier of the source node is the logical name of the Host NE. ONNS uses the same *tid* used by Host NE.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: The *srcTid* parameter is a case insensitive ASCII character string of up to 20 characters with the allowed character set as described above.
2. ctag – Correlation Tag
   This parameter is included in the command by the TL1 user and is repeated by the NE in the response to allow the TL1 user to associate the command and response messages.
   The *ctag* parameter is a character strings of up to 6 ASCII characters. The allowed ASCII character string is comprised of alphanumeric characters beginning with a letter, or decimal numerals (a decimal numeral is a string of decimal digits with an optional non-trailing “.”).
3. srcAid
   Source node ONNS application access identifier of the ONNS controller OS command interface port.
   Range: Source node Access IDentifier parameter of the source node controller ONNS command interface entity has the allowed values shown here: snn.

Output format

If the AUD-LOCAL request completes successfully, the following normal completion response is returned:

```
<para>The output parameters <emphasis>srcTid</emphasis>, <emphasis>
     date</emphasis>, <emphasis>time</emphasis>, and <emphasis>
     ctag</emphasis> and their syntax are included in the Output
     parameters section of the <xref linkend="rtrv-path-swiss">
     command.</para>
   srcTid date time
M  ctag COMPLD
   "ExtraPortIDs=1portID,2portID,...,N1portID"
   "MissingPortIDs=1portID,2portID,...,N2portID"
   "ExtraNNXcons=1connPtID1,-X-,1connPtID2,1bandwidth,
   1pathID:2connPtID1,-X-,2connPtID2,2bandwidth,2pathID
   :...
   :N3connPtID1,-X-,N3connPtID2,N3bandwidth,N3pathID"
   "MissingNNXcons=1connPtID1,-X-,1connPtID2,1bandwidth
   :2connPtID1,-X-,2connPtID2,2bandwidth
   :...
   :N4connPtID1,-X-,N4connPtID2,N4bandwidth"
   "ExtraNonNNXcons=1connPtID1,-X-,1connPtID2,1bandwidth
   :...
```

```
   :N5connPtID1,-X-,N5connPtID2,N5bandwidth"
   "MissingNonNNXcons=1connPtID1,-X-,1connPtID2,1bandwidth
   :...
   :N6connPtID1,-X-,N6connPtID2,N6bandwidth"
   "MultipleNNXcons=1pathID,1connPtID1,-X-,1connPtID2,
   1connPtID3,-X-,1connPtID4, 1bandwidth
   :...
   :N7pathID,N7connPtID1,-X-,N7connPtID2,N7connPtID3,
   -X-,N7connPtID4,N7bandwidth"
;
```

The output shows any mismatched port objects and mismatched cross-connect information in comparing NN data and host NE data.

For mismatched port objects, the cases may occur are as follows:

- port object exists only in NN data, but not in host NE data (ExtraPortIDs)
- port object exists only in host NE data, but not in NN data (MissingPortIDs).

For mismatched cross-connect information, the cases may occur are as follows:

- NN owned cross-connect exists only in NN data, but not in host NE (ExtraNNXcons)
- NN owned cross-connect exists only in host NE data, but not in NN data (MissingNNXcons)
- non-NN owned cross-connect exists only in NN data, but not in host NE (ExtraNonNNXcons)
- non-NN owned cross-connect exists only in host NE data, but not in NN data (MissingNonNNXcons).

The symbol (-X-) indicates that a cross connection is present between the connPtIDs on an output line.

If the AUD-PATHNBR request completes successfully, the following normal completion response is returned:

```
   srcTid date time
M  ctag COMPLD
   "MismatchedPathIDs=1connPtID1,-X-,
   1connPtID2,1bandwidth,1localpathID,1nbrnodeID,
   1nbrpathID:2connPtID1,-X-,2connPtID2,2bandwidth,
   2localpathID,2nbrnodeId,2nbrpathID
   :...
   :NconnPtID1,-X-,NconnPtID2,Nbandwidth,NlocalpathID,
   NnbrnodeID,NnbrpathID;"
;
```

The output shall show any mismatched path data in comparing path information at a local NN with its neighboring nodes.

The cases may occur are as follows:

- Local node and neighboring node have different *pathID*s for the same path. In this case, cross-connect information at a local node, its *pathID* at local node (localpathID), neighboring nodeID (*nbrnodeID*), and the corresponding *pathID* at neighboring node (*nbrpathID*) shall be displayed.
- Local node has a cross-connect that is connected to a neighboring node, but the neighboring node does not have the corresponding cross-connect or path information. In this case, cross-connect information at a local node, its *pathID* at local node (*localpathID*), and neighboring nodeID (*nbrnodeID*), but with empty corresponding *pathID* at neighboring node (*nbrpathID* = NULL) shall be displayed.
- Neighboring node has a cross-connect that is connected to a local node, but the local node does not have the corresponding cross-connect or path information. In this case, cross-connect information at the neighboring node, neighboring nodeID (*nbrnodeID*), and its corresponding *pathID* at neighboring node (*nbrpathID*), but with empty *pathID* at local node (*localpathID* = NULL) shall be displayed.

The symbol (-X-) indicates that a cross-connection is present between the connPtIDs on an output line.

If the AUD-CONN request completes successfully, the following normal completion response is returned:

```
   srcTid date time
M  ctag COMPLD
   "PathOnlyinCONN=pathID1,pathID2,...,pathIDN"
   "PathNotInCONN=pathID1,pathID2,...pathIDM"
;
```

The output shall show any mismatched path data in comparing path information stored in CONN and in NNDM at local node.

The cases may occur are as follows:

- Path information exists in CONN, but NNDM does not have a cross-connect associated with that *pathID* - *PathOnlyInCONN*
- Path (valid cross-connect with pathID) exists in NNDM, but the corresponding path information does not exist in *CONN* - *PathNotInCONN*.

Output parameters

Command parameters

The output parameters *srcTid*, *date*, *time*, *ctag*, *completion code* and their syntax are included in the Output parameters section of the "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950) command.

1. localpathID
   The PathID of the local node of the specific path to be reported.
   Type: character string of length up to 20
   Range: nodeID-Index. *nodeID*: four dot separated numeric strings: each string 0..255 *Index*: numeric string.
   Example: 135.13.196.203-432165
2. nbrpathID
   The PathID of the neighbor node of the specific path to be reported.
   Type: character string of length up to 20
   Range: nodeID-Index. *nodeID*: four dot separated numeric strings: each string 0..255 *Index*: numeric string.
   Example: 135.13.196.203-432165
3. nbrnodeID
   ONNS node Network Access identifier (nodeID) of the neighbor node. *nodeID* is not changable and may be different from Signaling network IP address.
   Type: Four dot seperated numeric strings
   Range: for each numeric string: 0..255.
4. bandwidth
   ONNS bandwidth is equal to or greater than the minimum cross connect rate (minXCrate) of the port type. Note: Only SONET switching levels in enumeration. For actual cross-connections ONNS adapts to SDH formats automatically if the ingress port is SDH.
   Values: STS1, STS3, STS12, STS48, STS192.
5. connPtID1
   ONNS connPt identifier (connPtID1) for the ingress RX connPt of the cross connection. It consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary #..
   Type: dash-seperated list of 5 numeric strings.
   Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).
6. connPtID2
   ONNS connPt identifier (connPtID2) for the egress TX connPt of the cross connection. It consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary #.
   Type: dash-seperated list of 5 numeric strings.
   Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).

Example input/output

The following example shows a successful completion of a AUD command for local ONNS data audit operation by the NE with no data is out-of-sync:

```
AUD-LOCAL:LTONNS789:snn:123456;
   LT-ONNS-789 2003-01-01 08:00:00
M  123456 COMPLD
;
```

The following example shows a successful completion of a AUD command for local ONNS data audit operation by the NE. The command `AUD-LOCAL:LTONNS789:snn:123456;` produces the result shown below:

```
   LT-ONNS-789 2003-01-01 08:00:00
M  123456 COMPLD
   "ExtraPortIDs=1-1-20-3-5"
   "MissingPortIDs=NONE"
   "ExtraNNXcons=1-6-5-3-1,-X-,1-2-4-3-1,sts48,
   135.13.196.203-43216:1-1-4-4-1,-X-,1-2-1-3-1,
   sts12,135.13.18.23-12345"
   "MissingNNXcons=1-1-8-10-2,-X-,1-1-3-3-4,sts48"
   "ExtraNonNNXcons=NONE"
   "MissingNonNNXcons=NONE"
   "MultipleNNXcons=NONE"
;
```

The symbol (-X-) indicates that a cross connection is present between the connPtIDs on an output line.

The following example shows a successful completion of a AUD command for ONNS path neighbor data audit operation by the NE. If no data is out-of-sync, the command `AUD-PATHNBR:LT-ONNS-789:snn:123456;` produces the result shown below:

```
   LT-ONNS-789 2003-01-01 08:00:00
M  123456 COMPLD
;
```

The following example shows a successful completion of a AUD command for ONNS path neighbor data audit operation by the NE. The command `AUD-PATHNBR:LTONNS789:snn:123456;` produces the result shown below:

```
   LT-ONNS-789 2003-01-01 08:00:00
M  123456 COMPLD
   "MismatchedPathIDs=1-1-4-4-1,-X-,1-2-1-3-1,sts12,
    135.13.18.23-00000,168.16.29.111,135.14.196.203-32165
   :1-1-7-4-2,-X-,1-1-3-5-1,sts48,,135.13.18.23,
   135.14.196.109-12164"
;
```

The symbol (-X-) indicates that a cross-connection is present between the connPtIDs on an output line.

Error responses

The error codes defined in the "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950) command Error responses section also apply to the AUD command.

Related TL1 messages

- "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
- "ED-SYNCDATA: Synchronization of NN data" (p. 4-836)
- "RTRV-AudLog: Retrieve audit result log for ONNS connection data" (p. 4-1630)

□

CANC-USER: Cancel user

The CANC-USER command can be initiated to terminate the login session of the user with the NE.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): Any

Priority: 1

Abortable: No

Input format

Command Syntax: `CANC-USER`:*tid*:[*uid*]:*ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. uid – User Identifier
   This is the user identifier that was used in the ACT-USER command that initiated this session. This is an optional parameter; if it is not specified, it defaults to the user identifier of this session.
   This is the unique user login identifier for which the ACT-USER login command is intended. Grouping and/or ranging of *uid* values for the ACT-USER command are not allowed. Valid *uid* values for the ACT-USER command are case-sensitive alphanumeric strings which have been previously provisioned as valid login IDs in the NE.
   Type: alphanumeric string (case-sensitive)
   Range: 5 - 10 characters. The *uid* ALL is not allowed in any combination of upper or lower cases.
   The *uid* is not really needed in this command, because always the own session will be canceled. But this parameter is in because of telcordia requirements.
3. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output format

If the logout request completes successfully, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

When the NE receives a CANC-USER command, the login session on the NE will be terminated provided that the user is currently active on the NE. Only the users own session can be terminated.

The CANC-USER command does not generate a REPT DBCHG message.

Example input/output

The following example shows a successful command completion and login session termination:

```
CANC-USER:LT-UNITE-123::123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

The general error responses defined in "RTRV-HDR: Retrieve header" (p. 4-1736) are also valid for this command.

Validation rule: not the own uid specified

Only the own *uid* must be specified. There is not so.

Error code: `IDNC - Input, Data, Not Consistent, not own uid`

Related TL1 messages

- "ACT-USER: Activate user" (p. 4-14)
- "CANC-USER-SECU: Cancel user security" (p. 4-41)
- "DLT-USER-SECU: Delete user security" (p. 4-197)
- "ED-USER-SECU: Edit user security" (p. 4-945)
- "ENT-USER-SECU: Enter user security" (p. 4-1410)
- "RTRV-USER-SECU: Retrieve user security" (p. 4-2240)

References

TR-NWT-000835, OTGR Section 12.5: Operations Applications Messages – NE and Network System Security Administration Messages.

□

CANC-USER-SECU: Cancel user security

The execution of this command on a NE by an security administrator terminates all login sessions of a particular user or of all non-superusers/non-MEMADMIN-users within the NE.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S5

Priority: 1

Abortable: No

Input format

Command Syntax: `CANC-USER-SECU:`*tid:[uid]:ctag;*

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. uid – User Identifier
   This is the *uid* of the user whose sessions are being terminated. If an security administrator wants to force log out another user, then the security administrator could do so by specifying that *uid.* An privileged user could log out any other user including super-users and users of *uidclass* MEMADMIN.
   If an security administrator wants to force log out all the users that are currently logged in, then the security administrator could do so by omitting the *uid.* Logging out all users by omitting the *uid* does not include the super-users or MEMADMIN-users logins.
3. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output format

If the logout request completes successfully, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The CANC-USER-SECU command can be only executed by the security administrator (UPC S5). She/he can terminate the sessions of other users by supplying his/her *uid*. If a user has established more than one sessions then all sessions will be terminated. The own session will not be affected this command.

The CANC-USER-SECU command does not generate a REPT DBCHG message.

Example input/output

The following example shows a successful command completion and login session termination:

```
CANC-USER-SECU:LT-UNITE-123:nbguser1:123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

The general error responses defined in "RTRV-HDR: Retrieve header" (p. 4-1736) are also valid for this command.

Validation rule: uid not in NE data base

The *uid* is not contained in the NE's data base.

Error code: `IDNV - Input, Data Not Valid, uid not in NE data base`

Validation rule: user with uid not logged in

A user with the specified *uid* is not currently logged in.

Error code: `SRQN - Status, invalid request, uid not logged in`

Validation rule: uid must not be the own uid

If the own uid matches *uid* the command should be denied.

Error code: `IDNV - Input, Data Not Valid, uid must not be the own uid.`

Related TL1 messages

- "ACT-USER: Activate user" (p. 4-14)
- "CANC-USER: Cancel user" (p. 4-39)
- "DLT-USER-SECU: Delete user security" (p. 4-197)
- "ED-NE-SECU: Edit NE security" (p. 4-324)
- "ED-USER-SECU: Edit user security" (p. 4-945)
- "ENT-USER-SECU: Enter user security" (p. 4-1410)

References

TR-NWT-000835, OTGR Section 12.5: Operations Applications Messages – NE and Network System Security Administration Messages.

□

CHG-ACCMD: Change access mode

General

The CHG-ACCMD command shall be used to change the test access mode of a test session in the NE.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): T4

Priority: 1

Abortable: No

Input format

Command Syntax: `CHG-ACCMD-`*modifier:tid:tatrib1:ctag:::spec_block;*

Input parameters

Command parameters

1. modifier
   Tis parameter indicates the cross-connection rate on which the connect test access command is to act. Type: alphanumeric value set.
   Range:
   - SDH modifier: VC3, VC4, VC44C, VC416C, VC464C
   - SONET modifier: STS1, STS3, STS12, STS48, STS192.
2. tid – Target Identifier
   Refer to the “RTRV-HDR: Retrieve header” (p. 4-1736) command for the input parameter syntax and description of this parameter.
3. tatrib1 – primary Test Access tributary
   AID of the primary Test Access tributary. The keyword “all” is not allowed on any level.
   Type: AID
   Range: STS1NumAID.
4. ctag – Correlation Tag
   Refer to the “RTRV-HDR: Retrieve header” (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. tstmde – Test Access Mode

Output format

The NE returns the following normal completion response to a successful CHG-ACCMD command if there are no failure conditions to report:

```
   sid date time
M  ctag COMPLD
;
```

Detailed behaviour description

The function of the CHG-ACCMD command is to change the test access mode without terminating the test access session.

The test access mode changes are restricted to test modes belonging to the same group. (See the definition of the groups in the general description.) It is not allowed to change the mode from single to dual test tributary modes or from dual to single test tributary modes.

Example input/output

```
CHG-ACCMD-STS1:LT-UNITE:1-1-#-#-6-1-1:123456:::TSTMDE=SPLTA;
   LT-UNITE 02-10-01 19:17:53
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command error responses section. The error responses listed there also apply to the CHG-ACCMD command.

Validation rule: No test access session on the test tributary

If the NE receives a CHG-ACCMD command when there is no test access session set up on the test tributary specified, the following error response is returned:

Error Code: `SNVS - Status, Not in Valid State, no test access session on the test tributary`

Validation rule: Invalid test access mode change request

If the NE receives a CHG-ACCMD command with a test access mode which is not a member of the same group, the following error response is returned:

Error Code: `SNVS - Status, Not in Valid State, invalid test access mode`

Validation rule: Inconsistent tributary rate

If the NE receives an CHG-ACCMD command which does not match the test access connection rate, the following error response is returned:

Error Code: `IPNC - Input, Parameter Not Consistent, Rate inconsistent with crossconnection rate`

Related TL1 messages

- "CONN-TACC: Connect test access" (p. 4-62)
- "RTRV-TACC: Retrieve test access" (p. 4-2176)
- "DISC-TACC: Disconnect test access" (p. 4-88)
- "RTRV-CRS: Retrieve cross-connection" (p. 4-1649)

□

CHG-ACCMD notification

Output format

The CHG-ACCMD notification uses the general format of a REPT DBCHG (Report Database Change) notification.

The CHG-ACCMD notification shall have following specific syntax:
`CHG-ACCMD-`*modifier:tatrib1::spec_block;*

Output parameters

Command parameters

1. modifier
   Tis parameter indicates the cross-connection rate on which the connect test access command is to act. Type: alphanumeric value set.
   Range:
   - SDH modifier: VC3, VC4, VC44C, VC416C, VC464C
   - SONET modifier: STS1, STS3, STS12, STS48, STS192.
2. tatrib1 – primary Test Access tributary
   The keyword “all” is not allowed on any level.
   Type: AID
   Range: STS1NumAID.

Spec block parameters

1. eomode – output mode of the E-tributary
   This parameter is only present if the test session is created on a 2-way cross-connection. The parameter is omitted for test sessions on 1-way cross-connections or on idle E-tributaries. Type: alphanumeric value set.
   Range:
   - NORM: this is the normal output i.e. the signal from the F-tributary is passed through to the E-tributary
   - AIS: this mode outputs an AIS signal.

   Default:
   - NORM, if the referring Ttest mode does not disconnect the output of the original cross-connection to this tributary
   - AIS, in all other case.
2. fomode – output mode of the F-tributary
   This parameter is only present if the test session is created on a 1-way or 2-way cross-connection. The parameter is omitted for test sessions on idle E-tributaries. Type: alphanumeric value set.

Range:

- NORM: this is the normal output i.e. the signal from the E-tributary is passed through to the F-tributary
- AIS: this mode outputs an AIS signal.

Default:

- NORM, if the referring test mode does not disconnect the output of the original cross-connection to this tributary
- AIS, in all other cases.

3. tstmde – Test Access

Example input/output

```
CHG-ACCMD-STS1:LT-UNITE:1-1-#-#-6-1-1:123456:::
TSTMDE=SPLTA;
   LT-UNITE 02-10-01 19:17:53
M  123456 COMPLD
;
   LT-UNITE 02-10-01 19:18:22
A  001 REPT DBCHG
   "TIME=19-18-05,DATE=02-10-01:CHG-ACCMD-STS1:
   1-1-#-#-4-1-1::TSTMDE=SPLTA:"
;
```

□

CNVT-CCT: Convert cross-connection topology

General

The CNVT-CCT-modifier command can be initiated by a user to convert between a 1-way point-to-point cross-connection and a path-protected cross-connection.

For a 1-way Point-to-Point to a path-protected conversion, the existing point-to-point cross-connection leg is converted into a single atomic path-protected cross-connection between the logical input AID of the existing point-to-point cross-connection, the specified protection logical input AID and logical output AID of the existing point-to-point cross-connection. The leg comprised of the AIDs of the existing point-to-point cross-connection shall be designated as the path protection group working leg at the time the cross-connection is converted.

If the command is applied to a 2-way cross-connection it will be split up automatically in two 1-way cross-connections. The command will be executed on the specified in_aid to out_aid direction, the reverse direction will remain unprotected. Refer also to chapter Detailed behaviour for more.

For a path-protected to a 1-way point-to-point conversion, it can be selected, which logical input AID of the existing legs (working leg or the protection leg) of the path-protected cross-connection shall stay as logical input AID of the created point-to-point cross-connection. This can be done by specifying the surviving leg of the existing path protection group as working leg at the time the cross-connection is converted.

The tributaries involved do not need to be free of alarms/failure conditions - no check in advance will be made. The cross-connection will thus be established also in case of AIS-P, LOP-P, UNEQ etc. as is the case with a normal ENT-CRS command as well.

The *modifier* in the CNVT-CCT command indicates the cross-connection rate of the tributary for which the command is applied to. The same rules as for ENT-CRS for path-protected cross-connections apply.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 3

Abortable: No

Input format

Command Syntax: `CNVT-CCT-`*modifier*:*tid*:*in_aid*,*out_aid:ctag::[in_aid2]:spec_block;*

Input parameters

Command parameters

1. modifier
   This parameter indicates the cross-connection on which the CNVT-CCT command acts on.
   For detailed description please refer to the "RTRV-CRS: Retrieve cross-connection" (p. 4-1649) command.
   Type: Alphanumeric value set.
   Range:
   - VC3
   - VC4
   - VC44C
   - VC416C
   - VC464C
   - STS1
   - STS3
   - STS12
   - STS48
   - STS192.

   No use of the `all` value is allowed.
2. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
3. in_aid – Input Access Identifier
   This parameter specifies
   - 1-way Point-to-Point to a Ppath-protected conversion: the source of the unprotected cross-connection respectively
   - Path-protected to a 1-way point-to-point conversion: the AID of the input leg which shall stay as source of the created unprotected cross-connection.

   Type: AID
   Range: GenTribAID. No use of the *all* or *usall* or *vall* values shall be allowed.
   No use of the ″all″ value within the in_aid2 shall be allowed.

4. out_aid – Output Access Identifier
   This parameter specifies the sink of the cross-connection. See definition of parameter *out_aid* in "RTRV-CRS: Retrieve cross-connection" (p. 4-1649).
   Type: AID
   Range: GenTribAID.No use of the *all* or *usall* or *vall* values within the out_aid shall be allowed.
5. ctag – Correlation Tag
   See defintion of *ctag* in "RTRV-HDR: Retrieve header" (p. 4-1736).
6. in_aid2 – Input2 Access Identifier
   This parameter specifies the source of the protection leg.
   Thus *in_aid* and *out_aid* specify the working leg while *in_aid2* and *out_aid* specify the protection leg of a path-protected cross-connection. For non path-protected cross-connection the parameter *in_aid2* must be omitted.
   Both input aids (*in_aid* and *in_aid2*) have to be related to ports with the same interface mode being either SDH oder SONET. This is due to different switch criteria for SONET and SDH.
   Type: STS1NumAID
   Range: No use of the *all* or *usall* or *vall* values shall be allowed.
   Default: a valid value is needed on case of a path-protected cross-connection - no default is defined.

Spec block parameters

1. cct – CrossConnect Topology
   The parameter *cct* specifies the new cross-connection topology.
   Type: Alphanumeric value set.
   Range: 1WAY for one-way unprotected cross-connection; 1WAYPPROT for one-way path- protected cross-connection.
2. htmr – Hold-Off Time
   This parameter specifies the hold-off time for automatic protection switching used by the protection state machine. Type: numeric string [ms].
   Type: numeric string [ms]
   Range: For high order path protection groups, the range shall be: 0 - 99 msec in 1 msec steps and 100 - 10000 msec in100 msec steps. For low order path protection groups, the range shall be: 0, 25, 50, 75 msec (thus in steps of 25 msec) and 100 - 10000 msec in 100 msec steps.
3. newinaid – New Input Access Identifier
   This parameter specifies the source aid of the new leg when converting from a point-to-point to a path-protected cross-connect. For removing the path-protection this parameter does not apply and shall be omitted.
   Type: AID.
   Range: STS1NumAID.
   No use of the `all` value shall be allowed.

4. newloca – New Location-a
   This parameter specifies the new source TID if the *newinaid* is in a BLSR protection group. It specifies that add node which is related to the protection leg input. *newloca* will be stored as the *loca2* parameter.
   The parameter is mandatory, if *in_aid2* is at a BLSR protection group with Automatic Squelch Map Calculation disabled.
   The parameter *loca2* (location-a-2) specifies the TID associated with in_*aid2* of the protection leg of a path-protected cross-connection. For the syntax, range and default definition please refer to loca in the ENT-CRS section. Please note that *loca-2* parameter shall be omitted if no *in_aid2* has been specified or for non-BLSR cross-connection. A 2way cross-connection is considered to be a DROP if the out_aid is a non BLSR high-order tributary.
   The *loca2* parameter value has to be omitted for low-order cross-connections in general.
   Currently, path protected LO cross-connections with input tributaries from MS-SPRing/BLSR ports are not supported. As a consequence, the parameter *loca2* needs not to be specified for a LO cross-connection.
   Type: TID
   Range: 1 to 20 characters
5. occt – Original CrossConnect Topology
   The parameter cct specifies the original cross-connection topology.
   Type: Alphanumeric value set.
   Range: 1WAY for one-way unprotected cross-connection. 1WAYPPROT for one-way path-protected cross-connection.
6. ppgname – Path Protection Group Name
   This parameter specifies the name of the path protection group to be established. For removing the path-protection this parameter does not apply and shall be omitted. See definition of *ppgname* parameter in "RTRV-CRS: Retrieve cross-connection" (p. 4-1649).
7. rme – Protection Reversion
   The parameter specifies, whether revertive or non-revertive mode is used as operation mode of the protection group. The value ENABLE is used if the protection group operates in revertive mode. The value DISABLE is used if the protection group operates in non-revertive mode.
   Type: alphanumeric value set Range: DISABLE in case of protype = 1+1; ENABLE in case of protype = 1xNOPT.
   Default: DISABLE, in case of protype = 1+1; ENABLE, in case of protype = 1xNOPT (i.e. protection type 1:1) The protocol = OPTM can only be chosen in case of protype = 1+1, thus default is DISABLE then.

8. snctype – SNC Protection Type
   This parameter specifies the type of the path protection w.r.t. switch criteria used by the protection state machine. The value SNCI (Inherent) is used if server signal fail is used as switch criteria. The value SNCN (Non-Instrusive) is used if server signal fail and defects supervised by a non-intrusive path monitor are used as switch criteria. The value NA is used if one of the tributary inputs is related to a port operating in SONET mode.
   Type: alphanumeric value set.
   Range: SNCI, SNCN, NA.
9. wtr – Wait To Restore Time
   This parameter specifies the wait to restore time used by the protection state machine operating in revertive mode.
   Type: numeric string [minute].
   Range: 0 – 60.
10. xcappl – cross-connection Application
    This parameter indicates one of the application that are supported for a compound cross-connection topology. This parameter is optional – if not entered the default is used.
    See definition of *xcappl* parameter in "RTRV-CRS: Retrieve cross-connection" (p. 4-1649).
11. xcnum – cross-connection Number
    This parameter identifies each cross-connection leg in a specific compound cross-connection topology. This parameter is optional - if not entered and if converting to a path-protected cross-connection the value of the previous cross-connection, respectively to a not path-protected cross-connection the value of the working leg is used.
    See definition of *xcnum* parameter in "RTRV-CRS: Retrieve cross-connection" (p. 4-1649).

Output format

If the CNVT-CCT command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

Notification of cross-connection related changes

Because the CNVT-CCT can be understood as a sequence consisting of a DLT-CRS operation followed by an ENT-CRS operation, a (separate) CNVT-CCT notification does not exist. Instead a DLT-CRS notification is sent, followed by an ENT-CRS notification.

Refer also to the section detailed behavior of DLT-CRS and ENT-CRS.

Keep in mind that the attribute *in_aid2* is a part of the key / identifier for the path-protection group, and therefore the above described deletion and creation sequence is a proper approach in order to notify the performed DB changes.

The ENT-CRS notification includes already information about the changed repleg status.

Notification of protection group related changes

The ENT-CRS operation affects subsequently also the protection area, i.e.in case of entering a path-protected cross-connection a path protection group will be established. Thus two independent notification are generated: ENT-CRS notification and a ENT-PROTN-GRP notification.

The DLT-CRS operation affects subsequently also the protection area, i.e. in case of removing a path-protected cross-connection a path protection group will be deleted. Thus two independent notification are generated: DLT-CRS notification and a DLT-PROTN-GRP notification.

Transaction behavior

For the CNVT-CCT command the validation shall be performed before the COMPLD is returned. This means it has to be checked if the DLT-CRS as well as the following ENT-CRS can be performed successfully, before the entire command is executed. With this approach it shall be guaranteed that the command either is rejected or succeeds as a whole by executing the deletion- AND the entering-operation.

For the detailed validation rules refer to the chapter ’error responses’ below.

Updated affected entities: 1way, 2way cross-connection, path-protected cross-connection

The establishing of a path-protection group on a possibly existing 2-way cross-connection leads to a conversion to a 1-way path- protected cross-connection plus a separate 1-way cross-connection for the return direction. A similar split-up happens when deleting one direction of a 2-way cross-connection. Therefore refer to section ″Detailed behaviour description″ of the DLT-CRS notification.

After deletion of a path-protection group the remaining 1-way cross-connection may have an equivalent return leg. Then both will be merged in a 2-way cross-connection. A similar merge happens when a cross- connection is established to which already an

equivalent return leg is existing. Therefore refer to section ″Detailed behaviour description″ of the ENT-CRS notification.

Example input/output

Example 1:

Suppose the following existing non-BLSR 1way vc3-cross-connection

1-1-#-#-1-1-3 -> 1-1-#-#-5-1-17

shall be protected by the new leg

1-1-#-#-2-1-3 -> 1-1-#-#-5-1-17

also being a non-BLSR cross-connection. This would be accomplished via:

```
CNVT-CCT-VC3:UNITE-NE:1-1-#-#-1-1-3,1-1-#-#-5-1-17:123456:::
occt=1WAY,cct=1WAYPPROT,newinaid=1-1-#-#-2-1-3,
ppgname=″group018″,rme=ENABLE,snctype=SNCN,htmr=100,wtr=5;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
;
```

Example 2:

Suppose the following existing path-protected vc3-cross-connection:

1-1-#-#-1-1-3 -> 1-1-#-#-5-1-17 working leg

1-1-#-#-2-1-3 -> 1-1-#-#-5-1-17 protection leg

shall be changed into an unprotected cross-connection via the working leg. This would be accomplished via:

```
CNVT-CCT-VC3:UNITE-NE:1-1-#-#-1-1-3,1-1-#-#-5-1-17:123456::1-1-#-#-2-1-
     3:occt=1WAYPPROT,cct=1WAY;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
;
```

Example3:

Suppose the following existing path-protected vc3-cross-connection:

1-1-#-#-1-1-3 -> 1-1-#-#-5-1-17 working leg

1-1-#-#-2-1-3 -> 1-1-#-#-5-1-17 protection leg

shall be changed into an unprotected cross-connection via the protection leg. This would be accomplished via:

```
CNVT-CCT-VC3:UNITE-NE:1-1-#-#-2-1-3,1-1-#-#-5-1-17:123456::1-1-#-#-1-1-
     3:occt=1WAYPPROT,cct=1WAY;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
```

;

Error responses

The CNVT-CCT procedure can be conceptually understood as a sequence consisting of a DLT-CRS operation followed by an ENT-CRS operation. Therefore some of the validation rules of DLT-CRS and ENT-CRS shall apply also here. This means also that if one of the below listed CNVT-CCT validation rules would fail to meet a criteria the same or at least a similar command denial as specified in the DLT-CRS and the ENT-CRS section will be the consequence.

Validation rules relevant for path-protection which differ:

- check of provisioned topology parameters against existing atomic topology,
- check of existence of an cross-connection via the (future respectively current) working leg.

Validation rule adaptation

In general the validation rules of DLT-CRS (as stated in the DLT-CRS section) and ENT-CRS (as stated in the ENT-CRS section) apply. However if an atomic cross-connection will remain finally unchanged then for this part no validation rule must be performed. The full list of validation rules from the DLT-CRS / ENT-CRS area is given in the following requirements.

In general the validation rules of DLT-CRS apply in case of removing a path-protection. However the check shall skip that the cross-connection of the working leg should have been removed before.

In general the validation rules of ENT-CRS apply in case of establishing a path-protection. However the check shall allow that a cross-connection via the working leg has already been set-up.

Validation rule: Entities (tributaries) must exist

Cross-connection command processing shall verify the logical tributaries specified in the command do exist.

Error Code: `IENE - Input, Entity Not Exists, Specified tributary/tributaries do not exist`

Validation rule: HO cross-connections not on substructured tributaries

Cross-connection command processing shall verify that the high-order tributaries specified in the high-order cross-connection command are not substructured, i.e. that no LO cross connections exist.

Error Code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

Validation rule: Entity (cross-connection) must exist

Cross-connection command processing shall verify that the specified cross-connection exists. This includes the check that the cross-connection rate matches the specified rate.

Error Code: `IENE - Input, Entity Not Exists, Specified crossconnection does not exist`

Note the equivalence to the related ENT-CRS and DLT-CRS validation rules.

Validation rule: Topology conversion command must be consistent

The spec block parameters *occt* and *cct* must be both provided and different.

Error Code: `IDNC - Input, Data, Not Consistent, no allowed topology conversion`

Validation rule: Only those parameter present which are needed

Cross-connection command processing shall verify according to the given context only those parameter are present which are needed for that context.

This means that for converting to a non path-protected cross-connection the following parameter must be present:

- *in_aid2*, *cct*, *occt*

This means that for converting to a non path-protected cross-connection the following parameter must not be present:

- *htmr*, *newloca*, *rme*, *snctype*, *wtr*

This means that for converting to a non path-protected cross-connection the following parameter may be present:

- *newinaid, ppgname*

This means that for converting to a path-protected cross-connection the following parameters must be present:

- *cct*, *htmr*, *newinaid*, *occt*, *rme*, *snctype*, *wtr*

This means that for converting to a path-protected cross-connection the following parameter must not be present:

- *in_aid2*

This means that for converting to a path-protected cross-connection the following parameter may be present:

- *newloca* (in case of MSSPRING/BLSR, depends on squelch map calcuation)
- *ppgname*

Error code: `SNVS - Status, Not in Valid State, Parameter(s) present which are not allowed`

CNVT-CCT: *ppgname* usage:

It is not possible for CNVT-CCT to identify the path-protection group by the *ppgname* only. It has been excluded here. Reason: at least for a CNVT-CCT command with the order to create a protection group this is not sufficient to restrict it to a single cross-connection, as the *ppgname* may not be uniquely defined and therefore this might result in actions not desired by the operator.

CNVT-CCT: *newloca* usage:

The parameter *newloca* is only relevant if the specified newinaid is at a MS-SPRING/BLSR port and depends on the status of the automatic squelch map calculation:

- If the automatic squelch map calculation is disabled, then *newloca* has to be specified
- If the automatic squelch map calculation is enabeld, then *newloca* may be specified to do a user override.

Validation rule: New tributary rate validity

If converting to a path-protected cross-connection then the cross-connection command processing shall verify that the specified cross-connection rate is equivalent to the provisioned signal rate of the new input tributary identified by newinaid, as determined by the tributary input signal rate parameter.

Note that it does not matter if the tributary signal rate is given for the SONET-(STS1/STS3/...) or the SDH-interface standard (VC3/VC4..).

As an example: It is possible to enter a cross-connection via ENT-CRS-VC4... between two tributaries related to tributary signal rates given by VC4/VC4 or by VC4/STS3 or by STS3/STS3; Thus the inputsig/unequiposig-values for SDH (3, 4, 4c, 16c, 64c) are identical to those of SONET (1,3,12,48,192) seen from a cross-connection perspective.

Error Code: `IDNC - Input, Data, Not Consistent, Specified new Tributary does not support the indicated rate`

For simplicity also the full validation rule of ENT-CRS may be executed.

Validation rule: path-protected cross-connection has unique input AIDs

If converting to a path-protected cross-connection then the cross-connection command processing shall verify that for path-protected cross-connections the new input tributary identified by newinaid is different from *in_aid*.

Error Code: `IDNV - Input, Data Not Vaild, Both input tributaries are identical`

Note the equivalence to the related ENT-CRS validation rule.

Validation rule: path-protected cross-connection has inputs from ports with same interface standard

If converting to a path-protected cross-connection then the according validation rule of ENT-CRS shall be executed.

Error Code: `SNVS - Status, Not in Valid State, Different interface standards for input tributaries`

Validation rule: No trib of 1+1 port protection as newinaid (for path-protected cross-connection)

If converting to a path-protected cross-connection then the cross-connection command processing shall verify that the new tributary identified by newinaid is not a member of a 1+1 / 1:1 multiplex section/line protection group.

Error Code: `SNVS - Status, Not in Valid State, trib of 1+1/1x1 port as input-trib in pathprotected crossconnection`

For simplicity also the full validation rule of ENT-CRS may be executed.

Validation rule: no multiple added XCs for MSSPRING TOP

If converting to a path-protected cross-connection then the according validation rule of ENT-CRS shall be executed.

Error code: `SNVS - Status, Not in Valid State, multiple added XCs for MSSPRING TOP`

Validation rule: Supported MS-SPRing/BLSR DNI/DRI

If converting to a path-protected cross-connection then the according validation rule of ENT-CRS shall be executed.

Error Code: `SNVS - Status, Not in Valid State, unsupported MS-SPRing/BLSR DNI/DRI`

Validation rule: path-protected cross-connection: parameters missing

If converting to a pathprotected crossconnection then the according validation rule of ENT-CRS shall be executed.

Error code: `IPMS -Input, Parameter MiSsing, <parameter name> missing`

Validation rule: No cross-connection loopback existing

If executing the CNVT-CCT command in order to establish a path protection then the new leg identified by the tributary newinaid must not have an existing cross-connection loopback.

Error Code: `SNVS - Status, Not in Valid State, new Tributary has existing loopback`

NOTE: There is no command validation concerning facility loopback i.e. the cross-connection establishing shall be possible even with a facility loopback present.

Validation rule: Tributaries not used in a test access session when removing a path protection

If executing the CNVT-CCT command in order to remove a path protection, then the tributaries of the remaining leg identified by *in_aid* and *out_aid*, shall not be involved in a test access session in either direction.

Error Code: `SNVS - Status, Not in Valid State, tributaries used in test access session`

Validation rule: Restrict number of cross-connection using same input tributary

If converting to a path-protected cross-connection then the according validation rule of ENT-CRS shall be executed.

Error Code: `SNVS - Status, Not in Valid State, Too many crossconnection originating from same tributary`

Validation rule: BLSR/MS-SPRing protection access (Extra Traffic)

If converting to a path-protected cross-connection then the according validation rule of ENT-CRS shall be executed.

Error Code: `SNVS - Status, Not in Valid State, Command refers to protection tributaries of a BLSR/MS-SPRing protection and no TOPEX application`

Validation rule: SNC type compliance

If converting to a path-protected cross-connection then the according validation rule of ENT-CRS shall be executed.

Error Code: `IDNC - Input, Data, Not Consistent, SNC Type not compliant with existing pathprotected crossconnection`

Validation rule: No VCG-trib as in_aid (for pathprotected cross-connection)

If converting to a path-protected cross-connection then the according validation rule of ENT-CRS shall be executed.

Error Code: `IDNC - Input, Data, Not Consistent, VCG-trib as input-trib in pathprotected crossconnection`

Validation rule: Maximum number of *ppgnames* exceeded

If changing or entering the parameter *ppgname* then the according validation rule of ENT-CRS shall be executed.

Error Code: `SSRE - Status, System Resources Exceeded, limit of ppgnames exceeded`

Validation rule: Cross-connection must not be of *xconcls* NN

Cross-connection command processing shall verify, that the cross-connection is not of xconcls NN.

Error Code: `SNVS - Status, Not in Valid State, Cross connection must not be of xconcls NN`

Related TL1 Messages

- "DLT-CRS: Delete cross-connection" (p. 4-97)
- "ENT-CRS: Enter cross-connection" (p. 4-1026)
- "ED-CRS: Edit cross-connection" (p. 4-213)
- "RTRV-CRS: Retrieve cross-connection" (p. 4-1649).

□

CONN-TACC: Connect test access

General

The CONN-TACC command is used to initiate a Test Access session and to connect the Test Access tributaries.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): T4

Priority: 1

Abortable: No

Input format

Command Syntax: `CONN-TACC`-*modifier:tid:tatrib1:ctag:::spec_block;*

Input parameters

Command parameters

1. modifier
   Tis parameter indicates the cross-connection rate on which the connect test access command is to act.
   Type: alphanumeric value set.
   Range:
   - SDH modifier: VC3, VC4, VC44C, VC416C, VC464C
   - SONET modifier: STS1, STS3, STS12, STS48, STS192.
2. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
3. tatrib1 - primary Test Access tributary
   AID of the primary Test Access tributary. The keyword *all* shall not be allowed on any level.
   Type:AID
   Range: STS1NumAID
4. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. etrib – AID of the E-tributary
   AID of the E-tributary for the test session.
   Type: AID. Range: GenTribAID.
2. ftrib – AID of the F-tributary
   AID of the F-tributary for the test session. If there is no cross-connection at the E-tributary, this parameter is omitted.
   Type: AID. Range: GenTribAID.
3. tatrib2 – secondary Test Access Tributary
   AID of the secondary Test Access Tributary. In the case of test access modes with single test tributary the parameter is omitted.
   Type: AID. Range: STS1NumAID.
4. tstmde – Test Access Mode
   Type: alphanumeric value set.
   Range:
   - MONE: Monitor E-end mode of test access. This test access mode monitors the E end of an idle tributary or a leg of a cross-connection.
   - MONF: Monitor F-end mode of test access. This test access mode monitors the F-end of a two-way cross-connection.
   - MONEF: Monitor E-end and F-end mode of test access. This test access mode monitors (E-end and F end) both directions of a 2WAY cross-connection.

Output format

The NE returns the following normal completion response to a successful CONN-TACC command if there are no failure conditions to report:

```
   sid date time
M  ctag COMPLD
;
```

Detailed behavior description

The CONN-TACC command shall be used to establish a test access(es) connection to a tributary or tributaries in the NE.

If the test access session is established as MONE or MONF, the primary test tributary is used. If the test access session is established as MONEF, the primary test tributary is designated for accessing E-end incoming signal and the secondary test tributary is designated for accessing F-end incoming signal.

If there is no connection on E-end tributary, the F-end tributary AID parameter is omitted.

If there are one or more cross-connections established on E tributary, the F-end tributary AID parameter is required to be entered.

In addition to the CONN-TACC notification an ED-CRS notification is sent to report the changed parameter values *taccstat* and *rtntaccstat*.

Example input/output

```
CONN-TACC-STS1:LT-UNITE:1-1-#-#-4-1-1:123456:::ETRIB=1-1-#-#-15-1-
     1,FTRIB=1-1-#-#-16-1-1,TSTMDE=MONE;
   LT-UNITE 02-10-01 16:39:52
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736)command error responses section. The error responses listed there also apply to the CONN-TACC command.

Validation rule: Missing F tributary

If the NE receives a CONN-TACC command in which there are one or more cross-connection established on the E tributary and *ftrib* is not specified, the following error response is returned:

Error Code: `IDNV - Input, Data Not Valid, missing F tributary`

Validation rule: E tributary and F tributary not cross-connected

If the NE receives a CONN-TACC command with an F tributary specified and there is no cross-connection between the E and the F tributaries, the following error response is returned:

Error Code: `IDNV - Input, Data Not Valid, E and F tributaries not cross-connected`

Validation rule: MONF or MONEF test access mode not allowed on a 1WAY cross-connection from E to F tributary

If the NE receives a CONN-TACC command with MONF or MONEF as test access mode when there is a 1WAY cross-connection on E to F tributaries, the following error response is returned:

Error Code: `IDNV - Input, Data Not Valid, invalid test access mode`

Validation rule: Cross-connection exists on the test tributary

If the NE receives a CONN-TACC command with a test tributary that has an existing cross-connection, the following error response is returned:

Error Code: `IEAE - Input, Entity Already Exists, cross-connection exists on test tributary`

Validation rule: Test tributary already connected

If the NE receives a CONN-TACC command with a test tributary that has an existing test access connection (to E and/or F tributary(s)) or if the CONN-TACC command is executed again with same or different attributes on the same test tributary, the following error response is returned:

Error Code: `IEAE - Input, Entity Already Exists, test access connection exists`

Validation rule: Test tributary or E or F tributary in a loopback

If the NE receives a CONN-TACC command with a test tributary or E or F tributary currently in a loopback, the following error response is returned:

Error Code: `SNVS - Status, Not in Valid State, Tributary has existing loopback`

Validation rule: Secondary test tributary not needed for MONE test modes

If the NE receives a CONN-TACC command with a secondary test tributary value for a MONE test access mode, the following error response is returned:

Error Code: `INUP - Input, Non-null Unimplemented Parameter, secondary test tributary not allowed`

Validation rule: Tributaries must exist

If the NE receives a CONN-TACC command with a test tributary or E or F tributary that does not exist, the following error response is returned:

Error Code: `IENE - Input, Entity Not Exists, Specified tributary/tributaries do not exist`

Validation rule: HO TACC sessions not on substructured tributaries

The command processing shall verify that the high-order tributaries specified in the high-order test access command are not substructured, i.e. that no LO cross connections exist.

Error Code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

Validation rule: AID boundary and rate consistency

If the NE receives a CONN-TACC command with a test tributary or E or F tributary that is not consistent with the test access rate, the following error response is returned:

Error Code: `IDNC - Input, Data, Not Consistent, Tributary boundary is inconsistent with the indicated rate`

Consistency implies the following condition:

- The boundary of the specified tributary is consistent with the specified rate
- STS-1/VC-3 payloads can start at any position

- The first (STS-1 equivalent) tributary of an STS-3/VC-4 rate crossconnection must be on a mod3 + 1 boundary (1, 4 ,7, ...)
- The first STS-1 of an STS-12/VC-4-4c rate crossconnection must be on a mod12 + 1 boundary (1, 13, 25, ...)
- The first STS-1 of an STS-48/VC-4-16c rate crossconnection must be on a mod48 + 1 boundary (1, 49, 97, ...)
- The first STS-1 of an STS-192/VC-4-64c rate crossconnection must be on a mod192 + 1 boundary (1, 193, 385, ...).

Validation rule: XC pack is (pre-)provisioned

If the NE receives a CONN-TACC command while no XC pack is pre-provisioned or provisioned, the following error response is returned:

Error Code: `SNVS - Status, Not in Valid State, XC Pack not provisioned`

Validation rule: Circuit pack not provisioned

If the NE receives a CONN-TACC command with a circuit pack specified by the test tributary AID or E- or F-tributary AID that is not provisioned, the following error response is returned:

Error Code: `SNVS - Status, Not in Valid State, circuit packs not provisioned`

Validation rule: Port used for MSSPRING/BLSR

If the NE receives a CONN-TACC command with a test access tributary on a port which is used in a MSSPRING/BLSR protection group, the following error response is returned:

Error Code: `SNVS - Status, Not in Valid State, port used for MSSPRING/BLSR`

Validation rule: Port used for Linear MSP

If the NE receives a CONN-TACC command with a test access tributary on a port which is used in a Linear MSP protection group, the following error response is returned:

Error Code: `SNVS - Status, Not in Valid State, port used for Linear MSP`

Validation rule: Inconsistent tributary rate

If the NE receives a CONN-TACC command which does not match the connection rate of the connection between E and F, the following error response is returned:

Error Code: `IPNC - Input, Parameter Not Consistent, Rate inconsistent with crossconnection rate`

Validation rule: Port used for ONNS application

If the NE receives a CONN-TACC command with a test access tributary or a E or F tributary on a port with portClass other than TRADITIONAL the following error response is returned:

Error Code: `SNVS - Status, Not in Valid State, port used for NN application`

Validation rule: All tributaries must be different

If the NE receives a CONN-TACC command where two or more of the specified tributaries (test access tributaries, E or F tributary) are identical, the following error response is returned:

Error Code: `IDNV - Input, Data Not Valid, all tributaries must be different`

Related TL1 messages

- "RTRV-TACC: Retrieve test access" (p. 4-2176)
- "CHG-ACCMD: Change access mode" (p. 4-44)
- "DISC-TACC: Disconnect test access" (p. 4-88)
- "RTRV-CRS: Retrieve cross-connection" (p. 4-1649)

□

CONN-TACC notification

Output format

The CONN-TACC notification shall use the general format of a REPT DBCHG (Report Database Change) notification.

The CONN-TACC notification has the following specific syntax:
`CONN-TACC-`*modifier:tatrib1::spec_block;*

Output parameters

Command parameters

1. modifier
   Tis parameter indicates the cross-connection rate on which the connect test access command is to act.
   Type: alphanumeric value set.
   Range:
   - SDH modifier: VC3, VC4, VC44C, VC416C, VC464C
   - SONET modifier: STS1, STS3, STS12, STS48, STS192.
2. tatrib1 – primary Test Access Tributary
   AID of the primary Test Access tributary. The keyword [2]all[2] shall not be allowed on any level.
   Type: AID. Range: STS1NumAID.

Spec block parameters

1. etrib – AID of the E-tributary
   AID of the E-tributary for the test session. Type: AID. Range: GenTribAID.
   Type: AID. Range: GenTribAID.
2. ftrib – AID of the F-tributary
   AID of the F-tributary for the test session. If there is no cross-connection at the E-tributary, this parameter is omitted.
   Type: AID. Range: GenTribAID.
3. tatrib2 – secondary Test Access Tributary
   AID of the secondary Test Access Tributary. In the case of test access modes with single test tributary the parameter is omitted.
   Type: AID. Range: STS1NumAID.
4. tstmde – Test Access Mode
   Type: alphanumeric value set.

Range:

- MONE (default): Monitor E-end mode of test access. This test access mode monitors the E end of an idle tributary or a leg of a cross-connection.
- MONF: Monitor F-end mode of test access. This test access mode monitors the F-end of a two-way cross-connection.
- MONEF: Monitor E-end and F-end mode of test access. This test access mode monitors (E-end and F end) both directions of a 2WAY cross-connection.

Example input/output

```
CONN-TACC-STS1:LT-UNITE:1-1-#-#-4-1-1:123456:::ETRIB=1-1-#-#-15-1-
    1,FTRIB=1-1-#-#-16-1-1,TSTMDE=MONE;
   LT-UNITE 02-10-01 16:39:52
M  123456 COMPLD
;
   LT-UNITE 02-10-01 16:40:22
A  001 REPT DBCHG
   "TIME=16-40-04,DATE=02-10-01:CONN-TACC-STS1:1-1-#-#-4-1-1::ETRIB=1-1-
     #-#-15-1-1,FTRIB=1-1-#-#-16-1-1,TSTMDE=MONE:"
;
```

□

COPY-RFILE: Copy remote file

The COPY-RFILE command can be used to initiate remotly a file transfer to/from an NE. The file transfer is intended to download a new software generics to the NE.

The actual file transfer can use the following file transfer applications:

- FTAM
- FTP
- FT-TD (file transfer translation device).

Note: The support of a certain file transfer application is release specific and additionally dependent on the network configuration (e.g. when one GNE is configured to be a FT-TD, FT-TD can be used for file transfers to/from remote NEs).

Properties

User Privilege Code (UCFC/UCAL): S4

Priority: 2

Abortable: No.

Input format

Command Syntax: `CPY-RFILE`*:tid::ctag:::spec_block;*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. type – type and direction of the file transfer

This parameter pecifies the type and direction of the file transfer:

- SWDL: SW Download (
- RFR: Remote File Restore, restore the database from a backup location
- RFBU: Remote File Backup, copy the database to a backup location

At the moment only SWDL is supported.
Type: alphanumeric value set.
Range: SWDL, RFR, RFBU.

2. src – the source of the file
   src is the source where the database (*xfertype*=RFR) or software (*xfertype*=SWDL) is being transferred from. It is omitted if xfertype=RFBU.
   Type: text string;
   Range: 1 to 128 characters, format is a FTP URL or FTAM URL address on the system (EMS or CIT) from which the file is transferred
   The FTP URL must be in the format:
   ftp://[<login>[:<password>]@]<host>[:<port>]/<path_name>
   - <login>: default value: ″anonymous″
   - <password>: default for <login> ″anonymous″ is ″″ (empty).For security reasons, the <password> portion of the FTP file format must be masked prior to generating any autonomous messages.
   - <host>: the <host> portion is an internet address of the form a.b.c.d with a, b, c and d in the range of 0..255.
   - <port>: this is the port number of the FTP server, given when deviating from the standard port number 21.
   - <path_name>: The complete path name, where the files are located.

   The FTAM URL must be in the format: ftam://[<nsap_address>/<path_name>
   - <nsap_address>: network service access point address of the host, which consists of 20 bytes (40 hex characters)
   - <path_name>: The complete path name, where the files are located.

   Examples of valid path name are: ″/bwm/generic/01_02_15″, ″C:\\Program Files\\Lucent Technologies\\WaveStar″
3. dest – destination of the file
   dest is the destination where the database is being transferred to. It is omitted if *xfertype*=SWDL or RFR. See parameter *src*. Those requirements also apply to this parameter *dest*.
4. ovwrt
   This parameter indicates whether or not the files should overwrite an existing file located at the destination.
   Type: alphanumeric value set.
   Range: YES (default)- Overwrite existing file of same directory location and filename. NO - Do not overwrite file, fail the file transfer if file already exists.

5. fttd – file transfer translation device
   This parameter specifies the file transfer translation device (FTTD).
   Type: text string.
   Range: 1 to 128 characters, format is a FTTD gateway address.
   The FTTD address must be in the format:
   - fttd://<nsap_address>
     <nsap_address>: network service access point address of the host, which consists of 20 bytes (40 hex characters). There can only be an even number of hex characters since they are generated from bytes and each byte corresponds to 2 hex characters.

Output format

The NE sends the following normal completion response just prior to initiating the requested file transfer:

```
   sid date time
M  ctag COMPLD
;
```

Output parameters

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command output parameters section for a normal completion response. The output parameters listed there also apply to the CPOY-RFILE command.

Detailed behavior description

Program download capability

The COPY-RFILE command can be used to download software generics. The DOWNLOAD option of COPY-RFILE is used to download new generics which are stored in the previous region of NVM. A directory or URL shall be specified for the source (see srcurl parameter).

When the COPY-RFILE command is received by the NE, a confirmation or rejection must be returned immediately. The NE must ensure it recognizes the file/s it will be downloading and, when applicable, that there is enough space to store, uncompress, and install the file/s. So, the initial response will indicate the NEs imminent actions.

As an FTP client, the network element will use the information included in the TL1 command to establish an FTP session with Transport Element Activation Manager, being the FTP server.

Installation via APPLY causes the contents of previous NVM to be installed. Following installation, a ″pointer″ is changed so that what is identified as current NVM contains the currently executing generic and previous NVM contains the previous generic.

Database backup and restore capability

The COPY-RFILE command can be used to backup and restore the configuration database. The RFBU option of COPY-RFILE is used to backup the database, the RFR option is used to restore the database. A directory or URL shall be specified for the source (see src parameter) in the case of RFR or for the destination (see dest parameter) in the case of RFBU.

File transfer requires a checksum

A file that is transferred via the COPY-RFILE command should contain one or more checksums to help validate that the file has not been corrupted.

Example input/output

The following examples show input and output of COPY-RFILE commands: The following example shows a COPY-RFILE request that downloads a new generic from the manager to NVM of the NE by FTP with the help of a FTTP device. To cause prgm to execute, the APPLY command must be used.

```
COPY-RFILE:LT-UNITE::123456:::TYPE=SWDL,
SRC="ftp://user:pwd@128.218.128.281:21/vender/
model/release1",
FTTD="fttd://39840f8000000000000000000000601D0D50E01d",
OVWRT=YES;
   LT-UNITE 00-11-01 08:00:00
M  123456 COMPLD
;
```

The following example shows a COPY-RFILE request that downloads a new generic from the manager to NVM of the NE by FTAM. To cause prgm to execute, the APPLY command must be used.

```
COPY-RFILE:LT-UNITE::123456:::TYPE=SWDL,
SRC="ftam://39840F8000000000000000000000010a4fabc861d/
C:\\Program Files\\Lucent Technologies\\WaveStar CIT\\
generics\\susi030042",OVWRT=YES;
   LT-UNITE 00-11-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command error response section. The error responses listed there also apply to the COPY-RFILE command. Additional error responses that specifically apply to this command are defined in the following:

Validation rule: Input parameters not specified

If any one or more of the input parameter values are not valid, the system responds with:

Error code: `IDNV - Input, Data Not Valid`

Validation rule: Insufficient file space

If the command failed due to insufficient file space, the system responds with:

Error code: `ENEQ - Equipage, Not Equipped, insufficient file space`

Validation rule: Product mismatch

If the command failed due to a product mismatch in a retrieved file (file does not belong to NE type), the system responds with:

Error code: `SRAC - Status, Requested Access Configuration invalid, retrieved file NE mismatch`

Validation rule: Temporary exhaustion of resources

If the system is experiencing temporary exhaustion of allocated resources because

- all resources are busy or
- a CPY-MEM request is issued and a previous CPY-MEM has not finished or a resource is busy for other reasons,

the system responds with:

Error code: `SARB - Status, All Resources Busy`

Validation rule: Directory/URL not specified

If COPY-RFILE specifies a SWDL and no directory/URL is specified by *src,* then the following error response is given:

Error code: `ICNV - Input, Command Not Valid, file must be specified`

Validation rule: Directory/URL not specified for restoration

If COPY-RFILE specifies a RFR and no directory/URL is specified by src, then the following error response is given:

Error code: `ICNV - Input, Command Not Valid, directory/URL must be specified`

Validation rule: Directory/URL not specified for backup

If COPY-RFILE specifies a RBU and no directory/URL is specified by dest, then the following error response is given:

Error code: `ICNV - Input, Command Not Valid, directory/URL must be specified`

Validation rule: FT-TD device not specified

If COPY-RFILE used FTP for SWDL no FT-TD device (nsap) is specified by *fttd*, then the following error response is given:

Error code: `ICNV - Input, Command Not Valid, FTTD must be specified`

Validation rule: Additional directory/URL specified

If COPY-RFILE specifies a SWDL and *dest* is not empty:

Error code: `SDNC - Status, Data Not Consistent`

Validation rule: Additional directory/URL specified for restoration

If COPY-RFILE specifies a RFR and and *dest* is not empty:

Error code: `SDNC - Status, Data Not Consistent`

Validation rule: Additional directory/URL specified for backup

If COPY-RFILE specifies a SWDL and *dest* is not empty:

Error code: `SDNC - Status, Data Not Consistent`

Validation rule: No SW download or DB restore during trial phase

If COPY-RFILE specifies a SWDL or RFR and a newly applied SW generic is still in trial phase (previous SW generic state and database state = PRESERVED), the command shall be denied:

Error code: `SNVS - Status, Not in Valid State, SW generic is in trial phase`

Validation rule: No DB restore with incompatible database

If COPY-RFILE specifies a RFR, the system shall verify that the database to be restored is compatible with the currently running SW generic and the actual HW equipage. The attempt to restore an imcompatible database shall be denied with:

Error code: `SNVS - Status, Not in Valid State, database not compatible`

Related TL1 messages

- "APPLY: Apply software generic" (p. 4-25)
- "RTRV-PRMTR-DATA: Retrieve parameter data" (p. 4-1982)
- "RTRV-PRMTR-SFTWR: Retrieve parameter software" (p. 4-1991)
- "RTRV-NE: Retrieve NE" (p. 4-1826)
- "ED-NE: Edit NE" (p. 4-320)

□

CPY-MEM: Copy memory

The CPY-MEM command can be used to initiate a file transfer to/from an NE. The file transfer is intended to

- download a new software generics to the NE, or
- to backup the NE's database, or
- to restore the NE's database.

The actual file transfer can use one of the following file transfer applications:

- FTAM
- FTP
- FT-TD (file transfer translation device).

and is determined by the use of the from and to parameters.

CPY-MEM utilizing the Transport Service Bridge (TSB) is not supported.

Note: The support of a certain file transfer application is release specific and additionally dependent on the network configuration (e.g. when one GNE is configured to be a FT-TD, FT-TD can be used for file transfers to/from remote NEs).

Properties

Login privilege

User Privilege Code (UCFC/UCAL): S4

Priority: 2

Abortable: No

Input format

Command Syntax: `CPY-MEM`:*tid*::*ctag*::*from*,[*src*],*to*,[*dst*],*class*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
3. from – from memory type
   This parameter specifies the memory where the data is being transferred from.
   Type: text string.

Range:

- ″PRI″ , PRImary NVM of the NE. Although there is no secondary NVM, PRI is used for compatibility reasons
- ″CIT,*psel*,*ssel*,*tsel*,*sap*″ , CIT means Craft Interface Terminal (CIT)
- ″EMS,*psel*,*ssel*,*tsel*,*nsap*″ , EMS means Element Management System (EMS)
- ″FTTD, *psel*, *ssel*, *tsel*, *nsap*″ FTTD (file transfer translation device)

  sel, *ssel*, *tsel*, and *nsap* are part of the from (and to) parameter and specify NSAP and selectors of the CIT or EMS or the GNE in case of FTTD. The sizes of *sel*, *ssel*, *tsel*, and *nsap* are as follows: *psel* (path selector): 0-4 bytes (0-8 hex characters); *ssel* (session selector): 0-4 bytes (0-8 hex characters); *tsel* (transport selector): 0-16 bytes (0-32 hex characters); *nsap* (network service access point): 20 bytes (40 hex characters).

There can only be an even number of hex characters since they are generated from bytes and each byte corresponds to 2 hex characters.

4. src – source
   This parameter reflects the source where the database or software is being transferred from. It is omitted if *class*=BACKUP.
   Type: text string
   Range: 1 to 128 characters, format is a valid complete directory name , or an FTP URL on the system (EMS or CIT) from which the file is transferred.
   The FTP URL must be in the format:
   ftp://[<login>[:<password>]@]<host>[:<port>]/<file_name>
   - <login>: default value: ″anonymous″
   - <password>: default for <login> ″anonymous″ is ″″ (empty).For security reasons, the <password> portion of the FTP URL format must be masked prior to generating any autonomous messages or entries in the Notification Log.
   - <host>: the <host> portion is an internet address of the form a.b.c.d with a, b, c and d in the range of 0..255.
   - <port>: this is the port number of the FTP server, given when deviating from the standard port number 21.
   - <file_name>: the complete path name of the file.

   Because backslash (\) is the TL1 escape character, to include a backslash as part of a directory name, it must be entered as a double backslash. A double backslash counts as only one character. Craft personnel will not have to type the double backslash for the GUI. The second backslash is automatically generated.
   Examples of valid file names are: ″d:\\bwm\\data\\file1.dat″ or ″/bwm/generic/01_02_15.prog″.
5. to – to memory type
   This parameter specifies the memory where the data is being transferred to.
   Type: text string.

Range:

- ″PRI″ , PRImary NVM of the NE. Although there is no secondary NVM, PRI is used for compatibility reasons
- ″CIT,*psel*,*ssel*,*tsel*,*sap*″ , CIT means Craft Interface Terminal (CIT)
- ″EMS,*psel*,*ssel*,*tsel*,*nsap*″ , EMS means Element Management System (EMS)
- ″FTTD, *psel*, *ssel*, *tsel*, *nsap*″, FTTD (file transfer translation device).

  sel, *ssel*, *tsel*, and *nsap* are part of the from (and to) parameter and specify NSAP and selectors of the CIT or EMS or the GNE in case of FTTD. The sizes of *sel*, *ssel*, *tsel*, and *nsap* are as follows: *psel* (path selector): 0-4 bytes (0-8 hex characters); *ssel* (session selector): 0-4 bytes (0-8 hex characters); *tsel* (transport selector): 0-16 bytes (0-32 hex characters); *nsap* (network service access point): 20 bytes (40 hex characters).

  There can only be an even number of hex characters since they are generated from bytes and each byte corresponds to 2 hex characters.

6. dst – destination directory name
   This parameter reflects the destination where the database is being transferred to. It is omitted if *class*=DOWNLOAD or *class*=RESTORE.
   See parameter *src*. Those requirements also apply to this parameter *dst*.
7. class – Class Of The Copy
   This parameter specifies the class of the copy:
   - DOWNLOAD: download the program
   - BACKUP: copy the database to a backup location
   - RESTORE: restore the database from a backup location.

   Type: alphanumeric value set.
   Range: DOWNLOAD, BACKUP, RESTORE.

Output format

If the NE fully complies with the CPY-MEM command, then the NE sends the following normal completion response after the copy has been completed:

```
   sid date time
M  ctag COMPLD
;
```

Output parameters

Refer to the “RTRV-HDR: Retrieve header” (p. 4-1736) command output parameters section for a normal completion response. The output parameters listed there also apply to the CPY-MEM command.

Detailed behavior description

Generation of REPT DBCHG message

The CPY-MEM command generates a REPT DBCHG message.

Program download capability

The CPY-MEM command can be used to download software generics. The DOWNLOAD option of CPY-MEM is used to download new generics which are stored in the previous region of NVM.

A directory or URL is specified for the source (see *src* parameter).

Installation via APPLY causes the contents of previous NVM to be installed. Following installation, a ″pointer″ is changed so that what is identified as current NVM contains the currently executing generic and previous NVM contains the previous generic.

Backup capability

The BACKUP option of the CPY-MEM command can be used to backup the database from the current region of NVM to a destination which is located at the CIT or EMS.

A directory or URL is specified for the destination (see *dst* parameter).

Restore capability

The RESTORE option of the CPY-MEM command can be used to restore the database from a source at the CIT or EMS.

A directory or URL must be specified for the source (see *src* parameter).

The database is copied from a file store into previous region of NVM and then installed as the working database.

There are two phases to database restoration: copying the database from the source (e.g. the CIT) to NVM and then installing the database from NVM to working memory. The first phase takes much longer than the second.

Restore causes database installation

If CPY-MEM is used to restore a database to NVM, the NE will return COMPLD before the CTL controller reset.

The automatic installation of the database for a RESTORE is in contrast with the manual installation (via APPLY) of software required after a DOWNLOAD.

After the database has been installed to working memory, the working database contains provisioning that was in the restoration directory.

Restore clears logs

The system shall clear all Logs except the Security Activity Log when a database is successfully restored.

File transfer requires a checksum

A file that is transferred via the CPY-MEM command should contain one or more checksums to help validate that the file has not been corrupted.

Restore uses previous NVM

When CPY-MEM is used to restore a database, the previous region of NVM is used as an intermediate storage.

This minimizes the effect of copying to NVM since the current region of NVM is still available for database updates. Also, if communications fail during the copy to previous NVM, the current database is still available.

Provisioned vs. actual configuration

After a database restoration, if there is a discrepancy between the actual and provisioned CPs, then an alarm will be issued telling the craft about the discrepancy, but the NVM will not be altered automatically.

Example of discrepancy: The hardware indicates that an OC-48 pack is in slot 6, while the provisioned values in NVM indicate that a OC-192 pack should be in that slot. A CP mismatch alarm will be raised.

Example input/output

The following examples show input and output of CPY-MEM commands.

The following example shows a CPY-MEM request that downloads a new generic from the EMS to PRI. To cause *prgm* to execute, the APPLY command must be used.

```
CPY-MEM:LT-UNITE::123456::"EMS,02,04,02,
39840F8000000000000000000008006A19784500","/unite/
release1/prgm","PRI",,DOWNLOAD;
   LT-UNITE 00-11-01 08:00:00
M  123456 COMPLD
;
```

The following example shows a CPY-MEM request that backups the database in NVM to the CIT and stores it in a directory named data in a location named 00_11_01.

```
CPY-MEM:LT-UNITE::123456::"PRI",,"CIT,01,01,03,
39840F8000000000000000000008006A13244500","\\data
\\00_11_01",BACKUP;
   LT-UNITE 00-11-02 08:00:00
M  123456 COMPLD
;
```

The following example shows a CPY-MEM command that restores the database from the CIT:

```
CPY-MEM:LT-UNITE::123456::"CIT,01,01,03,
39840F8000000000000000000008006A13244500","\\data
```

```
\\00_11_01",,"PRI",,RESTORE;
   LT-UNITE 00-11-02 08:00:00
M  123456 COMPLD
;
```

The following example shows a CPY-MEM command used for performing a database backup via the FT-TD to an FTP server. The *psel*, *ssel*, *tsel*, *nsap* values identify the GNE which runs the FT-TD function:

```
CPY-MEM:LT-UNITE::123456:: "PRI",,"FTTD,01,01,03,
39840F8000000000000000000008006A132445500","ftp:
//johndoe:passwd@ftphost.company.com/directory/
00_11_01",BACKUP;
   LT-UNITE 00-11-02 08:00:00
M  123456 COMPLD
;
```

The following example shows a CPY-MEM command used for performing a software download via the FT-TD. The *psel*, *ssel*, *tsel*, *nsap* values identify the GNE which runs the FT-TD function:

```
CPY-MEM:LT-UNITE::123456:: "FTTD,01,01,03,
39840F8000000000000000000008006A132445500",,"PRI",
"ftp://johndoe:passwd@ftphost.company.com/directory
/00_11_01",DOWNLOAD;
   LT-UNITE 00-11-02 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command error response section. The error responses listed there also apply to the CPY-MEM command. Additional error responses that specifically apply to this command are defined in the following:

Validation rule: Input parameters not specified

If any one or more of the input parameter values are not valid, the system responds with:

Error code: `IDNV - Input, Data Not Valid`

The following parameter combinations are allowed based on the file transfer application:

	class	from	src	to	dst
FTAM	DOWNLOAD	″CIT,psel,ssel,tsel,nsap″; ″EMS,psel,ssel,tsel,nsap″	<dir>	″PRI″	-
	BACKUP	″PRI″	-	″CIT,psel,ssel,tsel,nsap″; ″EMS,psel,ssel,tsel,nsap″	<dir>
	RESTORE	″CIT,psel,ssel,tsel,nsap″ ″EMS,psel,ssel,tsel,nsap″	<dir>	″PRI″	-
FT-TD	DOWNLOAD	″FTTD,psel,ssel,tsel,nsap″	<URL>	″PRI″	-
	BACKUP	″PRI″	-	″FTTD,psel,ssel,tsel,nsap″;	<URL>
	RESTORE	″FTTD,psel,ssel,tsel,nsap″	<URL>	″PRI″	-

Validation rule: Invalid file or directory name

If the command failed due to

- an invalid directory or
- an invalid source file or
- file store not found or
- file access denied,

the system responds with:

Error code: `SDNC - Status, Data Not Consistent, invalid file or directory`

Validation rule: Source product type does not match network product type

If a product type of the source does not match the product type of the NE, the system responds with:

Error code: `SDNC - Status, Data Not Consistent`

Validation rule: Insufficient file space

If the command failed due to insufficient file space, the system responds with:

Error code: `ENEQ - Equipage, Not Equipped, insufficient file space`

Validation rule:NVM size sufficient for database with NN objects

The system shall verify that the installed NVM has a capacity > 256 Mbytes during an attempt to restore a database containing NN objects. Otherwise the following error shall be reported:

Error Code: `SNVS - Status, Not in Valid State, NVM size not sufficient.`

Validation rule: Product mismatch

If the command failed due to a product mismatch in a retrieved file (file does not belong to NE type), the system responds with:

Error code: `SRAC - Status, Requested Access Configuration invalid, retrieved file NE mismatch`

Validation rule: Temporary exhaustion of resources

If the system is experiencing temporary exhaustion of allocated resources because

- all resources are busy or
- a CPY-MEM request is issued and a previous CPY-MEM has not finished or a resource is busy for other reasons,

the system responds with:

Error code: `SARB - Status, All Resources Busy`

Validation rule: External communication failure

If the command failed due to an external communications failure, the system responds with:

Error code: `SROF - Status, Requested Operation Failed, external communications failure`

The following list identifies conditions that will cause an SROF error response as given above:

- FTAM error
- External communication failure
- Unsuccessful file transfer

Validation rule: Transferred file is deemed invalid

If the transferred file is deemed invalid for miscellaneous reasons such as incorrect checksum, invalid control information, etc., the system responds with:

Error code: `SROF - Status, Requested Operation Failed, unsuccessful file transfer`

Validation rule: Generic not available

If the command failed because the generic is not available, the system responds with:

Error code: `ENSG - Equipage, Not Software Generic, generic not available`

The following condition will cause this ENSG error response:

- Not a software generic file.

Validation rule: Directory not accessible

If a directory is specified that cannot be found or cannot be accessed due to improper privileges, the system responds with:

Error code: `IENE - Input, Entity Not Exists`

Validation rule: Deemed source file

If a source file is deemed invalid for miscellaneous reasons such as incorrect checksum, invalid control information, etc., the system responds with:

Error code: `SNVS - Status, Not in Valid State`

Validation rule: Directory/URL not specified

If CPY-MEM specifies a DOWNLOAD or RESTORE and no directory/URL is specified in *src* or if it specifies a BACKUP and no directory/URL is specifies in *dst*, then the following error response is given:

Error code: `ICNV - Input, Command Not Valid, file must be specified`

Validation rule: Additional directory/URL specified

If CPY-MEM specifies a DOWNLOAD or RESTORE and *dst* is not empty, or if it specifies a BACKUP and *src* is not empty:

Error code: `SDNC - Status, Data Not Consistent`

Validation rule: No SW download or DB restore during trial phase

If CPY-MEM specifies a DOWNLOAD or RESTORE and a newly applied SW generic is still in trial phase (previous SW generic state and database state = PRESERVED), the command shall be denied:

Error code: `SNVS - Status, Not in Valid State, SW generic is in trial phase`

Validation rule: No DB restore with incompatible database

If CPY-MEM specifies a RESTORE, the system shall verify that the database to be restored is compatible with the currently running SW generic and the actual HW equipage. The attempt to restore an imcompatible database shall be denied with:

Error code: `SNVS - Status, Not in Valid State, database not compatible`

Related TL1 messages

- "APPLY: Apply software generic" (p. 4-25)
- "RTRV-PRMTR-DATA: Retrieve parameter data" (p. 4-1982)
- "RTRV-PRMTR-SFTWR: Retrieve parameter software" (p. 4-1991)
- "RTRV-NE: Retrieve NE" (p. 4-1826)
- "ED-NE: Edit NE" (p. 4-320)

□

CPY-NEM Notification

Output format

The output parameters *sid*, *date*, *time*, and *atag* are described in the REPT DBCHG notification.

Command Syntax: CPY-MEM::*from*,[*src*],*to*,[*dst*],*class*;

Output parameters

Command parameters

1. from – from memory type
   This parameter specifies the memory where the data is being transferred from.
   Type: text string.
   Range:
   - ″PRI″ , PRImary NVM of the NE. Although there is no secondary NVM, PRI is used for compatibility reasons
   - ″CIT,*psel*,*ssel*,*tsel*,*sap*″ , CIT means Craft Interface Terminal (CIT)
   - ″EMS,*psel*,*ssel*,*tsel*,*nsap*″ , EMS means Element Management System (EMS)
   - ″FTTD, *psel*, *ssel*, *tsel*, *nsap*″ FTTD (file transfer translation device)

     sel, *ssel*, *tsel*, and *nsap* are part of the from (and to) parameter and specify NSAP and selectors of the CIT or EMS or the GNE in case of FTTD. The sizes of *sel*, *ssel*, *tsel*, and *nsap* are as follows: *psel* (path selector): 0-4 bytes (0-8 hex characters); *ssel* (session selector): 0-4 bytes (0-8 hex characters); *tsel* (transport selector): 0-16 bytes (0-32 hex characters); *nsap* (network service access point): 20 bytes (40 hex characters).

   There can only be an even number of hex characters since they are generated from bytes and each byte corresponds to 2 hex characters.
2. src – source
   This parameter reflects the source where the database or software is being transferred from. It is omitted if *class*=BACKUP.
   Type: text string
   Range: 1 to 128 characters, format is a valid complete directory name , or an FTP URL on the system (EMS or CIT) from which the file is transferred.

   The FTP URL must be in the format:
   ftp://[<login>[:<password>]@]<host>[:<port>]/<file_name>
   - <login>: default value: ″anonymous″
   - <password>: default for <login> ″anonymous″ is ″″ (empty).For security reasons, the <password> portion of the FTP URL format must be masked prior to generating any autonomous messages or entries in the Notification Log.
   - <host>: the <host> portion is an internet address of the form a.b.c.d with a, b, c and d in the range of 0..255.

- <port>: this is the port number of the FTP server, given when deviating from the standard port number 21.
- <file_name>: the complete path name of the file.

Because backslash (\) is the TL1 escape character, to include a backslash as part of a directory name, it must be entered as a double backslash. A double backslash counts as only one character. Craft personnel will not have to type the double backslash for the GUI. The second backslash is automatically generated.
Examples of valid file names are: ″d:\\bwm\\data\\file1.dat″ or ″/bwm/generic/01_02_15.prog″.

3. to – to memory type
   This parameter specifies the memory where the data is being transferred to.
   Type: text string.
   Range:
   - ″PRI″ , PRImary NVM of the NE. Although there is no secondary NVM, PRI is used for compatibility reasons
   - ″CIT,*psel*,*ssel*,*tsel*,*sap*″ , CIT means Craft Interface Terminal (CIT)
   - ″EMS,*psel*,*ssel*,*tsel*,*nsap*″ , EMS means Element Management System (EMS)
   - ″FTTD, *psel*, *ssel*, *tsel*, *nsap*″, FTTD (file transfer translation device).

     sel, *ssel*, *tsel*, and *nsap* are part of the from (and to) parameter and specify NSAP and selectors of the CIT or EMS or the GNE in case of FTTD. The sizes of *sel*, *ssel*, *tsel*, and *nsap* are as follows: *psel* (path selector): 0-4 bytes (0-8 hex characters); *ssel* (session selector): 0-4 bytes (0-8 hex characters); *tsel* (transport selector): 0-16 bytes (0-32 hex characters); *nsap* (network service access point): 20 bytes (40 hex characters).

     There can only be an even number of hex characters since they are generated from bytes and each byte corresponds to 2 hex characters.
4. dst – destination directory name
   This parameter reflects the destination where the database is being transferred to. It is omitted if *class*=DOWNLOAD or *class*=RESTORE.
   See parameter *src*. Those requirements also apply to this parameter *dst*.
5. class – Class Of The Copy
   This parameter specifies the class of the copy:
   - DOWNLOAD: download the program
   - BACKUP: copy the database to a backup location
   - RESTORE: restore the database from a backup location.

   Type: alphanumeric value set.
   Range: DOWNLOAD, BACKUP, RESTORE.

Example output

The following is an example for a CPY-MEM notification after a software download:

```
   LT-UNITE 00-11-01 15:00:00
A  000 REPT DBCHG
```

```
   "TIME=15-00-00,DATE=00-11-03:CPY-MEM::\"EMS,02,04,
   02,39840F8000000000000000000008006A19784500\",\"
   /unite/release1/prgm\",\"PRI\",,DOWNLOAD"
;
```

The following is an example for a CPY-MEM notification after a DB restore (before the NE resets):

```
   LT-UNITE 00-11-01 15:00:00
A  000 REPT DBCHG
   "TIME=15-00-00,DATE=00-11-03:CPY-MEM::\"CIT,01,01,
   03,39840F8000000000000000000008006A13244500\",\
   "\\data\\00_11_01\",\"PRI\",,RESTORE"
;
```

The following is an example for a CPY-MEM notification after a DB backup via the FT-TD:

```
   LT-UNITE 00-11-01 15:00:00
A  000 REPT DBCHG
   "TIME=15-00-00,DATE=00-11-03:CPY-MEM::\"PRI\",,\"FTTD,
   01,01,03,39840F8000000000000000000008006A132445500\",
   \"ftp://johndoe:passwd@ftphost.company.com/directory/
   00_11_01\",BACKUP"
;
```

□

DISC-TACC: Disconnect test access

General

The DISC-TACC command is used to remove the test access connection and terminate the test access session on the test access tributary in the NE.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): T4

Priority: 1

Abortable: No

Input format

Command Syntax: `DISC-TACC-modifier`*:tid:tatrib1:ctag;*

Input parameters

Command parameters

1. modifier
   Tis parameter indicates the cross-connection rate on which the connect test access command is to act.
   Type: alphanumeric value set.
   Range:
   - SDH modifier: VC3, VC4, VC44C, VC416C, VC464C
   - SONET modifier: STS1, STS3, STS12, STS48, STS192.
2. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
3. tatrib1 – primary Test Access tributary
   AID of the primary Test Access tributary. The keyword *all* shall not be allowed on any level.
   Type: AID. Range: STS1NumAID.
4. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

The NE returns the following normal completion response to a successful DISC-TACC command if there are no failure conditions to report:

```
   sid date time
M  ctag COMPLD
```

```
;
```

Detailed behaviour description

In addition to the DISC-TACC Notification an ED-CRS notification is sent to report the changed parameter values *taccstat* and *rtntaccstat*.

Example input/output

```
DISC-TACC-STS1:LT-UNITE:1-1-#-#-4-1-1:123456;
   LT-UNITE 02-10-01 17:15:08
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command error responses section. The error responses listed there also apply to the DISC-TACC command.

Validation Rule: No test access session on the test tributary

If the NE receives a DISC-TACC command when there is no test access session set up on the test tributary specified, the following error response is returned:

Error Code: `SNVS - Status, Not in Valid State, no test access session on the test tributary`

Validation Rule: Inconsistent tributary rate

If the NE receives an DISC-TACC command which does not match the test access connection rate, the following error response is returned:

Error Code: `IPNC - Input, Parameter Not Consistent, Rate inconsistent with crossconnection rate`

Related TL1 messages

- "CONN-TACC: Connect test access" (p. 4-62)
- "CHG-ACCMD: Change access mode" (p. 4-44)
- "RTRV-TACC: Retrieve test access" (p. 4-2176)
- "RTRV-CRS: Retrieve cross-connection" (p. 4-1649)

□

DISC-TACC notification

Output format

The DISC-TACC notification shall use the general format of a REPT DBCHG (Report Database Change) notification.

The DISC-TACC notification has the following specific syntax:
`DISC-TACC-`*`modifier:tatrib1::spec_block;`*

Output parameters

Command parameters

1. modifier
   Tis parameter indicates the cross-connection rate on which the connect test access command is to act.
   Type: alphanumeric value set.
   Range:
   - SDH modifier: VC3, VC4, VC44C, VC416C, VC464C
   - SONET modifier: STS1, STS3, STS12, STS48, STS192.
2. tatrib1 – primary Test Access tributary
   AID of the primary Test Access tributary. The keyword *all* shall not be allowed on any level.
   Type: AID. Range: STS1NumAID.

Spec block parameters

1. etrib – AID of the E-tributary
   AID of the E-tributary for the test session.
   Type: AID.
   Range: GenTribAID.
2. ftrib – AID of the F-tributary
   AID of the F-tributary for the test session. If there is no cross-connection at the E-tributary, this parameter is omitted.
   Type: AID.
   Range: GenTribAID.
3. tatrib2 – secondary Test Access Tributary
   AID of the secondary Test Access Tributary. In the case of test access modes with single test tributary the parameter is omitted.
   Type: AID.
   Range: STS1NumAID.

Example input/output

```
DISC-TACC-STS1:LT-UNITE:1-1-#-#-4-1-1:123456;
   LT-UNITE 02-10-01 17:15:08
M  123456 COMPLD
```

```
;
   LT-UNITE 02-10-01 17:15:38
A  001 REPT DBCHG
   "TIME=17-15-20,DATE=02-10-01:DISC-TACC-STS1:
   1-1-#-#-4-1-1:: ETRIB=1-1-#-#-15-1-1,
   FTRIB=1-1-#-#-16-1-1:"
;
```

DLT-ASAP-PROF: Delete alarm severity assignment profile

The DLT-ASAP-PROF command is used to delete an ASAP. Default ASAP's cannot be deleted.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M3

Priority: 1

Abortable: No.

Input format

Command Syntax: `DLT-ASAP-PROF`:*tid*::*ctag*::*pftype*,*pfname*;

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
3. pftype – Profile Type
   This parameter indicates the type of the ASAP (ASAP type).
   Type: alphanumeric value set. A '-' is also allowed for the values
   Range:
   - DCN: Data Communications Network
   - ENET: Ethernet
   - ENV: Environmental (Miscellaneous Discrete)
   - EQUIP-PROT: Equipment with Protection State Dependence
   - EQUIP-UNPROT: Equipment unprotected
   - MSSPRING-BLSR: MS-SPRing and Bilateral Switched Ring protection switch
   - MSP-APS: Automatic protection switch
   - PATH: Path MSA/NIM related
   - PATHTERM: Path Termination
   - PORT: SDH/SONET ports
   - SNCP-UPSR: Sub-Network Connection Protection and Unidirectional Path Switched Ring

- TIMING: System Timing
- TRANSPARENCY: Fully Transparent Service.

Default Value: There is no default value. The *pftype* does not change.

4. pfname – ASAP Profile Name
   The name distinguishes ASAPs of the same ASAP type specified by pftype. That means the same name can be used for several ASAP types.
   Type: alphanumeric character string. A hyphen (-) is additionally allowed in the name.
   Range: length 1-24 characters.
   For predefined ASAPs is the value of *pfname* ″DEFAULT″ , but it is no default name in general.

Output format

The following example shows the successful completion of the DLT-ASAP-PROF command by the NE:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the output parameter section of “RTRV-HDR: Retrieve header” (p. 4-1736).

Detailed behavior description

The DLT-ASAP-PROF command deletes the ASAP specified by pftype and pfname. A profile must not be used when it will be deleted.

The modification is reported via the DLT-ASAP-PROF notification.

Example input/output

The following example shows the successful completion of the DLT-ASAP-PROF command by the NE if the pfname will be changed:

```
DLT-ASAP-PROF:LT-UNITE-123::123456::PORT,NUERNBERG;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the “RTRV-HDR: Retrieve header” (p. 4-1736) command error responses section. The error responses listed there also apply to the DLT-ASAP-PROF command.

Validation rule: *pfname* does not exist

An ASAP with the name *pfname* does not exist.

Error Code: `SDNC - Status, Data Not Consistent, invalid instance of profile`

Validation rule: ASAP in use

The addressed ASAP is still in use.

Error Code: `SDNC - Status, Data Not Consistent, profile in use`

Validation rule: *pfname* is default

The addressed ASAP is a default one which can not be deleted.

Error Code: `IDNC - Input, Data, Not Consistent, default profile`

Related TL1 messages

- "ED-ASAP-PROF: Edit alarm severity assignment profile" (p. 4-206)
- "ENT-ASAP-PROF: Enter alarm severity assignment profile" (p. 4-1018)
- "RTRV-ASAP-PROF: Retrieve ASAP profile" (p. 4-1616)
- "RTRV-ASAP-ASGNMT: Retrieve ASAP assignment" (p. 4-1612)

□

DLT-ASAP-PROF notification

Output format

See definiton of “REPT DBCHG: Report data base change” (p. 4-1517).

Syntax: The DLT-ASAP-PROF notification has the following specific syntax:

`DLT-ASAP-PROF::`*pftype*,*pfname*

Output parameters

Command parameters

1. pftype – Profile Type
   This parameter indicates the type of the ASAP (ASAP type).
   Type: alphanumeric value set. A ’-’ is also allowed for the values
   Range:
   - DCN: Data Communications Network
   - ENET: Ethernet
   - ENV: Environmental (Miscellaneous Discrete)
   - EQUIP-PROT: Equipment with Protection State Dependence
   - EQUIP-UNPROT: Equipment unprotected
   - MSSPRING-BLSR: MS-SPRing and Bilateral Switched Ring protection switch
   - MSP-APS: Automatic protection switch
   - PATH: Path MSA/NIM related
   - PATHTERM: Path Termination
   - PORT: SDH/SONET ports
   - SNCP-UPSR: Sub-Network Connection Protection and Unidirectional Path Switched Ring
   - TIMING: System Timing
   - TRANSPARENCY: Fully Transparent Service.

   Default Value: There is no default value. The *pftype* does not change.
2. pfname – ASAP Profile Name
   The name distinguishes ASAPs of the same ASAP type specified by pftype. That means the same name can be used for several ASAP types.
   Type: alphanumeric character string. A hyphen (-) is additionally allowed in the name.
   Range: length 1-24 characters.
   For predefined ASAPs is the value of *pfname* ″DEFAULT″ , but it is no default name in general.

Example output

The following example shows a normal notification after an DLT-ASAP-PROF command:

```
   LT-UNITE-123 00-01-01 08:00:50
A 815 REPT DBCHG
   "TIME=08-00-12,DATE=00-01-01:DLT-ASAP-PROF::
   ENET,NUERNBERG"
;
```

□

DLT-CRS: Delete cross-connection

The DLT-CRS-*modifier* command can be initiated by a user to delete a cross-connection in the NE.

The *modifier* in the DLT-CRS command indicates the cross-connection rate of the tributary for which the command is applied to.

There is no difference if the rate is specified as a SONET rate (STS1, STS3,..) or as SDH-rate (VC3, VC4,..) for the deletion of the cross-connection i.e. the DLT-CRS-<*sonet-rate*> yields to the same physical and logical behavior as DLT-CRS-<*sdh-rate*>.

No check is made if the modifier matches the interface-standard of the port i.e. if the port is provisioned as SONET (resp. SDH) and the rate is a SONET (resp. SDH) rate.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: No

Input format

Command Syntax: `DLT-CRS-`*modifier*:*tid*:*in_aid*,*out_aid*:*ctag*::[*cct*],[*in_aid2*];

Input parameters

Command parameters

1. modifier
   This parameter indicates the cross-connection on which the DLT-CRS command acts on.
   For detailed description please refer to the "RTRV-CRS: Retrieve cross-connection" (p. 4-1649) command.
   Type: Alphanumeric value set
   Range:
   - LOVC12
   - LOVC3
   - VC3
   - VC4
   - VC44C
   - VC416C
   - VC464C
   - LOVT1

- STS1
- STS3
- STS12
- STS48
- STS192.

No use of the *all* value is allowed.

2. tid – Target Identifier
   Target Identifier. Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and the description of this parameter.
3. in_aid – Input Access Identifier
   This parameter specifies the source of the cross-connection.
   In case of a 1-way cross-connection the source of a cross-connection is unambiguous. In this case the cross-connection will be retrieved by the RTRV-CRS, which has the identical *in_aid.*
   In case of a 2-way cross-connection the source is not defined (the source could be the *in_aid* or the *out_aid* of the cross-connection). In this case both aids (*in_aid* or *out-aid*) of the cross-connection can be used as the *in_aid* parameter of the RTRV-CRS command. The RTRV-CRS command will then return the *in_aid* – parameter used in the RTRV-CRS command as the *in_aid* of the RTRV-CRS reply.
   Example:
   ENT-CRS-VC4:NEname:1-1-#-#-1-1-1,1-1-#-#-2-1-1:123456:2way;
   RTRV-CRS-VC4:NEname:1-1-#-#-2-1-1:123457;
   M 123457 COMPLD ″1-1-#-#-1-1-,1-1-#-#-2-1-1:vc4….. ;
   Type: GenTribAID.
   Range: The `all`-parameter is accepted for the slot-, port- and trib-part of the AID. For the port the all-parameter is to be distinguished between `all` when referring OPn packs and GEn `vall` when referring the GEn.
   For example the following *in_aids* are valid:
   - 1-1-#-#-all-all-all specifying all tributaries and all ports in the whole shelf
   - 1-1-#-#-2-1-all specifying all tributaries of the first port of the pack in slot-number=02
   - 1-1-#-#-3-vall-all specifying all tributaries of the first port of the (GEn) pack in slot-number=03
4. out_aid – Output Identifier
   This parameter specifies the tributary which is the sink of the cross-connection.
   Type: STS1NumAID (when using OPn packs) or VCGNumAID (when using GEn).
   Range: n.a. (`all` values shall never occur as part of an output parameter).
5. ctag – Correlation Tag
   See definition of *ctag* in "RTRV-HDR: Retrieve header" (p. 4-1736).

6. cct – cross-connection Topology
   This parameter specifies the topology of the cross-connection to be established via the ENT-CRS command.
   The topology defines
   - the number of legs of the cross-connection
   - whether both legs belong to the same tributary
   - whether a path protection is included.

   The following values are possible:
   - 1WAY: the cross-connection consists of one leg given by the *in_aid* to the *out_aid*
   - 2WAY: the cross-connection consists of two legs given by the *in_aid* to the *out_aid* and the return leg given by the *out_aid* to the *in_aid*
   - 1WAYPPROT: the cross-connection consist of one leg (the worker leg) given by *in_aid* to *out_aid* and another leg (the protection leg) given by *in_aid2* to the *out_aid.* The path selector function is associated with the tributary of *out_aid*.

   Type: Alphanumeric value string.
   Range:
   - 1WAY
   - 2WAY (default)
   - 1WAYPPROT.

7. in_aid2 – Input Access Identifier 2
   This parameter is applicable to path-protected cross-connections only and specifies the source of the protection leg.
   Thus *in_aid* and *out_aid* specify the working leg while *in_aid2* and *out_aid* specify the protection leg of a path-protected cross-connection. For non path-protected cross-connection the parameter *in_aid2* must be omitted.
   Both input aids (*in_aid* and *in_aid2*) have to be related to ports with the same interface mode being either SDH or SONET. This is due to different switch criteria for SONET and SDH.
   Type: STS1NumAID.
   Note: Using VCGNumAID (when using GEn) is NOT applicable as the GEn can not be the input to a path-protected cross-connection.
   Range: No use of the `all` value within the *in_aid2* is allowed.
   Default: None (a valid value is needed on case of a path-protected cross-connection – no default is defined).

Output format

If the DLT-CRS command completes successfully, then the following normal completion response is returned:

```
sid date time
```

```
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

Cross-connection can be deleted via the DLT-CRS command when *xconcls*=TRADITIONAL.

Deletion of 2WAY cross-connections

Please note that the 2 legs of a 2-way cross-connection can be deleted either via a single DLT-CRS command (with *cct*=2WAY) or via 2 separate DLT-CRS commands (each with *cct*=1WAY). In the latter case an additional *repleg* status change will be notified via an ED-CRS notification.

When deleting a cross-connection the cross-connection entity will be deleted as well. This deletion is notified via a DLT-CRS notification.

Updated affected entities: General

In case of deleting a path-protected cross-connection the command deletes in addition the entity of type protection group being related to that path-protected cross-connection. This deletion is notified via a DLT-PROTN-GRP notification. Please refer to the "DLT-PROTN-GRP notification" (p. 4-173) section for details.

In case the *repleg* state is changed by deleting a cross-connection an ED-CRS notification is used to notify the updated *repleg* value.

Updated affected entities: 1-way cross-connection, when not part of 2 way cross-connection

In case a 1-way cross-connection is deleted where no ″equivalent return-leg″ (see below) is already existing the affected instance of the cross-connection is deleted. This is reported by means of an DLT-CRS notification.

An ″equivalent return-leg″ means: for a 1-way cross-connection with rate N from in_trib to out_trib a return-leg would be given by

- a 1-way cross-connection from out_trib to in_trib
- with the same rate N
- and in (case of BLSR only) the same *loca* and *locz* values.

Example:

DLT-CRS-vc3:NameOfNE:1-1-#-#-6-1-1,1-1-#-#-1-1-1:88::1way;

REPT DBCHG

DLT-CRS-VC3:1-1-#-#-6-1-1,1-1-#-#-1-1-1:1WAY;

Updated affected entities: 1-way cross-connection, when part of a 2-way cross-connection

In case a 1-way cross-connection is deleted where an ″equivalent return-leg″ (see below) exists the instance of type cross-connection, which represents the leg as specified in the DLT-CRS command shall be deleted.

This is reported by means of an DLT-CRS notification.

Furthermore the altered *repleg* status is reported via an ED-CRS notification.

An ″equivalent return-leg″ means: when entering a 1-way cross-connection with rate N from in_trib to out_trib a return-leg would be given by

- a 1-way cross-connection from out_trib to in_trib
- with the same rate N
- and in (case of BLSR only) the same *loca* and *locz* values.

Example (Precondition: 2-way cross-connection:1-1-#-#-7-3-1 ↔ 1-1-#-#-3-4-1):

DLT-CRS-vc4:NEname:1-1-#-#-7-3-1,1-1-#-#-3-4-1:587::1way;

REPT DBCHG

DLT-CRS-VC4:1-1-#-#-7-3-1,1-1-#-#-3-4-1:1WAY;

REPT DBCHG

ED-CRS-VC4:1-1-#-#-3-4-1,1-1-#-#-7-3-1::repleg=1WAY;

Updated affected entities: 2-way cross-connection

In case a 2-way cross-connection is deleted its related instance of type cross-connection will be deleted as well.

This is reported by means of an DLT-CRS notification.

Example:

DLT-CRS-vc3:NameOfNE:1-1-#-#-6-1-1,1-1-#-#-1-1-1:88::2way;

REPT DBCHG

DLT-CRS-VC3:1-1-#-#-6-1-1,1-1-#-#-1-1-1:2WAY;

Updated affected entities: path-protected cross-connection

In case a path-protected cross-connection is deleted the related instance of type cross-connection will be deleted as well. This is reported by means of one DLT-CRS notification where *in_aid*, *in_aid2* can be chosen as in the delete request or flipped.

Furthermore the related instance of protection group will be deleted as well.

This is reported by means of an DLT-PROTN-GRP notification.

For details on protection group please refer to the protection group section.

Example:

DLT-CRS-vc3:NameOfNE:1-1-#-#-1-1-1,1-1-#-#-15-1-1:92::1WAYPPROT,1-1-#-#-14-1-1;

REPT DBCHG

DLT-PROTN-GRP:1-1-#-#-15-1-1:PATHDRI;

REPT DBCHG

DLT-CRS-VC3:1-1-#-#-1-1-1,1-1-#-#-15-1-1:1WAYPPROT,1-1-#-#-14-1-1;

Identification of VCG Tributaries

The system shall allow to delete cross connections at VCG Tributaries using the AID format of an AU-3/STS-1 Tributary. I.e. the VCG number specified in the port field of the AID shall be allowed with or without the leading ″v″.

Specific behaviour of low-order cross-connection deletion - Auto-desubstructuring of high-order tributaries

If the last low-order cross-connection is going to be removed from the substructured low-order entities then the whole substructure shall be deleted:

- any performance monitoring point related to those LONIM entities,
- all LONIM entities,
- the related PTF entity.

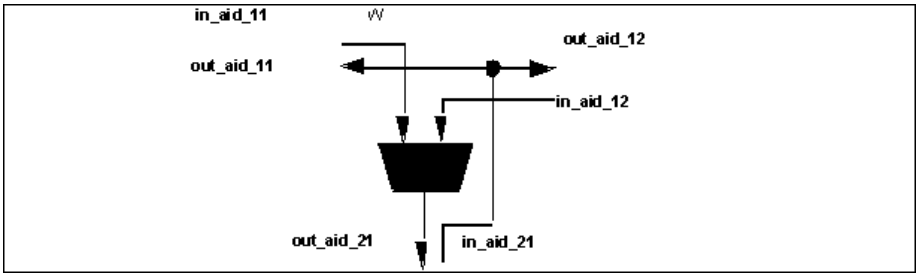
The deletion of the latter two items shall be notified (by DLT-LONIM and DLT-PTF notifications).

In addition the HO tributary shall indicate that it is not substructured by setting the parameter substr to FALSE which shall be notified by a ED-rr notificiation.

None of the deleted settings are longer maintained. A new cross-connection will cause a creation of new substructure with default values.

Example input/output

Suppose the following compound cross-connection as depicted below is deleted: This would require the following DLT-CRS commands:




```
DLT-CRS-VC4:UNITE-NE:in_aid_11,out_aid_21:123456::
1WAYPROT,in_aid_12;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
;

DLT-CRS-VC4:UNITE-NE:in_aid_21,out_aid_12:123457::1way;
   LT-UNITE 00-11-14 12:01:00
M  123457 COMPLD
;

DLT-CRS-VC4:UNITE-NE:in_aid_21,out_aid_11:123458::1way;
   LT-UNITE 00-11-14 12:02:00
M  123458 COMPLD
;
```

The first command will delete the path-protected cross-connection, while the following two commands delete the bridge.

Error responses

Validation rule: Valid topology

Cross-connection command processing verifies for higher order cross connections that the value of the topology parameter is consistent with the atomic cross-connection topology and the leg status of the existing cross-connection in accordance with the following table. Failure to meet this criteria (Validation Response = Deny) results in command rejection.

Error code: `SNVS - Status, Not in Valid State, Invalid topology`

Topology in Remove cross-connection Command (TL1-parameter: *cc* t)	**Topology of Existing Atomic cross-connection (internal parameter: ″Atomic cross-connection topology″ as described in the RTRV-CRS section in the *repleg* context)**	**Leg Status of Existing Atomic cross-connection (internal parameter: ″Leg status″ as described in the RTRV-CRS section in the *repleg* context)**	**Validation Response (″Accept″ means that the command is replied by a COMPLD, ″Deny″ means, that the command is rejected with the Error Code as stated above)**
1WAY	point-to-point	1-way	Accept
	point-to-point	2-way	Accept
	path-protected	1-way	Deny
2WAY	point-to-point	1-way	Deny
	point-to-point	2-way	Accept
	path-protected	1-way	Deny
1WAYPPROT	point-to-point	1-way	Deny
	point-to-point	2-way	Deny
	path-protected	1-way	Accept

This table should be understood as follows:

- 1. line: suppose a 1-way cross-connection exists with a point-to-point topology – then this cross-connection can be deleted with the DLT-CRS command including the input parameter *cct*=1WAY i.e. the command will be accepted and executed;
- 2. line: suppose a 2-way cross-connection exists with a point-to-point topology – then a DLT-CRS with *cct*=1WAY will be accepted and one leg will be deleted (the other in the return direction will still exist);
- 3. line: suppose a path-protected cross-connection exists which (also) has a leg status 1-WAY – then a DLT-CRS with *cct=1way* will be denied with the Error Code `SNVS - Status, Not in Valid State, Invalid topology`; to delete this cross-connection properly the last line has to be considered, where the *cct* is compliant with the atomic cross-connection topology and the leg status.

Validation rule: Entities (tributaries) must exist

Cross-connection command processing verifies the logical tributaries specified in the command do exist.

Error code: `IENE - Input Entity Not Exists, Specified tributary/tributaries do not exist`

Validation rule: Entity (cross-connection) must exist

Cross-connection command processing verifies that the specified cross-connection exists.

Error code: `IENE - Input Entity Not Exists, Specified cross-connection does not exist`

Validation rule: LO cross-connection with specified topolgy must exist

Cross-connection command processing shall verify for lower order cross-connections that a lower order cross connection with the specified topology exists.

Error code: `IENE - Input, Entity Not Exists, Specified cross-connection does not exist`

Validation rule: Valid rate

Cross-connection command processing verifies that the specified rate is equivalent to the rate of the existing cross-connection. Hereby the SONET-rates are treated identical to the SDH-rates (i.e. sts1/vc3, STS3/vc4 etc.)

Error code: `IDNC - Input Data Not Consistent, Rate is inconsistent with existing cross-connection`

Validation rule: No cross-connection loopback existing

Cross-connection command processing denies commands requesting a cross-connection to a tributary with an existing cross-connection loopback.

Error code: `SNVS - Status, Not in Valid State, Tributary has existing loopback.`

Note: As in the ENT-CRS command there is no command validation concerning facility loopback i.e. the cross-connection deletion will be possible even with a facility loopback present.

Validation Rule: No test access session

Cross-connection command processing shall deny commands requesting a cross-connection to a tributary which is used in a test access session either as tributary under test or as test access tributary.

Error Code: `SNVS - Status, Not in Valid State, Tributary used in test access session`

Validation Rule: Cross-connection must not be of *xconcls* NN

Cross-connection command processing shall verify, that the cross-connection is not of xconcls NN.

Error Code: `SNVS - Status, Not in Valid State, Cross connection must not be of xconcls NN`

Related TL1 messages

- "ED-CRS: Edit cross-connection" (p. 4-213)
- "ENT-CRS: Enter cross-connection" (p. 4-1026)
- "ENT-ROLL: Enter roll" (p. 4-1262)
- "RTRV-CRS: Retrieve cross-connection" (p. 4-1649)

- "DLT-PATH: Delete ONNS path Connection" (p. 4-148)
- "ED-NNCRS: Edit NN cross-connection" (p. 4-335)
- "ENT-PATH: Create ONNS path connection" (p. 4-1190)

References

GR-199-CORE

□

DLT-CRS-FECOM: Delete transparent DCC cross-connection

The DLT-CRS-FECOM can be initiated by the users to delete a transparent DCC cross-connection.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M3

Priority: 3

Abortable: No.

Input format

Command Syntax: `DLT-CRS-FECOM`*:tid:port_aid1,port_aid2,dcctype:ctag;*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
3. port_aid1 – DCC port 1
   This parameter indicates one (first) optical port AID of an OPn circuit pack which is used together with dcctype to identify the DCC channel which is involved in a Transparent DCC Cross Connection.
   Type: AID
   Range: SPortAID. The keyword *all* shall be allowed not.
4. port_aid2 – DCC port 2
   This parameter indicates one (second) optical port AID of an OPn circuit pack which is used together with dcctype to identify the DCC channel which is involved in a Transparent DCC Cross Connection.
   Type: AID
   Range: SPortAID. The keyword *all* shall be not allowed in the aid.
5. dcctype
   This parameter specifies whether the LINE/MS or SECTION/RS Transparent DCC Cross Connection parameters of the OPn port is reported by the command.
   Type: Alphanumeric value set Range - LINE - SECTION
   Range: LINE, SECTION

Output format

In response to a valid DLT-CRS-FECOM command, the following output shall be returned:

```
    sid date time
 M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736) .

Detailed behavior description

The DLT-CRS-FECOM command deletes a transparent DCC cross-connection specified by *port_aid1*, *port_aid2* and *dcctype*.

The system supports only bidirectional transparent DCC cross-connections.

Update affected entities

The deletion of the transparent DCC cross-connection will be reported via DLT-CRS-FECOM notification reporting the deleted transparent DCC cross-connection.

The update of the dccstat parameter of the two involved ports will be reported via ED-FECOM notification for each port reporting the changed *dccstat* = DISABLED and *scn_dccstat* = DISABLED.

Example input/output

The following example shows DLT-CRS-FECOM commands there two transparent DCC cross-connections are deleted one for *dcctype* = SECTION and one for *dcctype* = LINE:

```
DLT-CRS-FECOM:NE-UNITE:1-1-#-#-1-1,1-1-#-#-2-1,LINE:12345;
    NE-UNITE 00-12-24 12:00:00
 M  123456 COMPLD
;
DLT-CRS-FECOM:NE-UNITE:1-1-#-#-1-1,1-1-#-#-2-1,SECTION:12345;
    NE-UNITE 00-12-24 12:00:00
 M  123456 COMPLD
;
```

Error responses

Refer to the RTRV-HDR command ERROR RESPONSES section. The error responses listed there apply to the DLT-CRS-FECOM command.

Validation Rule: Entity (transparent DCC cross-connection) must exist

The specified transparent DCC cross-connection must exist on both specified ports.

Error Code: `IENE - Input Entity Not Exists, Specified Transparent DCC Cross Connection does not exist`

Related TL1 messages

- "ENT-CRS-FECOM: Enter transparent DCC cross-connection" (p. 4-1062)
- "RTRV-CRS-FECOM: Retrieve transparent DCC cross-connection" (p. 4-1669)
- "RTRV-FECOM: Retrieve DCC related parameters" (p. 4-1727)
- "ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)

□

DLT-CRS-FECOM notification

Output format

The DLT-CRS-FECOM notification shall use the general format of a REPT DBCHG (Report Database Change) notification.

Command syntax: `DLT-CRS-FECOM`*:port_aid1,port_aid2,dcctype*

Output parameters

Command parameters

1. port_aid1 – DCC port 1
   This parameter indicates one (first) optical port AID of an OPn circuit pack which is used together with dcctype to identify the DCC channel which is involved in a Transparent DCC Cross Connection.
   Type: AID
   Range: SPortAID. The keyword *all* shall be allowed not.
2. port_aid2 – DCC port 2
   This parameter indicates one (second) optical port AID of an OPn circuit pack which is used together with dcctype to identify the DCC channel which is involved in a Transparent DCC Cross Connection.
   Type: AID
   Range: SPortAID. The keyword *all* shall be not allowed in the aid.
3. dcctype
   This parameter specifies whether the LINE/MS or SECTION/RS Transparent DCC Cross Connection parameters of the OPn port is reported by the command.
   Type: Alphanumeric value set Range - LINE - SECTION
   Range: LINE, SECTION

Example output

The following example shows DLT-CRS-FECOM notifications reporting the deletion of transparent DCC cross-connections:

```
   UNITE-NE 00-12-24 12:00:00
A  000 REPT DBCHG
   "TIME=12:00:00,DATE=00-12-24:DLT-CRS-FECOM::
   1-1-#-#-1-1,1-1-#-2-1,LINE"
;
   UNITE-NE 00-12-24 12:00:00
A  000 REPT DBCHG
   "TIME=12:00:00,DATE=00-12-24:DLT-CRS-FECOM::
   1-1-#-#-1-1,1-1-#-2-1,SECTION"
;
```

□

DLT-CRS notification

Output format

The DLT-CRS notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: DLT-CRS-*modifier:in_aid*,*out_aid*:*cct*,[*in_aid2*];

Output parameters

Command parameters

1. modifier
   This parameter indicates the cross-connection on which the DLT-CRS command acts on.
   For detailed description please refer to the "RTRV-CRS: Retrieve cross-connection" (p. 4-1649) command.
   Type: Alphanumeric value set
   Range:
   - LOVC12
   - LOVC3
   - VC3
   - VC4
   - VC44C
   - VC416C
   - VC464C
   - LOVT1
   - STS1
   - STS3
   - STS12
   - STS48
   - STS192.

   No use of the *all* value is allowed.
2. in_aid – Input Access Identifier
   This parameter specifies the source of the cross-connection.
   In case of a 1-way cross-connection the source of a cross-connection is unambiguous. In this case the cross-connection will be retrieved by the RTRV-CRS, which has the identical *in_aid.*
   In case of a 2-way cross-connection the source is not defined (the source could be the *in_aid* or the *out_aid* of the cross-connection). In this case both aids (*in_aid* or *out-aid*) of the cross-connection can be used as the *in_aid* parameter of the RTRV-CRS command. The RTRV-CRS command will then return the *in_aid* –

parameter used in the RTRV-CRS command as the *in_aid* of the RTRV-CRS reply.
Example:
ENT-CRS-VC4:NEname:1-1-#-#-1-1-1,1-1-#-#-2-1-1:123456:2way;
RTRV-CRS-VC4:NEname:1-1-#-#-2-1-1:123457;
M 123457 COMPLD ″1-1-#-#-1-1-,1-1-#-#-2-1-1:vc4….. ;
Type: GenTribAID.
Range: The `all`-parameter is accepted for the slot-, port- and trib-part of the AID. For the port the all-parameter is to be distinguished between `all` when referring OPn packs and GEn `vall` when referring the GEn.

For example the following *in_aids* are valid:

- 1-1-#-#-all-all-all specifying all tributaries and all ports in the whole shelf
- 1-1-#-#-2-1-all specifying all tributaries of the first port of the pack in slot-number=02
- 1-1-#-#-3-vall-all specifying all tributaries of the first port of the (GEn) pack in slot-number=03

3. out_aid – Output Identifier
   This parameter specifies the tributary which is the sink of the cross-connection.
   Type: STS1NumAID (when using OPn packs) or VCGNumAID (when using GEn).
   Range: n.a. (`all` values shall never occur as part of an output parameter).
4. cct – cross-connection Topology
   This parameter specifies the topology of the cross-connection to be established via the ENT-CRS command.

   The topology defines

   - the number of legs of the cross-connection
   - whether both legs belong to the same tributary
   - whether a path protection is included.

   The following values are possible:

   - 1WAY: the cross-connection consists of one leg given by the *in_aid* to the *out_aid*
   - 2WAY: the cross-connection consists of two legs given by the *in_aid* to the *out_aid* and the return leg given by the *out_aid* to the *in_aid*
   - 1WAYPPROT: the cross-connection consist of one leg (the worker leg) given by *in_aid* to *out_aid* and another leg (the protection leg) given by *in_aid2* to the *out_aid*. The path selector function is associated with the tributary of *out_aid*.

   Type: Alphanumeric value string.

   Range:

   - 1WAY
   - 2WAY (default)
   - 1WAYPPROT.

5. in_aid2 – Input Access Identifier 2
   This parameter is applicable to and is present for path-protected cross-connections only and specifies either the source of the protection leg or the source of the working leg.
   This depends on the value of the *repleg* parameter:
   - E.g. for the combination: *in_aid*=IN1, *out_aid*=OUT, *in_aid2*=IN2 and *repleg*=1WAYPSW the worker leg is given by IN1 -> OUT and the protection leg is given by IN2 -> OUT;
   - for the combination: *in_aid*=IN1, *out_aid*=OUT,*in_aid2*=IN2 and *repleg*=1WAYPSP the worker leg is given by IN2 -> OUT and the protection leg is given by IN1 -> OUT.

   Thus *in_aid* and *out_aid* specify one leg of the legpair of a path-protected cross-connection, while *in_aid2* and *out_aid* specify the second leg.
   Type: STS1NumAID.
   Note: Using VCGNumAID (when using GEn) s NOT applicable as the GEn can not be the input to a path-protected cross-connection.
   Range: n.a. (`all` values shall never occur as part of an output parameter).

Example output

Refer to the ″Detailed behavior description″ in “DLT-CRS: Delete cross-connection” (p. 4-97).

□

DLT-EC1 notification

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID
   Range: EC1 port AID

Example Output

```
   UNITE-NE 04-12-23 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=04-12-23:DLT-EC1:1-1-#-#-21-1"
;
```

□

DLT-EPORT notification

Output format

The DLT-EPORT notification uses the general format of a REPT DBCHG (Report Database Change) notification.

The DLT-EPORT notification has the following specific syntax:

DLT-EPORT:*aid;*

Output parameters

Command parameters

aid - Access Identifier

See definition at "RTRV-EPORT: Retrieve Ethernet port" (p. 4-1685), Output parameters.

Example output

```
   LT-UNITE 00-11-11 11:11:00
A  001 REPT DBCHG
   "TIME=11-10-30,DATE=00-11-11:DLT-EPORT:1-1-#-#-1-1:::"
;
```

□

DLT-EQPT (slot): Delete equipment (slot)

The DLT-EQPT command deletes equipment that has been previously created with the ENT-EQPT command or via CP plug-in (auto-provisioning).

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: No.

Input format

Command Syntax: `DLT-EQPT`*:tid:aid:ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   The AID of a slot.
   Type: AID
   Range:
   - SlotAID
   - UnivSlotAID
   - XCSlotAID
   - CTLSlotAID.

   The keyword `usall` is allowed for Simple_UnivSlotAID.
   The keyword `xcall` is allowed for Simple_XCSlotAID.
   The keyword `ctlall` is allowed for Simple_CTLSlotAID.
   The keyword `all` is allowed for Simple_SlotAID.
   The keyword `all` is not allowed on bay/shelf level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

If the DLT-EQPT command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
```

;

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The command deletes a circuit pack for a specified slot.

The deletion is reported by means of an DLT-EQPT notification for circuit pack.

For de-provisioning of a slot some conditions must be fulfilled.

Behaviour of *actlname* during deprovisioning

When a circuit pack is deleted from the specified slot, then the actlname of the slot shall be modified and contain all allowed functional names for provisioning, according to the current provisioning status of the system.

Behavior of deprovisioning for multislot circuit packs

The attribute *actlname* of the neighbor slots which were covered by the multislot circuit pack (e.g. OP40) shall be modified and set from empty to the list of accepted packs.

The attributes *nvmname*, *nvmqual* of the neighbor slots which were covered by the multislot circuit pack (e.g. OP40) are modified and set to UNDEFINED, UNDEF.

The update is reported by means of an ED-EQPT notification for this slot.

Behavior of deprovisioning on multislot circuit packs

The attribute *actname* of the neighbor slot which can now be used again by a multislot circuit pack (the physical slot of e.g. an OP) is modified and all multislot CPs shall be added.

The update is reported by means of an ED-EQPT notification for this slot.

Update affected entities

The command deletes in addition a set of entities of different types depending on the provisioned circuit pack

1. One instance of type circuit pack is deleted with attribute *aid.* This is reported by means of DLT-EQPT notification for the CP.
2. The instances of port STM-16 is deleted if *nvmname* of the addressed circuit pack equals *OP2G5* and the port attribute *istd* equals *SDH*. This is reported by means of DLT-STM16 notification of port. The number of port instances to be deleted depends on the capabilities of the actual circuit pack.

3. The instances of port OC-48 are deleted if *nvmname* of the addressed circuit pack equals *OP2G5* and the port attribute *istd* equals *SONET*. This is reported by means of DLT-OC48 notification of port. The number of port instances to be deleted depends on the capabilities of the actual circuit pack.
4. One instance of port STM-64 is deleted if *nvmname* of the addressed circuit pack equals *OP10* and the port attribute *istd* equals 'SDH'. This is reported by means of DLT-STM64 notification of port.
5. One instances of port OC-192 is deleted if *nvmname* of the addressed circuit pack equals *OP10* and the port attribute *istd* equals *SONET*. This is reported by means of DLT-OC192 notification of port.
6. One instance of port STM-256 is deleted if *nvmname* of the addressed circuit pack equals *OP40* and the port attribute *istd* equals *SDH*. This is reported by means of DLT-STM256 notification of port.
7. One instances of port OC-768 is deleted if *nvmname* of the addressed circuit pack equals *OP40* and the port attribute *istd* equals *SONET*. This is reported by means of DLT-OC768 notification of port.
8. 48, 192, 768 VC3 tributaries are deleted for each existing SDH port. This is reported by means of DLT-VC3 notifications for tributary.
9. 48, 192, 768 STS1 tributaries are deleted for each existing SONET port. This is reported by means of DLT-STS1 notifications for tributary.
10. The dcc channel entities are deleted for each existing SDH/SONET port. This is reported by means of DLT-FECOM notification for dcc channel.
11. One instance of 1+1 equipment protection group shall be deleted if nvmname of the addressed circuit pack equals 'to one out of {XC160, XC32 - , XC640} (not all variants are supported in all releases) and another XC circuit pack with the same nvmname exists. This shall be reported by means of DLT-PROTNGRP notification for the 1+1 protection group.
12. The parameters *nvmname, nvmqual* of the slot will be set to UNDEFINED, UNDEF, which will be reported by an ED-EQPT notification for slot.

Update affected entities - GE1

In addition to the rules listed above the command deletes the following entities if *nvmname* equals GE1:

- all instances of the entity EPORT owned by this circuit pack are deleted. This is reported by means of DLT-EPORT notification
- all instances of the entity VCG owned by this circuit pack are deleted. This is reported by means of DLT-VCG notification.
- For each VCG to be deleted all tributaries owned by this VCG are deleted. This is reported by means of DLT-VCGTRIB notification.

Update affected entities - Port Entities of OP622

In addition to the rules listed above the command deletes the following entities if *nvmname* equals OP622:

- 12 VC3 tributaries are deleted for each existing SDH ports. This is reported by means of DLT-VC3 notifications for tributary.
- 12 STS1 tributaries are deleted for each existing SONET port. This is reported by means of DLT-STS1 notifications for tributary.
- The instances of port STM-4 are deleted if the port attribute *istd* of the node equals 'SDH'. This is reported by means of DLT-STM4 notification for port. The number of port instances to be deleted depends on the capabilities of the actual circuit pack.
- The instances of port OC-12 are deleted if the port attribute *istd* of the node equals 'SONET'. This is reported by means of DLT-OC12 notification for port. The number of port instances to be deleted depends on the capabilities of the actual circuit pack.

Update affected entities - Port Entities of OP155

In addition to the rules listed above the command deletes the following entities if *nvmname* equals OP155:

- 3 VC3 tributaries are deleted for each existing SDH ports. This is reported by means of DLT-VC3 notifications for tributary.
- 3 STS1 tributaries are deleted for each existing SONET port. This is reported by means of DLT-STS1 notifications for tributary.
- The instances of port STM-1 are deleted if the port attribute *istd* of the node equals SDH. This will be reported by means of DLT-STM1 notification for port. The number of port instances to be deleted depends on the capabilities of the actual circuit pack.
- The instances of port OC-3 are deleted if the port attribute *istd* of the node equals SONET. This will be reported by means of DLT-OC3 notification for port. The number of port instances to be deleted depends on the capabilities of the actual circuit pack.

Update affected entities - Port Entities of EP155

In addition to the rules listed above the command shall delete the following entities if *nvmname* equals EP155:

- All tributaries shall be deleted for each existing SDH ports. This shall be reported by means of DLT-VC3 notifications for tributary.
- 8 STM-1E port instances of the actual circuit pack shall be deleted. This shall be reported by means of DLT-STM1E notification for port.

Update affected entities - GE1-VRTSW Entity

If nvmname is GE1 the command has the following additional side effects:

- If *vlantgmd* is 802.1tag the command shall delete the instance of entity *vrtsw*. This is notified by a DLT-VRTSW notification.

Update affected entities - OPLB

The command shall delete in addition following entities:

- Some instances of type socket shall be deleted for each socket contained on the circuit pack one. This shall be reported by means of DLT-EQPT notifications for sockets.
- one instance of type circuit pack shall be deleted. This shall be reported by means of an DLT-EQPT notification for circuit pack.

If optical modules are provisioned when the OPLB circuit pack will be de provisioned implicit also the optical modules will be de provisioned at first. The actions described in the DLT-EQPT (socket) command for de provisioning of modules will be performed in this case.

Update affected entities - OP2G5D

The command shall delete in addition following entities:

- Some instances of type socket shall be deleted for each socket contained on the circuit pack one. This shall be reported by means of DLT-EQPT notifications for sockets.
- one instance of type circuit pack shall be deleted. This shall be reported by means of an DLT-EQPT notification for circuit pack.

If optical modules are provisioned when the OP2G5D circuit pack will be de provisioned implicit also the optical modules will be de provisioned at first. The actions described in the DLT-EQPT (socket) command for de provisioning of modules will be performed in this case.

Update affected entities - OP10D

The command shall delete in addition following entities:

- Some instances of type socket shall be deleted for each socket contained on the circuit pack one. This shall be reported by means of DLT-EQPT notifications for sockets.
- One instance of type circuit pack shall be deleted. This shall be reported by means of an DLT-EQPT notification for circuit pack.

If optical modules are provisioned when the OP10D circuit pack will be de provisioned implicit also the optical modules will be de provisioned at first. The actions described in the DLT-EQPT (socket) command for de provisioning of modules will be performed in this case.

Update affected entities - OPT2G5

The command deletes in addition following entities::

- All instances of type socket shall be deleted (one for each socket contained on the circuit pack). This shall be reported by means of DLT-EQPT notifications for sockets.
- one instance of type circuit pack shall be deleted. This shall be reported by means of an DLT-EQPT notification for circuit pack.

If optical modules are provisioned when the OPT2G5 circuit pack will be de provisioned implicit also the optical modules will be de provisioned at first. The actions described in the DLT-EQPT (socket) command for de provisioning of modules will be performed in this case.

Update affected entities - LOXC

The command deletes the following entities:

- one instance of type circuit pack shall be deleted. This shall be reported by means of an DLT-EQPT notification for circuit pack.

Update affected entities - EP51

The command deletes the following entities if nvmname equals EP51:

- 1 STS1 path termination shall be deleted for each existing T3 port. This shall be reported by means of DLT-PTF-STS notifications.
- 1 STS1 tributary shall be deleted for each existing EC1 port. This shall be reported by means of DLT-STS1 notification.
- All instances of port T3 shall be deleted. This shall be reported by means of DLT-T3 notification for port. The number of port instances to be deleted depends on the actual provisioned port types.
- one instance of type circuit pack shall be deleted. This shall be reported by means of an DLT-EQPT notification for circuit pack.

On the EP51 pack, each port can be individually provisioned as T3 or EC1 port. Depending on the port provisioning status, one portion of the 36 ports may be of type T3 while the other ports are EC1.

Group notification for STS-1/AU-3 tributaries

See STS-1/AU-3 Tributaries AID w.r.t. range for legal STS-1/AU-3 number.

Example: The AID field in a group notification for a tributaries related to port 1 for a OP10 pack in slot 1 looks like: 1-1-#-#-1-1-1&&-192.

Group notification for VCG tributaries

Example: The AID field in a group notification for a VCG tributaries related to VCG port 1 for a GE1 pack in slot 1 looks like: 1-1-#-#-1-v1-1&&-21 (for STS-1/VC-3 mapping) 1-1-#-#-1-v1-1&-4&-7&-10&-13&-16&-19 (for STS-3c/VC-4 mapping).

Disabling of PM monitor

See Detailed behavior of the "ED-STM16: Edit STM16 port" (p. 4-704) w.r.t PM impact as side of effect of port/tributary deletion.

Example input/output

```
DLT-EQPT:LT-UNITE:1-1-#-#-1:123456;
   LT-UNITE 00-11-14 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the DLT-EQPT command.

Validation rule: No lower order cross-connections allowed

Check if lower order cross-connections exist which involve the circuit pack to be removed. If lower order cross-connections exist, but no higher order cross-connections are present, the following error message shall be returned:

Error code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

Validation rule: No XC loopbacks allowed

Check of XC loopbacks involving the circuit pack to be removed.

Error code: `SNVS - Status, Not in Valid State, XC loopbacks still exist`

Validation rule: No protection groups allowed

Check of protection groups involving the circuit pack to be removed.

Error code: `SNVS - Status, Not in Valid State, a protection group is existing`

Validation Rule: No transparent DCC connections

Check of used transparent DCC connections involving the circuit pack to be removed.

Error code: `SNVS - Status, Not in Valid State, transparent DCC connections are still existing`

Validation rule: Not used as timing reference

Check of that none of the ports of the involving circuit pack is used as timing reference

Error code: `SNVS - Status, Not in Valid State, at least one port used as timing reference`

Validation rule: Not used for OW

Check of that no connection to a OW port exists.

Error code: `SNVS - Status, Not in Valid State, connection to OW port exists`

Validation rule: CP must be plugged out

Check of that the involved circuit pack is plugged out.

Error code: `SNVS - Status, Not in Valid State, the CP is not plugged out`

Validation rule: Check whether system is maintenance condition

Preprovisioning is not allowed, when the system in maintenance condition (see "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720)).

Error code: `SNVS - Status, Not in Valid State, maintenance condition`

Validation rule: Reject Request for CTL slots

If *ctlw* or *ctlp* is specified as Simple_CTLSlotAID the command is rejected.

Error code: `IENE - Input, Entity Not Exists`

Validation rule: Check if related port are not in use by ONNS

If the provisioned circuit pack has ports with portClass=INNI or portClass=EDGE the following must be fulfilled: (1) No cross-connection may exist on any tributary of the port (2) portControl must be LOCKOUT.

Error code: `SNVS - Status, Not in Valid State, Port is still in use by ONNS`

Validation rule: Deletion of XC circuit packs while ONNS is active

De-provisioning of worker XC pack shall not be allowed if the parameter xcsetup has the value ″SWISS″.

Error code: `SNVS - Status, Not in Valid State, ONNS is active`

Validation rule: Check whether LOXC pack is in use

If an attempt is made to deprovision a LOXC pack while *loswcap* is not 0, then no lower order cross-connection or cross-connection loopback must exist at any lower order tributary related to a port of an I/O pack.

Error code: `SNVS - Status, Not in Valid State, circuit pack is in use`

Related TL1 messages

- "RTRV-EQPT (slot): Retrieve Equipment (slot)" (p. 4-1708)
- "ED-EQPT (slot): Edit equipment (slot)" (p. 4-267)
- "ENT-EQPT (slot): Enter equipment (slot)" (p. 4-1079)

- "RTRV-STATE-EQPT (slot): Retrieve equipment state (slot)" (p. 4-2053)
- "ED-STATE-EQPT (system): Edit equipment state" (p. 4-600)

References

GR-199-CORE

□

DLT-EQPT (Socket): Delete equipment

Output format

The DLT-EQPT command shall delete module that has been previously created with the ENT-EQPT command or via module plug-in (autoprovisioning).

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: no.

Input format

Command Syntax: `DLT-EQPT`*:tid:aid:ctag;*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   The AID of a socket.
   Type: AID
   Range: SocketAID. The keywords *all*, *usall*, *scall* shall not be allowed on any level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

If the DLT-EQPT command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section for the "RTRV-HDR: Retrieve header" (p. 4-1736) command.

Detailed behaviour description

The command shall delete a module for a specified socket. Since the creation of the module is not reported no DLT-EQPT notification for module will be reported.

Update acceptable modules list

If the command leads to a change of the Acceptable Modules List (list of actlname/actlqual), then the change shall be reported by means of an ED-EQPT notification.

Update affected entities

The command updates / deletes in addition a set of entities of different types depending on the provisioned optical module:

1. 3, 12, 48, 192 VC3 tributaries shall be deleted for each existing SDH port. This shall be reported by means of DLT-VC3 notifications for tributary.
2. 3, 12, 48, 192 STS1 tributaries shall be deleted for each existing SONET port. This shall be reported by means of DLT-STS1 notifications for tributary.
3. The dcc channel entities shall be deleted for each existing SDH/SONET port. This shall be reported by means of DLT-FECOM notification for dcc channel.
4. One instance of port STM-1 shall be deleted if *nvmname* of the addressed optical module equals *OM155* and the port attribute *istd* equals SDH. This shall be reported by means of DLT-STM1 notification of port.
5. One instances of port OC-3 shall be deleted if *nvmname* of the addressed optical module equals OM155 and the port attribute *istd* equals SONET. This shall be reported by means of DLT-OC3 notification of port.
6. One instance of port STM-4 shall be deleted if *nvmname* of the addressed optical module equals OM622 and the port attribute *istd* equals SDH. This shall be reported by means of DLT-STM4 notification of port.
7. One instances of port OC-12 shall be deleted if *nvmname* of the addressed optical module equals OM622 and the port attribute *istd* equals SONET. This shall be reported by means of DLT-OC12 notification of port.
8. One instance of port STM-16 shall be deleted if nvmname of the addressed optical module equals ’OM2G5’ and the port attribute istd equals ’SDH’. This shall be reported by means of DLT-STM16 notification of port.
9. One instances of port OC-48 shall be deleted if *nvmname* of the addressed optical module optical equals OM2G5 and the port attribute *istd* equals SONET. This shall be reported by means of DLT-OC48 notification of port.
10. One instance of port STM-64 shall be deleted if if *nvmname* of the addressed optical module equals OM10 and the port attribute *istd* equals SDH. This shall be reported by means of DLT-STM64 notification of port.

11. One instances of port OC-192 shall be deleted if *nvmname* of the addressed optical module equals OM10 and the port attribute *istd* equals SONET. This shall be reported by means of DLT-OC192 notification of port.
12. The parameters *nvmname*, *nvmqual* of the slot will be set to UNDEFINED, UNDEF, which will be reported by an ED-EQPT notification for slot.

Group notification for STS-1/AU-3 tributaries

See STS-1/AU-3 Tributaries AID w.r.t. range for legal STS-1/AU-3 number. Example: The AID field in a group notification for a tributaries related to port 1 for a OP10 pack in slot 1 looks like: 1-1-#-#-1-1-1&&-192.

Disabling of PM monitor

See Detailed behavior specification in "ED-STM16: Edit STM16 port" (p. 4-704) w.r.t PM impact as side of effect of port/tributary deletion.

Example input/output

This example shows a DLT-EQPT command de provisioning a socket:

```
DLT-EQPT:UNITE-NE:1-1-#-#-5-sc2:123456;
   UNITE-NE 98-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the DLT-EQPT command.

Validation rule: No cross-connections allowed

Check of cross-connections involving the module to be removed.

Error code: `SNVS - Status, Not in Valid State, cross-connections are still existing`

Validation rule: No lower order cross-connections allowed

Check if lower order cross-connections exist which involve the module to be removed. If lower order cross-connections exist, but no higher order cross-connections are present, the following error message shall be returned:.

Error code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

Validation rule: No XC loopbacks allowed

Check of XC loopbacks involving the module to be removed.

Error code: `SNVS - Status, Not in Valid State, XC loopbacks still exist`

Validation rule: No facility loopbacks allowed

Check of facility loopbacks involving the module to be removed.

Error code: `SNVS - Status, Not in Valid State, facility loopbacks still exist`

Validation rule: No protection groups allowed

Check of protection groups involving the module to be removed.

Error code: `SNVS - Status, Not in Valid State, protection group still exist`

Validation rule: No transparent DCC connections

Check of used transparent DCC connections involving the module to be removed.

Error code: `SNVS - Status, Not in Valid State, transparent DCC connections are still existing`

Validation rule: Not used as timing reference

Check of that none of the ports of the involving module is used as timing reference.

Error code: `SNVS - Status, Not in Valid State, at least one port used as timing reference`

Validation rule: Not used for OW

Check of that no connection to a OW port exists.

Error code: `SNVS - Status, Not in Valid State, connection to OW port exists`

Validation rule: module must be plugged out

Check of that the no module is plugged into the involved socket.

Error code: `SNVS - Status, Not in Valid State, the Module is not plugged out`

Validation rule: Check whether system is in maintenance condition

Deprovisioning shall not be allowed, when the system in is maintenance condition.

Error code: `SNVS - Status, Not in Valid State, maintenance condition`

Validation rule: Check if related port are not in use by ONNS

If the provisioned module has ports with *portClass*=INNI or *portClass*=EDGE the following must be fulfilled:

- No cross-connection may exist on any tributary of the port
- *portControl* must be LOCKOUT.

Error Code: `SNVS - Status, Not in Valid State, Port is still in use by ONNS`

Validation rule: No test access session

De-provisioning shall not be allowed if one or more tributaries on the port related to the socket are used in a test access session either as tributary under test or as test access tributary.

Error Code: `SNVS - Status, Not in Valid State, Tributary used in test access session`

Validation rule: Socket must be provisioned

When de-provisioning a module it shall be checked whether the socket is provisioned (i.e. *nvmname/nvmqual* is different from UNDEFINED/UNDEF).

Error code: `SNVS - Status, Not in Valid State, socket is not provisioned`

Validation rule: Equipage status and inventory data of module must be accessible

If the equipage status or inventory data of a module is not accessible (e.g. due to the parent pack being in recovery) de-provisioning of the socket shall not be allowed.

Error code: `SNVS - Status, Not in Valid State, unknown module equipage`

Related TL1 messages

- "RTRV-EQPT (Socket): Retrieve equipment" (p. 4-1713)
- "ED-EQPT (Socket): Edit equipment" (p. 4-276)
- "ENT-EQPT (Socket): Enter equipment" (p. 4-1087)
- "RTRV-STATE-EQPT (Socket): Retrieve equipment state " (p. 4-2056)

□

DLT-EQPT (CP) notification

Output format

The DLT-EQPT notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax `DLT-EQPT:`*aid*::

Output parameters

Command parameters

1. aid – Access Identifier
   Description: AID of the deleted circuit pack.
   Type: AID
   Range:
   - CpAID ::= SlotAID-cp for circuit pack in any slot
   - LoxcAID: ::= UnivSlotAID-loxc for LOXC pack in universal slots

   The keyword `usall` is not allowed for Simple_UnivSlotAID. The keyword `xcall` is not allowed for Simple_XCSlotAID. The keyword `ctlall` is not allowed for Simple_CTLSlotAID. The keyword `all` is not allowed for Simple_SlotAID.

Example output

```
DLT-EQPT:UNITE-NE:1-1-#-#-1:123456;
   UNITE-NE 00-11-20 08:00:00
M  123456 COMPLD
;
   UNITE-NE  00-11-20  8:01:03
A  610  REPT  DBCHG
   "Time=8-00-30,DATE=00-11-20:DLT-EQPT:1-1-#-#-1-cp:::"
;
   UNITE-NE  00-11-20  8:01:03
A  611  REPT  DBCHG
   "Time=8-00-30,DATE=00-11-20:DLT-OC768:1-1-#-#-1-1:::"
;
   UNITE-NE  00-11-20  8:01:03
A  612  REPT  DBCHG
   "Time=8-00-30,DATE=00-11-20:DLT-VC3:1-1-#-#-1-1-1&&-768:::"
;
   UNITE-NE  00-11-20  8:01:03
A  613  REPT  DBCHG
   "Time=8-00-30,DATE=00-11-20:DLT-FECOM:1-1-#-#-1,LINE:::"
;
UNITE-NE  00-11-20  8:01:03
A  613  REPT  DBCHG
   "Time=8-00-30,DATE=00-11-20:DLT-FECOM:1-1-#-#-1,SECTION:::"
;
```

```
   UNITE-NE  00-11-20  8:01:03
A  613  REPT  DBCHG
   "Time=8-00-30,DATE=00-11-20:ED-EQPT:1-1-#-#-1::nvmname=UNDEFINED,nvmqual=UNDE
;
```

□

DLT-EQPT (Socket) notification

Output format

The DLT-EQPT notification usse the general format of a REPT DBCHG (Report Database Change) notification.

Command Syntax: `DLT-EQPT`*:aid*

Output parameters

Command parameters

1. aid – Access Identifier
   The AID of a socket.
   Type: AID.
   Range: SocketAID. The keywords all / usall / scall shall are not allowed on any level.

Example output

This example shows a DLT-EQPT notification reporting the deletion of a socket:

```
   UNITE-NE 00-11-14 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-14:DLT-EQPT:1-1-#-#-5-sc2"
;
```

□

DLT-FECOM notification

Output format

The DLT-FECOM notification shall use the general format of a REPT DBCHG (Report Database Change) notification.

The DLT-FECOM notification has the following specific syntax:

`DLT-FECOM`::*port*,*dcctype*:*spec_block*

Output parameters

Command parameters

1. port
   This parameter indicates the port AID of a circuit pack which is used together with *dcctype* to identify the DCC channel.
   Type: AID
   Range: SPortAID. The keyword 'all' shall not be allowed.
2. dcctype
   This parameter specifies whether the LINE/MS or SECTION/RS DCC of the port is affected by the command.
   Type: Alphanumeric value set
   Range: LINE, SECTION (default).

Spec block parameters

1. osinode
   Assignment of a DCC channel to an MCN node in the NE. The parameter is omitted when dccstat != ENABLE.
   An UNITE NE can have up to 8 instances of the OSI stack. Node-1 is default and has a NSAP. Nodes 2-8 have a NET and no SEL (NSAP = NET + SEL, for NET: SEL=00). Nodes 2-8 can be created and configured, see command ENT-ULSDCC-L3.
   Type: AID
   Range: osinode1-8.

Example output

```
   NE-UNITE 01-01-08 01:10:11
A  000 REPT DBCHG
   "TIME=01-01-09,DATE=00-00-13:DLT-FECOM::1-1-#-#-5-1,LINE:osinode1"
;
```

□

DLT-IP-MAP: Delete TCP/IP map

The DLT-IP-MAP can be used to delete one entry in the TCP/IP application context ID map which was created via ENT-IP-MAP. The tl1tcpipgw parameter in the ED-NE command enables or disables the mapping feature.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S3

Priority: 1

Abortable: No.

Input format

Command Syntax: **DLT-IP-MAP**:*tid::ctag:::spec_block;*

Input Parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
   Type: TID.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
   Type: CTAG.

Spec block Pparameters

1. ip – IP address
   This parameter is optional. If it is omitted the mapping is not changed and a normal COMPLD message shall be returned.

Output format

If the DLT-IP-MAP request is successful, the following normal completion message shall be returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736) .

Detailed behavior description

The command shall delete the mapping entry if the ip parameter was specified and could be found in the TCP/IP application context ID mapping.

Example input/output

The following example shows the result of an DLT-IP-MAP command:

```
DLT-IP-MAP:LT-UNITE::123456:::ip=198.78.46.8;
   LT-UNITE 00-11-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the RTRV-HDR command ERROR RESPONSES section. The error responses listed there apply to the DLT-IP-MAP command.

Validation rule: Check for known IP address

The removal of an entry from the IP map shall only be allowed if entries with the specified IP address are used within the IP map.

Error code: `SNVS - Status, Not in Valid State, unknown IP address within MAP`

Related TL1 Messages

- "RTRV-IP-MAP: Retrieve TCP/IP map" (p. 4-1750)
- "ENT-IP-MAP: Enter TCP/IP map" (p. 4-1116).

□

DLT-IP-MAP notification

Output format

The DLT-IP-MAP command shall not generate a REPT DBCHG notification. This is due to a potential security hazard: any listening manager who receives this notification could otherwise fake its own IP address to get access to the T-TD.

□

DLT-LONIM notification

The DLT-LONIM notification shall use the general format of a REPT DBCHG Report Database Change notification.

Output format

Command Syntax:

`ED-LONIM` :*aid*;

Output parameters

Command parameters

1. aid – Access Identifier
   The access identifier shall specify the low-order tributary whose attributes are reported.
   Type: AID
   Range: GenLOTribAID as defined in SRD_TL1_AID.
   Following values shall not be used:
   - *all*, *usall* for Simple_UnivSlotAID,
   - *all* for Simple_SPortAID,
   - *all* for Simple_PTNumAID,
   - *all* Simple_LONumAID.

   No wildcards are allowed.

Example output

Example of a DLT-LONIM notification removing a SDH subtructure:

```
   LT-UNITE 00-11-11 11:11:00
A  001 REPT DBCHG
   "TIME=11-10-30,DATE=00-11-11:DLT-LONIM:
   1-1-#-#-39-16-1-1&&-63"
;
```

Example of a DLT-LONIM notification removing a SONET subtructure:

```
   LT-UNITE 00-11-11 11:11:00
A  001 REPT DBCHG
   "TIME=11-10-30,DATE=00-11-11:DLT-LONIM:
   1-1-#-#-39-16-3-1&&-28"
;
```

□

DLT-OC3 notification

Output format

The DLT-OC3 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `DLT-OC3:`*aid*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID
   Range: OC3 port AID

Example output

```
   UNITE-NE 00-11-20 8:01:03
A  611 REPT DBCHG
   "Time=8-00-30,DATE=00-11-20:DLT-OC3:1-1-#-#-4-1
;
```

□

DLT-OC12 notification

Output format

The DLT-OC12 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `DLT-OC12:`*aid*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID
   Range: OC12 port AID

Example output

```
   UNITE-NE 00-11-20 8:01:03
A  611 REPT DBCHG
   "Time=8-00-30,DATE=00-11-20:DLT-OC12:1-1-#-#-4-1
;
```

□

DLT-OC48 notification

Output format

The DLT-OC48 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `DLT-OC48:`*aid*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID
   Range: OC-48 port AID

Example output

```
   UNITE-NE 00-11-20 8:01:03
A  611 REPT DBCHG
   "Time=8-00-30,DATE=00-11-20:DLT-OC48:1-1-#-#-4-1
;
```

□

DLT-OC48T notifications

Output format

The DLT-OC48T notification shall use the general format of a REPT DBCHG notification.

Syntax

DLT-OC48T:*aid*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID
   Range: OC-48 port AID

Example output

```
   UNITE-NE 00-11-28 08:01:30
A  611 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:DLT-OC48T:1-1-#-#-1-1
;
```

□

DLT-OC192 notification

Output format

The DLT-OC192 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `DLT-OC192:`*aid*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID
   Range: SPortAID of OC192 port. The keyword ″all″ shall not be allowed.

Example output

```
   UNITE-NE 00-11-20 8:01:03
A  611 REPT DBCHG
   ″Time=8-00-30,DATE=00-11-20:DLT-OC192:1-1-#-#-4-1″
;
```

□

DLT-OC768 notification

Output format

The DLT-OC768 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `DLT-OC768:`*aid*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID
   Range: SPortAID of OC768 port. The keyword ″all″ shall not be allowed.

Example output

```
   UNITE-NE 00-11-20 8:01:03
A  611 REPT DBCHG
   ″Time=8-00-30,DATE=00-11-20:DLT-OC768:1-1-#-#-4-1″;
```

□

DLT-OUC: Delete ONNS to UPSR/SNCP constructs

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: No.

Input format

Command Syntax:

`DLT-OUC:`*tid:wrk_aid:ctag[::ouc_dir];*

Input parameters

Command parameters

1. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The *tid* is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
2. wrk_aid – Working Tributary Access Identifier
   This parameter specifies the working tributary of the OUC.
   Type: STS1NumAID
   Range: n.a. (`all` values shall never occur as part of an output parameter)
3. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the network element in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters. Note: Current implementation also allows ’0’ as valid CTAG, which is an extension to GR-831.
4. ouc_dir – OUC Directionality
   This parameter specifies the directionality of the OUC to be deleted via the DLT-OUC command. This parameter will be needed especially, if one of two existing unidirectional OUCs shall be deleted.
   Type: alphanumeric value set
   Range:
   - BIDIR (default)
   - UNIDIR-ADD
   - UNIDIR-DROP.

Output format

If the DLT-OUC command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid, date, time* and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Example input/output

A bidirectional OUC between working tributary 4 of a 10G SDH EDGE port in slot 01 and protection tributary 7 of 2G5 SDH EDGE port 3 in slot 34 will be deleted by:

```
DLT-OUC:UNITE-NE:1-1-#-#-1-1-4,1-1-#-#-34-3-7:
123456::BIDIR;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
;
```

A unidirectional drop OUC between working tributary 4 of 2G5 SONET EDGE port 1 in slot 10 and protection tributary 7 of 2G5 SONET EDGE port 3 in slot 34 will be deleted by the following command:

```
DLT-OUC:UNITE-NE:1-1-#-#-10-1-4,1-1-#-#-34-3-7:
123456::UNIDIR-DROP;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
;
```

Error responses

Validation rule: Entity (OUC) must exist

OUC command processing shall verify that the specified OUC exists.

Error code: `IENE - Input, Entity Not Exists, Specified OUC does not exist`

□

DLT-OUC notification

The DLT-OUC notification will notify only the deletion of the OUC itself. Cross connections and path protection groups that are deleted implicitly via an OUC deletion shall be notified via corresponding DLT-CRS-modifier and DLT-PROTN-GRP notifications.

Output format

The DLT-OUC notification shall use the general format of a REPT DBCHG Report Database Change notification.

Syntax:

`DLT-OUC:`*wrk_aid,prt_aid:ouc_dir;*

Output parameters

Command parameters

1. wrk_aid – Working Tributary Access Identifier
   This parameter specifies the working tributary of the OUC.
   Type: STS1NumAID
   Range: n.a. (`all` values shall never occur as part of an output parameter)
2. prt_aid – Protection Tributary Access Identifier
   Protection Tributary Access Identifier. Specifies the protection tributary of the OUC.
   Type: STSNumAID
   Range: n.a. (`all` values shall never occur as part of an output parameter)
3. ouc_dir – OUC Directionality
   Directionality of the OUC
   Type: alphanumeric value set
   Range:
   - BIDIR (default)
   - UNIDIR-ADD
   - UNIDIR-DROP.

Example input/output

```
   LT-UNITE-123 00-01-01 08:00:50
A  815 REPT DBCHG
   "TIME=08-00-12,DATE=00-01-01:DLT-OUC:1-1-#-#-1-1-1,
   1-1-#-#-2-1-1:BIDIR"
;

   LT-UNITE-123 00-01-01 08:00:50
A  815 REPT DBCHG
   "TIME=08-00-12,DATE=00-01-01:DLT-OUC:1-1-#-#-1-1-1,
```

```
   1-1-#-#-2-1-1:UNIDIR-ADD"
;

 LT-UNITE-123 00-01-01 08:00:50
A  815 REPT DBCHG
   "TIME=08-00-12,DATE=00-01-01:DLT-OUC:1-1-#-#-1-1-1,\
   1-1-#-#-2-1-1:UNIDIR-DROP"
;
```

DLT-PATH: Delete ONNS path Connection

Overview

The DLT-PATH command can be used to delete all members of a connection group with one single command.

An ONNS connection may include multiple paths as in the case of a network 1+1 connection that contains an active path and a standby path, each with its own *pathID*. A path connects 2 client Edge ports (or *connPoints*) through a series of NE nodes from a source node to a destination node to provide a communication service.

The DLT-PATH command deletes all paths associated with a *connID* or alternatively specified by its *connAlias*. The ONNS connection must begin at the node to which the message was addressed. The NEs along the path controlled by ONNS shall remove the local cross-connection and return resources to the available pool.

The DLT-PATH command deletes the worker path associated with a *connID* or alternatively specified by its *connAlias*. The ONNS connection must begin at the node to which the message was addressed. The Network Elements along the path controlled by ONNS shall remove the local cross connection and return resources to the available pool. A protection path as part of the associated protection connection or of the worker connection of the deleted working connection might be also removed depending on the needed protection paths of the current M:N protected connection group.

The DLT-PATH command for connection groups generates one separate REPT-PTHCHG message for each connection successfully deleted.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Abortable: No

Input format

Command Syntax of DLT-PATH to delete a path from a connection:
`DLT-PATH:`*srcTid:[srcAid]:ctag::[srvID]:[connID][:specBlock];*

A user defined connection alias (an alternate name) may be optionally specified with the DEL-PATH command. The alias is specified in the spec block as *connAlias*. If no *connAlias* is specified, the *connID* is used as the key. If both *connAlias* and *connID* are specified then *connID* is used as the key. If neither of the two is specified the command is denied. The *connAlias* is returned as an output parameter in the response along with all the other parameters. If it not defined, a NULL is returned. Deletion of a whole connection group shall not be possible using a connection alias as input.

Deletion of single worker connection being member of a M:N protected connection group shall be allowed by specifing the *connID* or the *connAlias* as the key. Deletion of a protection connection shall be denied.

Input parameters

Command parameters

1. srcTid
   Target Identifier of the source node is the logical name of the Host NE. ONNS uses the same *tid* used by Host NE.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: The *srcTid* parameter is a case insensitive ASCII character string of up to 20 characters with the allowed character set as described above.
2. srcAid
   Source node ONNS application access identifier of the ONNS controller OS command interface port.
   Range: Source node Access IDentifier parameter of the source node controller ONNS command interface entity has the allowed values shown here: snn.
3. ctag – Correlation Tag
   This parameter is included in the command by the TL1 user and is repeated by the NE in the response to allow the TL1 user to associate the command and response messages.
   The *ctag* parameter is a character strings of up to 6 ASCII characters. The allowed ASCII character string is comprised of alphanumeric characters beginning with a letter, or decimal numerals (a decimal numeral is a string of decimal digits with an optional non-trailing “.”).
4. srvID – Service Identifier
   This parameter is a logical tag for the group of connections associated with a service defined by the Service Manager system (or other management entity).
   The *srvID* parameter is an integer value range = 1 - 20,000,000. Only one *srvID* is accepted. ALL is not supported.
5. connID – Connection ID
   Connection ID for an existing ONNS path connection service. Reports only the connections originating at the specified source node. *ConnID* is formed from the *SrcNodeID*, the Ingress Tributary # and an index # where LambdaUNITE uses bay =1= shelf.
   Type: Character string of length up to 35.

Range: ALL - special value to retrieve all connection records; nodeID&Tributary AID&Index - to retrieve a specific entry, with

- nodeID: four dot separated numeric strings: each string 0..255
- Tributary AID: five dash seperated numeric strings representing Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # with: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1..39), Port # (1..16), Tributary # (1--128)
- Index: Numeric string

Range: nodeID&Tributary AIDrange - if port # specifies a VCG to retrieve a connection group, with

- nodeID: four dot separated numeric strings: each string 0..255
- Tributary AID: five dash seperated numeric strings representing Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # with: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1..39), Port # (1..4), Tributary # ALL- special value to retrieve all connection records associated with the port ID.

Range: nodeID&default Tributary AID&Index - to retrieve a protecting connection of an M:N connection group, with

- nodeID: four dot separated numeric strings: each string 0..255
- defaultTributary AID: five dash seperated numeric strings with: Bay/Frame # (1), Shelf # (1), Slot/Pack ##, Port ##, Tributary ##
- Index: Numeric string

Range: nodeID&Tributary AID range - if port # specifies a VCG to delete a whole connection group, with

- nodeID: four dot separated numeric strings: each string 0..255
- Tributary AID: five dash seperated numeric strings representing Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # with: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1..39), Port # (1..4), Tributary # ALL - special value to delete all connection records associated with the *portID*

As there is always at most one connection group associated with a VCG, a DLT-PATH command with qualifier ALL specified for the Tributary # of input parameter connID will always delete all connections of the affected group, i.e. all connections starting at the affected VCG.

nodeID&proupIndex - if an M:N protected connection group is specified by this ID, with:

- nodeID (four dot separated numeric strings: each string 0..255)
- groupIndex (integer value specifying a connection group within nodeID.

Spec block parameters

1. connAlias
   This parameter specifies a user defined string as an alternate name for the connection instead of connID.
   Type: Character string up to length 83.
   Range The string consists of printable ASCII characters+NULL. The following characters cannot be used in the string: colon, semi-colon, comma, double quotes, equal, ampersand, greater than. Additionally the string shall start with a letter.

Output format

Normal system response to DLT-PATH for an unprotected or auto reroute connection:

```
   srcTid date time
M  ctag COMPLD
   "ConnID=connIDxx,ConnStatus=DLT,pdir,protectionClass,
   bandwidth,,ConnAlias=connAlias,MaxDelay=ddd,[SrvID=srvID],
   [nodeListUsage1=nodeList1],SrcNID=srcNID,srcPortID,
   DestNID=destNID,destPortID:
   PathID=pathIDx,State=DLT"
;
```

Normal system response to DLT-PATH for a multi-path connection sharing the same source and destination nodes (Network 1+1 connection):

```
   srcTid date time
M  ctag COMPLD
   "ConnID=connID,ConnStatus=DLT,pdir,protectionClass,
   bandwidth,,ConnAlias=connAlias,MaxDelay=ddd,
   [SrvID=srvID],[nodeListUsage1=nodeList1],
   [nodeListUsage2=nodeList2],
   SrcNID=srcNID,srcPortID,DestNID=destNID,destPortID:
   PathID=pathID1,State=DLT:
   PathID=pathID2,State=DLT"
;
```

Normal system response to DLT-PATH for an Y-Connection (sharing the same source node but with different destination nodes):

```
   srcTid date time
M  ctag COMPLD
   "ConnID=connID,ConnStatus=CON&OK,pdir,protectionClass,
   bandwidth,,ConnAlias=connAlias,MaxDelay=ddd,
   [SrvID=srvID],[nodeListUsage1=nodeList1],
   [nodeListUsage2=nodeList2],,,SrcNID=srcNID,srcPortID,
   DestNID=destNID,destPortID,brDestNID=brDestNID,
   brDestPortID:PathID=pathID1,State=DLT:
   PathID=pathID2,State=DLT"
;
```

System response format to DLT-PATH when deleting groups of connections

For the DLT-PATH request for deleting a group of connections the response shall be as follows: down response for connection group:

- If the command as a whole is denied due to e.g. syntax or input failure, the command shall be denied simply giving completion code DENY together with the error reason
- If deletion of all connections of the group succeeded, the command shall be completed giving completion code COMPLD and all connections of the group shall be listed. For each connection the parameters shall be given as would be given in a reply to a successful DLT-PATH command for a single connection.
- If not all connections could be deleted successfully, but the deletion of a number of connections failed, the command shall be completed giving completion code PRTL and giving a list of the following informations: For each connection whose deletion succeeded the parameters shall be given as would be given in a reply to a successful DLT-PATH command for a single connection. For each connection whose deletion failed the connection ID shall be given together with the error reason for the failure as would be given in a reply to a failed DLT-PATH command for a single connection. This shall also hold, if the deletion of all connections failed individually.

System response format to DLT-PATH when deleting a single worker connection of a M:N protection group

For the DLT-PATH request for deleting a single worker connection of a M:N protection group the response shall be as follows:

- If the command as a whole is denied due to e.g. syntax or input failure, the command shall be denied simply giving completion code DENY together with the error reason
- If deletion of the group worker connection and a possible protection connection succeeded, the command shall be completed giving completion code COMPLD and both connections shall be listed. For both connections the parameters shall be given as would be given in a reply to a successful DLT-PATH command for a single connection.
- If the worker connection could be deleted successfully, but a possible deletion of the protection connection failed or vice versa, the command shall be completed giving completion code PRTL and giving a list of the following informations: For he connection whose deletion succeeded the parameters shall be given as would be given in a reply to a successful DLT-PATH command for a single connection. For the connection whose deletion failed the connection ID shall be given together with the error reason for the failure as would be given in a reply to a failed DLT-PATH command for a single connection.
  This shall also hold, if the deletion of both connections failed individually.

In case of an M:N protection connection group a partial completion of the deletion of the group in detail means the following:

- The protection group does not work any more
- For connections that could not be deleted M:N protection group related parameters may still indicate valid values for group operation
- For such connections the parameter connStatus will indicate that the group is not working any more
- As for all types of connections deletion will be retried regularly until deletion finally succeeds.

The DLT-PATH command for grouped connection deletion shall send a maximum of 8 connection records per block. On all large output message blocks but the last, the continuation completion code COMPLD, PRTL or DENY shall be used depending on the outcome for the whole command and the semicolon(;) is replaced with a (>) terminator. Then on the last record block, the COMPLD completion code COMPLD, PRTL or DENY shall be used depending on the outcome for the whole command with the final semicolon (;) data block terminator.

Note: This DLT-PATH command for grouped connection deletion can produce large amounts of data. This will require proper sizing of the receive buffer of the OS system.

Output parameters

Command parameters

1. srcTid
   See the input parameter description above.
2. date
   This parameter is set to the date when the output message is generate: YYYY-MM-DD where YYYY=2000-2099, MM=01-12, DD=01-31.
3. time
   This parameter is set to the time when the output message is generated: HH:MM:SS where HH=00-23,MM=00-59, SS=00-59.
4. ctag – Correlation Tag
   See the parameter description in the Input parameters section above.
5. completionCode
   Standard TL1 completion code result: *COMPLD* (default), for success; RTRV, for data continuation.

   Range:

   - COMPLD: for success
   - PRTL: for partial success / failure, see section ERROR RESPONSES for details
   - DENY: in case of errors, see section ERROR RESPONSES for details.

6. connID
   See the parameter description in the Input parameters section above.
7. connAlias
   See the parameter description in the Input parameters section above.
8. connStatus
   ConnStatus = pst&sst(&tst) Connection status is the overall status of the connection connID which may be different than the status of an individual *pathID* in that connection.

   connStatus is composed out of

   - pst (PrimaryState)
   - sst (SecondaryState)
   - tst (TertiaryState, optional).

   Type: up to three &-seperated value sets.

   Range *pst* values:

   - CON: Connected
   - DLT: Deleted
   - NOCON: Not Connected
   - MAINT: Maintenence Mode
   - UNKNOWN: Conn state unknown.

   Range *sst* & *tst* values

   - OK: Conn good
   - FAILED: Conn failed
   - SETUP: Conn SetUp occurring
   - TRDOWN: Conn teardown occurring
   - NO-IN: Conn failed, signal in bad
   - RSTOR: path restore occurring
   - RSTRD: Conn restored
   - RSTRFL: Conn restore failed
   - DLT-FL: Delete operation Failed
   - UNKNOWN: Conn state unknown
   - WTORSTR: Waiting to restore path
   - PREMPT: Path pre-empted
   - SETUPFL: Connection SetUp Failed
   - FL-NVM: Not saved in NVM
   - WTORV: Waiting to revert path
   - EPRTFLEDGE: Port Failed

- BAD-IN Conn failed, Bad signal in
- BRDGD Path bridged

Note: Some states listed in this list will only occur within a DLT-PATH command response or within a REPT PTHCHG or REPT PTHEVT notification message.

9. pdir – Path Direction Topology
   Uni-direction A-Z (1WAY) or Bi-direction - (2WAY).
   Range: 1WAY (default), 2WAY.
   Optional output parameter in the DLT-PATH command reply.
10. protectionClass - Path protection class
    This parameter defines the type of restoration protection assigned to the path connection during path setup or after path modification.
    Range:
    - UNPROT (path from source to destination is un-protected)
    - AUTONR (path from source to destination is a non-revertive auto-reroute path connection)
    - N1PLUS1 (paths from source to destination is set up as a network 1+1 connection)
    - AUTORV (path from source to destination is a revertive auto-reroute path connection)
    - YCONN (paths from the same source to two different destinations are set up as a bridged connection).

    Optional output parameter in the DLT-PATH command reply.
11. bandwidth - Requested bandwidth/signalRate
    Link *signalRate* is equal to or greater than the minimum cross-connect rate *minXCrate* of the port_type.
    Values: STS1, STS3, STS12 STS48, STS192.
    Optional output parameter in the DLT-PATH command reply.
12. srvID - Service Identifier
    See the input parameter description above.
13. nodeListUsage1
    For connection setup NN used/uses the list of nodes included in the *nodeList1* array block in a manner specified by the *nodeListUsage1* variable. Both, *nodeListUsage1* and *nodeList1*, fields belong together and shall be reported when supplied as input to the ENT-PATH command.
    An EXCLUDE list usage applies to all paths created (as in a N1PLUS1NR or N1PLUS1RV). A non-existent *nodeID* will be ignored in EXCLUDE *nodeList1* during path setup. A non-existent *nodeID* will cause setup failure in EXPLICIT *nodeList1* during path setup.

Range:

- EXPLICIT, *nodeList1* contains the intermediate NE nodes of the path in the explicit order they are to be used. (An empty list will force a direct path from source to destination.)
- EXCLUDE, nodes in the *nodeList1* must all be excluded from the path created. In the case when the *protectionClass* is either YCONN, N1PLUS1NR or N1PLUS1RV the nodes in the *nodeList1* below also apply to the second or restoration path.

Optional output parameter in the DLT-PATH command reply.

14. nodeList1 - Node List 1
    When *nodeListUsage1* = EXPLICIT: List of intermediate nodes that specify the path in the exact node order specified in the input. Source and destination nodes are assumed to be included implicitly. The *nodeID* values are shown in the form: nid1([&nid2& ...&nidx]).
    When *nodeListUsage1* = EXCLUDE: List of nodes that must all be excluded from both paths. The *nodeID* values are shown in the from: nid1([&nid2& ...&nidx]).
    If the preceding required *nodeListUsage1* field is not supplied, this field must not be present. If user specifies empty EXCLUDE *nodeList1*, the connection should use indirect path from source node to destination node (i.e., at least one intermediate node is needed). If user specifies empty EXPLICIT *nodeList1*, the connection should use a direct path from source to destination node (i.e., no intermediate node is allowed).
    Type: &-seperated list of nodeIDs. A *nodeID* is represented as four dot seperated numeric string with each numeric string between 0 - 255.
    Example: 135.13.196.203&135.13.42.23&135.213.242.133&135.13.196.123
    Range: nid1([&nidx])* or empty list (where X <= 25when *nodeListUsage1* = EXPLICIT) (where X <= 25 when *nodeListUsage1* = EXCLUSIVE)
    Optional output parameter in the DLT-PATH command reply.
15. nodeListUsage2 - Node List Usage 2
    For connection setup NN used/uses the list of nodes included in the *nodeList2* array block in a manner specified by the *nodeListUsage2* variable. Both, *nodeListUsage2* and *nodeList2*, fields belong together and shall be reported when supplied as input to the ENT-PATH command. A non-existent *nodeID* will cause setup failure in EXPLICIT *nodeList1* during path setup. This parameter is only be used when *protectionClass* is N1PLUS1 or YCONN.
    Range: EXPLICIT, *nodeList2* contains the intermediate NE nodes of the path in the explicit order they are to be used. (An empty list will force a direct path from source to destination.).
    Optional output parameter in the DLT-PATH command reply.
16. nodeList2 - Node List 2
    When nodeListUsage2=EXPLICIT: List of intermediate nodes that specify the path in the exact node order specified in the input. Source and destination nodes are assumed to be included implicitly. The nodeID values are shown in the form: nid1([[&nid2& ...&nidx]]).

If the preceding required *nodeListUsage2* field is not supplied, this field must not be present. If user specifies empty EXPLICIT *nodeList2*, the connection should use a direct path from source to destination node (i.e., no intermediate node is allowed). This parameter is only be used when *protectionClass* is N1PLUS1 or YCONN.
Type: &-seperated list of *nodeIDs*. A *nodeID* is represented as four dot seperated numeric string with each numeric string between 0 - 255.
Example: 135.13.196.203&135.13.42.23&135.213.242.133&135.13.196.123
Range: nid1([&nidX])* or empty list where X <= 25 when *nodeListUsage1* = EXPLICIT.
Optional output parameter in the DLT-PATH command reply.

17. srcNID - Source nodeID
ONNS source nodeID. Together with the following srcPortID field defines the associated Ingress connPoint that connects the source node to the edge/gateway switch or client router.
Range: Four dot seperated numeric strings. 0 - 255 for each numeric string.
Optional output parameter in the DLT-PATH command reply.

18. srcPortID - Source PortID
ONNS source node ingress portID. The portID consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # of the *srcNID* ingress *connPoint*. ONNS assumes a bidirectional port pair.
Value: dash-seperated list of 5 numeric strings
Example: 1-1-3-1-4
Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).
Optional output parameter in the DLT-PATH command reply.

19. destNID - Destination nodeID
ONNS destination nodeID. Together with the following *destPortID* field defines the associated Engress *connPoint* that connects the destination node to the edge/gateway switch or client router.
Type: Four dot seperated numeric strings. 0 - 255 for each numeric string.
Optional output parameter in the DLT-PATH command reply.

20. destPortID - Destination PortID
ONNS destination node egress portID. The portID consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # of the destNID egress *connPoint*.
Value: dash-seperated list of 5 numeric strings
Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).
Optional output parameter in the DLT-PATH command reply.

21. brDestNID - Bridged Destination NodeID
    ONNS bridged destination nodeID. Together with the following brDestPortID field defines the second associated Egress connPoint that connects the destination node to the edge/gateway switch or client router in case of protectionClass YCONN.
    Type: Four dot seperated numeric strings. 0 - 255 for each numeric string.
    Optional output parameter in the DLT-PATH command reply.
22. brDestPortID - bridged Y path destination optical connPoint identifier
    ONNS bridged destination node egress *portID* in case *protectionClass* = YCONN. The *portID* consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # of the brDestNID egress connPoint. 4.1; 5; 6
    Value: dash-seperated list of 5 numeric strings
    Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).
    Optional output parameter in the DLT-PATH command reply.
23. pathID1 - Path ID 1
    The PathID of the 1st path that was created.
    Type: character string of length up to 20.
    Range: nodeID-Index (nodeID: four dot separated numeric strings: each string 0 - 255) (Index: Numeric string).
    Example: 135.13.196.203-432165
    Optional output parameter in the DLT-PATH command reply.
24. pathState1 - Path State 1
    Path State1 = *pst*& *sst*[*&tst*]. pathState1 represents the status of the first path of the connection which may be different than the status of the overall connection in *connStatus*.
    PathState1 is composed out of *pst* (PrimaryState), *sst* (SecondaryState) and *tst* (TertiaryState, optional) Up to two of the allowed values are simultaneously permitted as a sst/tst parameter.The two values must be separated by an ampersand (″&″). Individual status values are 7 characters or less.
    Type: up to three &-seperated value sets.
    Range *pst* values:
    - CON: Connected
    - NOCON: Not Connected
    - DLT: Deleted
    - MAINT: Maintenance mode.

    Range *sst* & *tst* values
    - OK: Conn good
    - FAILED-PATH: failed
    - SETUP: Conn SetUp occurring
    - TRDOWN: Conn teardown occurring
    - NO-IN: Conn failed, signal in bad

- RSTOR: path restore occurring
- RSTRD: Conn restored
- RSTRFL: Conn restore failed
- DLT-FL: Delete operation Failed
- UNKNOWN: Conn state unknown
- WTORSTR: Waiting to restore path
- SETUPFL: Connection SetUp Failed
- RVRTFL: Conn revert failed
- PREMPTD: Preempted
- WTORV: Waiting to revert path
- BRDGD: Path bridged
- EPRTFLEDGE: Port Failed
- BAD-IN: path failed, Bad signal in
- FLT: Fault.

Note: Some states listed in this list will only occur within a DLT-PATH command response or in a REPT-PTHCHG / PTHEVT notification.
Optional output parameter in the DLT-PATH command reply.

25. pNodeList1 - Path Node List 1
    The path node list contains the list of nodes that the 1st path (*pathID1*) traverses in A-Z order from the source node.
    Type: &-seperated list of nodeIDs. A nodeID is represented as four dot seperated numeric string with each numeric string between 0 - 255.
    Range: nid1([&nidX])*
    Example: 135.13.196.203&135.13.42.23&135.213.242.133&135.13.196.123
    Optional output parameter in the DLT-PATH command reply.
26. pathID2 - Path ID 2
    The PathID of the 2nd path (if existing) that was created.
    Type: character string of length up to 20.
    Range: nodeID-Index (nodeID: four dot separated numeric strings: each string 0 - 255), (Index: Numeric string).
    Example: 135.13.196.203-432165
    Optional output parameter in the DLT-PATH command reply.
27. pathState2 - Path State 2
    pathState2 = pst&sst[&tst]. *pathState2* represents the status of the second path (if existing) of the connection which may be different than the status of the overall connection in *connStatus*.

PathState2 is composed out of

- pst (PrimaryState)
- sst (SecondaryState)
- tst (TertiaryState, optional).

Up to two of the allowed values are simultaneously permitted as a sst/tst parameter.The two values must be separated by an ampersand (″&″). Individual status values are 7 characters or less.
Type: up to three &-seperated value sets
Range *pst* values:

- CON: Connected
- NOCON: Not Connected
- DLT: Deleted
- MAINT: Maintenance mode.

Range *sst* & *tst* values

- OK: Conn good
- FAILED-PATH: failed
- SETUP: Conn SetUp occurring
- TRDOWN: Conn teardown occurring
- NO-IN: Conn failed, signal in bad
- RSTOR: path restore occurring
- RSTRD: Conn restored
- RSTRFL: Conn restore failed
- DLT-FL: Delete operation Failed
- UNKNOWN: Conn state unknown
- WTORSTR: Waiting to restore path
- SETUPFL: Connection SetUp Failed
- RVRTFL: Conn revert failed
- PREMPTD: Preempted
- WTORV: Waiting to revert path
- BRDGD: Path bridged
- EPRTFLEDGE: Port Failed
- BAD-IN: path failed, Bad signal in
- FLT: Fault.

Note: Some states listed in this list will only occur within a DLT-PATH command response or in a REPT-PTHCHG / PTHEVT notification.
Optional output parameter in the DLT-PATH command reply.

Example input/output

The following example shows the successful completion of an unprotected connection deletion:

```
   LT-ONNS-789 2002-07-01 08:00:00
M  433456 COMPLD
   "ConnID=192.1.165.12&1-6-5-3-1&1,ConnStatus=DLT,1WAY,
   UNPROT,STS48,ConnAlias=AEXP-NY-BOS-ckt,
   MaxDelay=99,135.7.9.2-46,Exclude=135.13.42.3&
   135.213.242.103&135.13.198.22,,SrcNID=192.1.165.12,
   1-6-5-3-1,DestNID=125.19.43.6,1-2-12-2-1:
   PathID=192.1.165.12-432161,State=DLT"
;
```

The following example shows the successful completion of a DLT-PATH command for deleting a network 1+1 connection:

```
   LT_SNN_789 2002-07-01 08:00:00
M  993456 COMPLD
   "ConnID=192.1.165.12&1-6-5-3-1&1,ConnStatus=DLT,1WAY,
   UNPROT,STS48,ConnAlias=AEXP-NY-BOS-ckt,MaxDelay=99,
   135.7.9.2-111,Exclude=135.213.173.142&135.213.242.103&
   135.13.198.22,,,
   SrcNID=192.1.165.12,1-6-5-3-48,DestNID=125.19.43.6,
   1-2-12-2-25:
   PathID=192.1.165.12-432161,State=DLT:
   PathID=192.1.165.12-452465,State=DLT"
;
```

The following example shows the successful completion of a DLT-PATH command for deleting an Y-connection:

```
   LT_SNN_789 2003-01-01 08:00:00
M 993456 COMPLD
   "ConnID=192.1.165.12&1-6-5-3-1&1,ConnStatus=DLT,
   1WAY,UNPROT,STS48,ConnAlias=AEXP-NY-BOS-ckt,
   MaxDelay=99,135.7.9.2-111,Exclude=135.13.198.22,,,
   SrcNID=192.1.165.12,1-6-5-3-48,DestNID=125.19.43.6,
   1-2-1-2-25,brDestNID=125.19.159.4,1-2-12-24-5:
   PathID=192.1.165.12-432161,State=DLT:
   PathID=192.1.165.12-452465,State=DLT"
;
```

The following example shows the successful completion of a single M:N worker connection deletion with an implicit M:N protection connection deletion by a DLT-PATH command:

```
   LT-NN-789 2002-09-18 08:00:00
M  123456 COMPLD
   "ConnID=135.13.196.203&1-1-13-4-1&1,ConnStatus=DLT,
```

```
   2WAY,MBYNWRK,STS1,ConnAlias=AmericanExp-NY-BOS-ckt_wrk_001,
   MaxDelay=65,SrvID=135246,,,,IncludeID=0,,,ProtRatio=1BY2,
   SrcNID=135.13.196.203,1-1-13-4-1,DestNID=135.13.196.123,
   1-1-5-5-5:PathID=135.13.196.203-43216,State=DLT"
   "ConnID=135.13.196.203&1-1-#-#-#&3,ConnStatus=DLT,
   2WAY,MBYNPRT,STS1,ConnAlias=AmericanExp-NY-BOS-ckt_prt_001,
   MaxDelay=65,SrvID=135246,,,,IncludeID=0,,,ProtRatio=1BY2,
   SrcNID=135.13.196.203,1-1-#-#-#,DestNID=135.13.196.123,
   1-1-#-#-#:PathID=135.13.196.203-43218,State=DLT"
;
```

Error responses

Path *ConnectionID* does not exist

If the Source Node ONNS receives a DLT-PATH command when the specified connection path does not exist, then the following error response is returned:

Error code: "`E220:135.13.7.9-48:\"Input,ConnectionID Non-Existent\","`

The following list shows conditions that will cause similiar error responsse:

Error code: `E037 - Input, Neither ConnID nor ConnAlias Specified`

Error code: `E221 - IANE Error - Input, connAlias Non Existant`

Connection is member of an M:N protected connection group

If the Source Node ONNS receives a DLT-PATH command with the specified connection ID denoting a working or protecting connection of an M:N protected connection group, then the following error response is returned:

Error code: "`E222:135.13.7.9-48:\"Input, Invalid deletion of connection of protection class MBYNPRT\","`

Protection connection of an M:N protection group in use

If the source node ONNS receives a DLT-PATH command with the specified connection ID denoting a working connection of an M:N protection group which also would lead to a implicit tear down of a protection connection currently used by another working connection than the addressed one shall be denied:

Error code: "`E223:135.7.9.2-35:\"Status, Protection Connection in Use, removal of the M:N worker connection aborted\","`

Connection deletion, one or more paths were not deleted

If the NE receives a DLT-PATH command when more than one path is associated with the connection in the *connID*, ONNS shall delete all paths. If one of the paths specified by the *connID* is not deleted for any reason, ONNS shall not remove the connection *connID* from the ONNS data repository and return the following error.

Also, when the source node Network Element fails to delete the connection record that has multiple paths associated with it, the following error response shall be returned:

```
   srcTid 2001-07-01 08:00:00
M  ctag DENY
   SMPF
   "E120:135.7.9.2-35:\
   "Status, Multiple Paths Failed to deleted on this ConnID\",
   ConnID=192.1.165.12&1-6-5-3-1&1,CON&DLT-FL:
   PathID=192.1.165.12-8935,State=CON&DLT-FL:
   PathID=192.1.165.12-8936,State=CON&DLT-FL"
;
```

Related TL1 messages

- "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
- "ENT-PATH: Create ONNS path connection" (p. 4-1190)
- "ED-PATH: Modify alias of ONNS connection" (p. 4-522)
- "REPT-PTHCHG Notification: Report path change" (p. 4-1540)
- "REPT-PTHEVT Notification: Report ONNS Path Events" (p. 4-1554)
- "RTRV-NNDR: Retrieve ONNS neighbor nodal data repository" (p. 4-1836)
- "RTRV-NTDR: Retrieve ONNS network topology data repository" (p. 4-1857)
- "RTRV-NNCNFG: Retrieve ONNS configuration data" (p. 4-1831)
- "ED-NNCNFG: Edit ONNS configuration data" (p. 4-329)

□

DLT-PROTN-GRP: Delete protection group

The DLT-PROTN-GRP command allows to delete protection groups which were previously created via ENT-PROTN-GRP.

Some types of protection groups are deleted in the context with another stimuli. DLT-PROTN-GRP cannot be used to delete the following types of protection groups:

- switching and controller equipment protection group (deleted as part of delete circuit pack)
- path protection group (deleted as part of DLT-CRS for path-protected XC).

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M4

Priority: 1

Abortable: No

Input format

Equipment protection group for electrical interface packs

The command DLT-PROTN-GRP is applicable for the EP155 and EP51 equipment protection.

Command Syntax: `DLT-PROTN-GRP`:*tid*:*aid*:*ctag*::*protype*;

Multiplex section/line protection group

Command Syntax: `DLT-PROTN-GRP`:*tid*:*aid*:*ctag*::*protype*;

2-/4-fibre MS-SPRing/BLSR protection group

Command Syntax: `DLT-PROTN-GRP`:*tid*:*[aid]*:*ctag*::*protype*, *[rid];*

Input parameters

Command parameters (1+1 equipment protection group)

1. tid – Target Identifier
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   This parameter specifies the aid of the equipment protection group.
   Type: AID
   Range: EP155ProtGroupAID or EP51ProtGroupAID or LOXCProtGroupAID
3. ctag – Correlation Tag
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).

4. protype – Protection Type
   This parameter specifies the type of the protection group.
   Type: alphanumeric value set.
   Range:
   - EQPTSWFBR (for switching protection group instance)
   - EQPTCTL (for controller protection group instance)
   - EQPTEP155 (for EP155 protection group instance)
   - EQPTEP51 (for EP51 protection group instance).
   - EQPTLOXC (if aid is LOXCProtGroupAID).

Command parameters (multiplex section/line protection group)

1. tid – Target Identifier
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   This parameter specifies the aid of a 1+1 multiplex section/line protection group or the aid of a 1:1 multiplex section/line protection group (only R3.0 and later) or an port aid being a member of the group.
   Type: AID
   Range: OnePlusOne_ProtGrpAID (not ranged) or NByOne_ProtGrpAID (not ranged) or SPortAID (not ranged)
3. ctag – Correlation Tag
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
4. protype – Protection Type
   This parameter specifies the architecture (type) of the protection group. The value for the 1+1 line/MS protection group shall be 1+1. The value for the 1:1 line/MS protection group shall be 1xNOPT (only R3.0 and later).
   Type: value set.
   Range: 1+1 or 1xNOPT.

Command parameters (2-/4-fibre MS-SPRing/BLSR protection group)

1. tid – Target Identifier
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   This parameter specifies the aid of a MS-SPRing/BLSR protection group or an port aid being a member of the group.
   Option: If *rid* is specified, then *aid* can be omitted.
   Type: AID
   Range: TwoFibre_ProtGrpAID (not ranged) or FourFibre_ProtGrpAID (not ranged) or SPortAID (not ranged).

3. ctag – Correlation Tag
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
4. protype – Protection Type
   This parameter specifies the protection group type for which the information is retrieved.
   Type:alphanumeric value set.
   Range: 2F or 4F.
5. rid – Ring Identification
   The parameter shall specify the ring identification name. Storage and retrieval of the rid shall be case sensitive, but actual use of the rid to determine the corresponding protection group is case insensitive. The parameter shall be used as an alias to identify exactly one MS-SPRing/BLSR protection group of any type. Therefore the value shall be unique for all protection groups of type 2F or 4F within the NE.
   Type: text string of chars allowed for TID strings.
   Range: 1 to 15 characters.
   Option: If *aid* is specified, then *rid* can be omitted.

Output format

After receiving the DLT-PROTN-GRP command, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

Output parameters

See "RTRV-HDR: Retrieve header" (p. 4-1736) command OUTPUT PARAMETERS section for a normal completion response.

Detailed behavior description

1+1 Equipment Protection Group - LOXC Equipment Protection Group

The command shall remove/delete the specified LOXC protection group if protype equals EQPTLOXC. The deletion of the protection group shall be notified by means of a DLT-PROTN-GRP notification. In addition, the low order switch capacity of the protection unit shall be set back to 0 GBit/s and the LO tributary standard shall be set to UNDEFINED, which causes a referring ED-EQPT notification.

The existence of transmission entities is not influenced by the deletion of the LOXC EQP group since they will be only controlled by low-order cross-connection commands.

EP155 equipment protection group - 1+1 Equipment Protection Group

The command shall remove/delete the protection group of type as specified by means of parameter protype. If *protype* equals 'EQPTEP155', then one instance of EP155 equipment protection group shall be deleted. The deletion of the protection group shall be reported by means of an DLT-PROTN-GRP notification.

EP155 equipment protection group - port impact due to EP155 protection group deletion

Ports related to the protection card of the protection group shall be recreated with default values, because they had been deleted at the enter time of the protection group. This creation shall be reported by means of aset of ENT-STM1E notifications.

EP155 equipment protection group - tributary creation due to EP155 protection group deletion

ributaries related to the protection card of the protection group shall be recreated with default values, because they had been deleted at the enter time of the protection group. This creation shall be reported by means of a set of ENT-VC3 notifications if the protection port is an SDH port.

The number of tributaries to be created shall be derived from the port rate. For efficiency reasons the notifications for tributaries shall be sent out as a single notification (so-called group notification) using a range over the aid which depends on the port rate of the associated port, i.e. the Simple_STS1NumAID field in the STS1NumAID is set to 1&&-<N> with N is maximal legal STS-1/AU-3 number.

EP155 equipment protection group - AID range for group notification

See STS-1/AU-3 Tributaries AID w.r.t. range for legal STS-1/AU-3 number.

Example: The AID field in a group notification for a tributaries related to port 1 for a OP10 pack in slot 1 looks like: 1-1-#-#-1-1-1&&-192

EP51 equipment protection group - 1+1 Equipment Protection Group

The command shall remove/delete the protection group of type as specified by means of parameter protype. If protype equals 'EQPTEP51', then one instance of EP51 equipment protection group shall be deleted. The deletion of the protection group shall be reported by means of an DLT-PROTN-GRP notification.

EP51 equipment protection group - port impact due to EP51 protection group deletion

36 DS3 ports related to the protection pack of the protection group shall be created with default values. This creation shall be reported by means of a set of ENT-T3 notifications

EP51 equipment protection group - tributary creation due to EP51 protection group deletion

Tributaries related to the ports of the protection pack of the protection group shall be created with default values. This creation shall be reported by means of a set of ENT-PTF-STS notifications

General transmission protection group - 1+1, 2F protection group

The command removes/deletes the protection group of type as specified by means of parameter protype. If *protype* equals '1+1', then one instance of 1+1 MS/line protection group is deleted. If *protype* equals '2F', then one instance of type 2-fibre MS-SPRing/BLSR protection group will be deleted.

The deletion of the protection group is reported by means of an DLT-PROTN-GRP notification.

General transmission protection group - 1:1 protection group

The command shall remove/delete the protection group of type as specified by means of parameter protype. If protype equals '1xNOPT', then one instance of 1:1 MS/line protection group shall be deleted.

The deletion of the protection group is reported by means of an DLT-PROTN-GRP notification.

General transmission protection group - 4F protection group

The command removes/deletes the protection group of type as specified by means of parameter protype. If *protype* equals 4F', then one instance of type 4 fibre MS-SPRing/BLSR protection group shall be deleted.

The deletion of the protection group is reported by means of an DLT-PROTN-GRP notification.

Multiplex section/Line protection group - DCC protection as part of 1+1 multiplex section/line protection

If DCC protection is enabled for section/rs dcc channels (value of dccsrsprotmd equals ENABLE), then following updates for DCC channels shall be done.

1. The dcc channel of type 'SECTION' associated with the protection port shall be created This update shall be reported by means of a ENT-FECOM notification.
2. The protection mode (attribute dccprottp) of the dcc channel of type 'SECTION' associated with the worker port shall be set to '0X1' unprotected. This update shall be reported by means of a ENT-FECOM notification for the changed attribute.

If DCC protection is enabled for line/ms dcc channels (value of dcclmsprotmd equals ENABLE), then following updates for DCC channels shall be done.

1. The dcc channel of type 'LINE' associated with the protection port shall be created. This update shall be reported by means of a ENT-FECOM notification.
2. The protection mode (attribute dccprottp) of the dcc channel of type 'LINE' associated with the worker port shall be set to '0X1' unprotected. This update shall be reported by means of a ENT-FECOM notification for the changed attribute.

Multiplex section/Line protection group - tributary impact due to 1+1 protection group - port redefinition due to 1+1 MSP protection group deletion

Tributaries signal rates of the protection port shall be set to default values (parameters inputsig, unequiposig), because they had been deleted at the enter time of the MSP 1+1 protection group.

As a side effect, the value of parameter crstat may also change if the port is operating in fixed mode

The update of the mentioned parameters shall be reported by means of:

- a ED-STM<n> notification if the protection port is an SDH port
- a ED-OC<n> notification if the protection port is an SONET port

The value for <n> is derived from the port rate.

Multiplex section/Line protection group - tributary impact due to 1+1 protection group - tributary creation due to 1+1 MSP protection group deletion

Tributaries related to the protection port of the protection group shall be recreated with default values, because they had been deleted at the enter time of the MSP 1+1 protection group.

This creation shall be reported by means of:

- a set of ENT-VC3 notifications if the protection port is an SDH port
- a set of ENT-STS1 notifications if the protection port is an SONET port

The number of tributaries to be created shall be derived from the port rate.

The notifications for the affected tributaries shall be a group notification. See definition in detailed behaviour description section of ENT-EQPT.

2/4 fibre MS-SPRING/BLSR protection group

If the related ports are of portClass=EDGE any existing information in the loca, locz parameters of the related tributaries shall be deleted (i.e. set to the default value). This shall be reported by means of an ED-STS1 (istd=SONET) or ED-VC3 (istd=SDH) notification.

Example input/output

Equipment protection group

The following example deletes EP155 equipment protection group:

```
DLT-PROTN-GRP:LT-UNITE:1-1-eep01:123456::EQPTEP155;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
;
```

Multiplex section/line protection group 1+1

The following example deletes 1+1 multiplex section/line protection group:

```
DLT-PROTN-GRP:LT-UNITE:1-1-o001:1+1:123456::1+1;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
;
```

2 fibre MS-SPRing/BLSR protection group

The following example deletes 2F MS-SPRing/BLSR protection group:

```
DLT-PROTN-GRP:LT-UNITE:1-1-t001:123456::2F;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
;
```

4 fibre MS-SPRing/BLSR protection group

The following example deletes 4F MS-SPRing/BLSR protection group:

```
DLT-PROTN-GRP:LT-UNITE:1-1-f001:123456::4F;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses (EP155 equipment protection group)

Validation rule: protection unit is active

If the protecting unit is the active unit , then the following error response shall be returned.

Error Code: `SNVS - Status, Not in Valid State, protection unit is activ`

Error responses (LOXC Equipment Protection Group)

Validation rule: protection unit is active

If the protecting unit is the active unit , then the following error response shall be returned.

Error Code: `SNVS - Status, Not in Valid State, protection unit is activ`

Error responses (general)

Validation rule: no test access session active

Tributaries related to ports being a member of the specified protection group must not be used in a test access session either as tributaries under test or as test access tributaries.

Error Code: `SNVS - Status, Not in Valid State ,tributary used in test access session`

Error responses (2-fibre MS-SPRing/BLSR protection group)

Validation rule: consistent *aid* and *rid*

If both an *aid* and a *rid* are specified as input parameters and they are inconsistent, then the following error response is returned.

Error code: `IDNV - Input, Data Not Valid, inconsistent aid and rid`

Validation rule: no XC on tribs

There shall exist no cross-connections on tributaries related to ports being a member of the specified protection group.

Error Code: `SNVS - Status, Not in Valid State, Tributary is used in cross-connection`

Validation rule: no XC loopback on tribs

There shall exist no cross-connection loopbacks on tributaries related to ports being a member of the specified protection group:

Error Code: `SNVS - Status, Not in Valid State, Tributary is used in cross-connection loopback`

Error responses (4-fibre MS-SPRing/BLSR protection group)

Validation rule: consistent aid and rid

If both an aid and an rid are specified as input parameters and they are inconsistent, then the following error response is returned.

Error code: `IDNV - Input, Data Not Valid, inconsistent aid and rid`

Validation rule: no XC on tribs

There shall exist no cross-connections on tributaries related to ports being a member of the specified protection group.

Error Code: `SNVS - Status, Not in Valid State, Tributary is used in cross-connection`

Validation rule: no XC loopback on tribs

There shall exist no cross-connection loopbacks on tributaries related to ports being a member of the specified protection group:

Error Code: `SNVS - Status, Not in Valid State, Tributary is used in cross-connection loopback`

Error responses (MS/Line Protection Group)

Validation rule: no XC on protection tribs

There shall exist no cross-connections on protection tributaries related to ports being a member of the specified protection group.

Error code: `NVS - Status, Not in Valid State, protection tributary is used in cross-connection`

Related TL1 messages

- "RTRV-PROTN-GRP: Retrieve protection group" (p. 4-1997)
- "ED-PROTN-GRP: Edit protection group" (p. 4-551)
- "ENT-PROTN-GRP: Enter protection group" (p. 4-1222)
- "DLT-CRS: Delete cross-connection" (p. 4-97)
- "OPR-PROTNSW: Operate protection switch" (p. 4-1472)
- "RLS-PROTNSW: Release protection switch" (p. 4-1574)

□

DLT-PROTN-GRP notification

Output format

The DLT-PROTN-GRP notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Command Syntax: `DLT-PROTN-GRP`:*aid*:*protype*;

Output parameters

Command parameters (1+1 equipment protection group)

1. aid – Access Identifier
   This parameter specifies the AID of the 1+1 protection equipment group.
   Type: AID
   Range
   - SwitchAndTmgProtGrpAID (for switching protection group instance)
   - CtlProtGroupAID (for controller protection group instance)
   - EP155ProtGroupAID (for EP155 protection group instance)
   - EP51ProtGroupAID (for EP51 protection group instance)
2. protype – Protection Type
   The parameter shall specify the type of the protection group.
   Type: alphanumeric value set.
   Range
   - EQPTSWFBR (for switching protection group instance)
   - EQPTCTL (for controller protection group instance)
   - EQPTEP155 (for EP155 protection group instance)
   - EQPTEP51 (for EP51 protection group instance).

Command parameters (multiplex section/line protection group)

1. aid – Access Identifier
   This parameter specifies:
   - the aid of a 1+1 multiplex section/line protection group or
   - the aid of a 1:1 multiplex section/line protection group (only R3.0 and later).

   Type: AID.
   Range: OnePlusOne_ProtGrpAID or NByOne_ProtGrpAID.
2. protype – Protection Type
   The parameter shall specify the architecture (type) of the protection group. The value for the 1+1 line/MS protection group shall be 1+1. The value for the 1:1 line/MS protection group shall be 1xNOPT (only R3.0 and later).
   Type: value set.
   Range: 1+1 or 1xNOPT Default 1+1.

Command parameters (2-fibre MS-SPRing/BLSR protection group)

1. aid – Access Identifier
   This parameter specifies the AID of the 2 fibre MS-SPRing/BLSR protection group.
   Type: AID.
   Range: TwoFibre_ProtGrpAID.
2. protype – Protection Type
   This parameter specifies the type of the protection group. The value for the 2-fibre MS-SPRing/BLSR protection group shall be 2F.
   Type: alphanumeric value set.
   Range: 2F (default).

Command parameters (4-fibre MS-SPRing/BLSR protection group)

1. aid – Access Identifier
   This parameter specifies the AID of the 4 fibre MS-SPRing/BLSR protection group.
   Type: AID
   Range: FourFibre_ProtGrpAID
2. protype – Protection Type
   This parameter specifies the type of the protection group. The value for the 4-fibre MS-SPRing/BLSR protection group shall be 4F.
   Type: alphanumeric value set
   Range: 4F.

Command parameters (Path protection group)

1. aid – Access Identifier
   This parameter specifies the AID of the path protection group.
   Type: AID
   Range: Path_ProtGrpAID
2. protype – Protection Type
   Thise parameter specifies the type of the protection group. The value for the path protection group shall be PATHDRI.
   Type: alphanumeric value set
   Range: PATHDRI.

Example output

1+1 Equipment protection group

The following example reports the deletion of an 1+1 equipment protection group:

```
   LT-UNITE 00-11-03 15:00:00
A  000 REPT DBCHG
   "TIME=15-00-00,DATE=00-11-03:DLT-PROTN-GRP:1-1-estgrp:EQPTSWFBR"
;
```

Multiplex section/line protection group (1+1)

The following example reports the deletion of an 1+1 multiplex section/line protection group:

```
   LT-UNITE 00-11-03 15:00:00
A  000 REPT DBCHG
   "TIME=15-00-00,DATE=00-11-03:DLT-PROTN-GRP:1-1-o001:1+1"
;
```

2 fibre MS-SPRing/BLSR protection group

The following example reports the deletion of an 2F MS-SPRing/BLSR protection group:

```
   LT-UNITE 00-11-03 15:00:00
A  000 REPT DBCHG
   "TIME=15-00-00,DATE=00-11-03:DLT-PROTN-GRP:1-1-t001:2F"
;
```

4 fibre MS-SPRing/BLSR protection group

The following example reports the deletion of an 4F MS-SPRing/BLSR protection group:

```
   LT-UNITE 00-11-03 15:00:00
A  000 REPT DBCHG
   "TIME=15-00-00,DATE=00-11-03:DLT-PROTN-GRP:1-1-f001:4F"
;
```

Path protection group

The following example reports the deletion of a path protection group:

```
   LT-UNITE 00-11-03 15:00:00
A  000 REPT DBCHG
   "TIME=15-00-00,DATE=00-11-03:DLT-PROTN-GRP:1-1-#-#-10-1-25:PATHDRI"
;
```

□

DLT-PTF notification

Output format

The DLT-PTF notification shall use the general format of a REPT DBCHG notification.

Syntax

DLT-PTF:*aid;*

Output parameters

Command parameters

1. aid - Access Identifier
   The access identifier shall specify the PTF tributary whose attributes are reported.
   Type: AID
   Range: STSNumAID as defined in AID structure with exception of value *all*.

Example output

```
   LT-UNITE 00-11-01 08:00:00
A  001 REPT DBCHG
   "TIME=11-10-30,DATE=00-11-11:DLT-PTF:
   1-1-#-#-21-1-1"
;
```

□

DLT-STM1 notification

Output format

The DLT-STM1 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `DLT-STM1:`*aid*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID
   Range: SPortAID of STM1 port.

Example output

```
   UNITE-NE 00-11-20 8:01:03
A  611 REPT DBCHG
   "Time=8-00-30,DATE=00-11-20:DLT-STM1:1-1-#-#-4-1"
;
```

□

DLT- STM1E notification

Output format

The DLT-STM1E notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `DLT-STM1:`*aid*

Output parameter

Command parameters

1. aid – Access Identifier
   Type: AID
   Range: SPortAID of STM1E port

Example output

```
   UNITE-NE 00-11-20 8:01:03
A  611 REPT DBCHG
   "Time=8-00-30,DATE=00-11-20:DLT-STM1E:1-1-#-#-4-1"
;
```

□

DLT-STM4 notification

Output format

The DLT-STM4 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `DLT-STM4:`*aid*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID.
   Range: SPortAID of STM4 port.

Example output

```
   UNITE-NE 00-11-20 8:01:03
A  611 REPT DBCHG
   "Time=8-00-30,DATE=00-11-20:DLT-STM4:1-1-#-#-4-1"
;
```

□

DLT-STM16 notification

Output format

The DLT-STM16 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `DLT-STM16:`*aid*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID
   Range: SPortAID of STM-16 port. The keyword ″all″ shall not be allowed.

Example output

```
   UNITE-NE 00-11-20 8:01:03
A  611 REPT DBCHG
   ″Time=8-00-30,DATE=00-11-20:DLT-STM16:1-1-#-#-4-1″
;
```

□

DLT-STM16T notification

Output format

The DLT-STM16T notification uses the general format of a REPT DBCHG notification.

Syntax

`DLT-STM16T:`*aid*

Output parameters

Command parameters

1. aid – Access Identifier
   Access Identifier of STM16 port.
   Type: AID.
   Range: SPortAID of STM16 port.
   The keyword `all` is not allowed.

Example output

```
   UNITE-NE 00-11-28 08:00:00
A  611 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-20:DLT-STM16T:1-1-#-#-4-1"
;
```

□

DLT-STM64 notification

Output format

The DLT-STM64 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `DLT-STM64:`*aid*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID
   Range: STM-64 port AID.

Example output

```
   UNITE-NE 00-11-20 8:01:03
A  611 REPT DBCHG
   "Time=8-00-30,DATE=00-11-20:DLT-STM64:1-1-#-#-4-1"
;
```

□

DLT-STM256 notification

Output format

The DLT-STM256 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `DLT-STM256:`*aid*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID.
   Range: STM-256 port AID.

Example output

```
   UNITE-NE 00-11-20 8:01:03
A  611 REPT DBCHG
   "Time=8-00-30,DATE=00-11-20:DLT-STM256:1-1-#-#-4-1
;
```

□

DLT-STS1 notification

Output format

The DLT-STS1 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax `DLT-STS1:`*aid*

Output parameters

Command parameters

1. aid – Access Identifier
   AID of the SONET tributary. The keyword `all` is not allowed on any level.
   Type: AID
   Range: STS1NumAID

Example output

```
   UNITE-NE 00-11-20 8:01:03
A  612 REPT DBCHG
   "Time=8-00-30,DATE=00-11-20:DLT-STS1:1-1-#-#-4-1-1&&-768"
;
```

□

DLT-T3 notifications

Output format

The DLT-T3 notification shall use the general format of a REPT DBCHG notification.

Syntax

DLT-T3:*aid*

Output parameters

Command parameters

1. aid – access identifier
   Type: AID
   Range: APortAID of DS3 port

Example output

```
   UNITE 00-11-13 12:00:00
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:DLT-T3:1-1-#-#-21-1"
;
```

□

DLT-TCA-PROF: Delete TCA Profile

General

The DLT-TCA-PROF command can be initiated by users to remove a Performance Monitoring (PM) threshold profile from the system memory. The system supports two default sets of profiles called ″Default″ and ″Default0.″ The system default profiles cannot be deleted.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): PM3

Priority: 1

Abortable: No

Input format

Command Syntax: `DLT-TCA-PROF:`*tid::ctag::pftype,pfname;*

Input parameters

Command parameters

1. tid – Target Identifier
   See definition in “RTRV-HDR: Retrieve header” (p. 4-1736).
2. ctag – Correlation Tag
   See definition in “RTRV-HDR: Retrieve header” (p. 4-1736).
3. pftype – Profile Type
   This indicates the type of PM TCA profile for the selected facility.
   Type: value set.
   Range: SECTION-LINE, RS-MS, HOVC, PATH, ENET, ODU, LOVC, LOPATH, DS3.
4. pfname – Profile Name
   This indicates the name of the PM TCA profile which was already established by the command ENT-TCA-PROF. If this field is NULL, the output will only consist of a list of all profile names for the specific profile type that was requested. If a valid profile name is inserted in this field, the output will display the parameters within the profile with their values. A *pfname* value will always uniquely identify an existing profile for a specified *pftype* value. NULL means, that the Profile Name is omitted.
   Type: alphanumeric string.
   Range: This is an alphanumeric character string with a maximum of 24 characters.
   Default: If this field is NULL, the output will only consist of a list of all profile names for the specific profile type that was requested.

Output format

If the NE fully complies with the DLT-TCA-PROF request, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

Output parameters

The output parameters *sid, date, time* and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behaviour description

TCA Profile deletion

The command shall delete the existing performance monitoring Threshold Crossing Alert (TCA) profile.

The deletion of the TCA profile shall be reported by means of an DLT-TCA-PROF notification.

Example input/output

The following example shows the successful completion of a DLT-TCA-PROF command by the NE:

```
DLT-TCA-PROF:UNITE-NE::123456::section-line,att;
   UNITE-NE 00-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the DLT-TCA-PROF command.

Validation rule: profile name does not exist

If the profile name specified does not exist

Error code: `IDNV - Input, Data Not Valid, profile name does not exist`

Validation rule: deleting assigned profile

If a user requests to delete a profile name and there are ports or tributaries in the system that are provisioned to use the given profile for thresholding, the following error response is returned.

Error code: `SNVS - Status, Not in Valid State , TCA profile assigned`

Validation rule: deleting the system default profile

If a user requests to delete the system default profiles (Default and Default0), the following error response is returned.

Error code: `IDNC - Input, Data Not Consistent, default profile`

Related TL1 messages

- "RTRV-TCA-PROF: Retrieve TCA Profile" (p. 4-2184)
- "ENT-TCA-PROF: Enter TCA Profile" (p. 4-1345)
- "ED-TCA-PROF: Edit TCA profile" (p. 4-852).

References

GR-833-CORE

□

DLT-TCA-PROF notification

Output format

The DLT-TCA-PROF notification shall use the general format of a REPT DBCHG (Report Database Change) notification.

Command syntax: `DLT-TCA-PROF`*::pftype,pfname*

Output parameters

Command parameters

1. pftype – Profile Type
   This indicates the type of PM TCA profile for the selected facility.
   Type: value set.
   Range: SECTION-LINE, RS-MS, HOVC, PATH, ENET, ODU, LOVC, LOPATH, DS3.
2. pfname – Profile Name
   This indicates the name of the PM TCA profile which was already established by the command ENT-TCA-PROF. If this field is NULL, the output will only consist of a list of all profile names for the specific profile type that was requested. If a valid profile name is inserted in this field, the output will display the parameters within the profile with their values. A *pfname* value will always uniquely identify an existing profile for a specified *pftype* value. NULL means, that the Profile Name is omitted.
   Type: alphanumeric string.
   Range: This is an alphanumeric character string with a maximum of 24 characters.
   Default: If this field is NULL, the output will only consist of a list of all profile names for the specific profile type that was requested.

Example output

The following example shows the successful completion of a DLT-TCA-PROF command by the NE:

```
LT-UNITE 00-11-03 15:00:00
A  000 REPT DBCHG
   "TIME=15-00-00,DATE=00-11-03:DLT-TCA-PROF::RS-MS,DTAG"
;
```

□

DLT-ULSDCC-L3: Delete a node ID other than node-1

The DLT-ULSDCC-L3 command is used to delete a node ID (osinode) in a UNITE NE which was created via ENT-ULSDCC-L3.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S3

Priority: 1

Abortable: No.

Input format

Command Syntax: `DLT-ULSDCC-L3`:*tid*::*ctag*::*osinode*;

Input parameters

Command parameters

1. tid - Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
2. ctag - Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
3. osinode
   A *LambdaUnite*® MSS NE has up to 8 instances of the OSI stack. Node-1 (osinode1) is default. Node 2-8 (osinode{2-8}) can be created and configured and deleted.
   Type: AID
   Range: osinode{2-8}.

Output format

If the DLT-ULSDCC-L3 is successful, the following normal completion response shall be returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output Parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736) .

Detailed behavior description

The command deletes a node ID (AID value of parameter osinode) at a NE. Only node IDs created via ENT-ULSDCC-L3 command can be deleted. The result should be an update of the OSI stack.

The command leads to a reset of the DCF controller and disconnection of management communication.

The update shall be reported by means of DLT-ULSDCC-L3 notification.

Example input/output

The following example shows the result of DLT-ULSDCC-L3:

```
DLT-ULSDCC-L3:NE-UNITE::0962415::osinode2;
   NE-UNITE 01-02-15 09:11:51
M  4744843 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the DLT-ULSDCC-L3 command.

Validation rule: Reject deletion when node is assigned to LAN or DCC

The command shall be rejected when a node is disabled to which DCC and/or LAN channel are assigned (via ENT-FECOM/ENT-FECOM-LAN).

Error code: `SNVS - Status, Not in Valid State, DCC/LAN channels assigned`

Validation rule: Reject deletion when node is used as RA destination node by OSI node 1

The command shall be rejected when a node is used as RA destination node by OSI node 1 (l3radesnode = 0).

Error code: `SNVS - Stauts, Not in Valid State, node in use as RA destination node`

Validation rule: osinode must be in the created state

The osinode parameter for which changes should be applied must be in the created state, i.e. the value must be either osinode1 or the node must be successfully created via ENT-ULSDCC-L3.

Error code: `SNVS - Status, Not in Valid State, osinode not in created state`

Related TL1 messages

- "RTRV-ULSDCC-L3: Retrieve layer 3 related parameters" (p. 4-2226)
- "ENT-ULSDCC-L3: Create a further OSI node" (p. 4-1391)
- "ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack." (p. 4-929)

□

DLT-ULSDCC-L3 notification

Output format

The DLT-ULSDCC-L3 notification shall use the general format of a REPT DBCHG (Report Database Change) notification.

The DLT-ULSDCC-L3 notification shall have following specific syntax:

`DLT-ULSDCC-L3`*`::osinode`*

Output parameters

Command parameters

1. osinode
   A *LambdaUnite*® MSS NE can have up to 8 instances of the OSI stack. Node-1 is created by start up of the *LambdaUnite*® MSS NE as default. Node 2-8 can be created and configured and deleted.
   Type: AID.
   Range: osinode{2-8}.

Example output

```
   NE-UNITE 01-02-15 09:18:27
A  000 REPT DBCHG
   "TIME=09-27-36,DATE=01-02-15:DLT-ULSDCC-L3::osinode8"
;
```

□

DLT-ULSDCC-L4: Delete TARP manual adjacent NSAP address in layer 4 of the specified OSI stack

The DLT-ULSDCC-L4 command is used to delete one TARP manual adjacent NSAP address in the specified OSI node. The address to be deleted is specified by the system ID in the *spec_block* part of the command line.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S3

Priority: 1

Abortable: No.

Input format

Command Syntax: `DLT-ULSDCC-L4`:*tid*::*ctag*::*osinode*:[*spec_block*];

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
3. osinode
   A *LambdaUnite*® MSS NE can have up to 8 instances of the OSI stack. Node-1 is created by start up of the *LambdaUnite*® MSS NE as default. Node 2-8 can be created and configured and deleted.
   Type: AID.
   Range: osinode{1-8}.

Spec block parameters

1. l4ajsys – New Manual Adjacency: NET System Identifier
   This system parameter of the NSAP is set by the Equipment Manufacturer. The value is fix and globally unique among all NEs. For values of NSAP/NET system parameter.
   Type: hexadecimal number.
   Range: 000000000000 – FFFFFFFFFFFF.

Output format

If the DLT-ULSDCC-L4 is successful, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736) .

Detailed behavior description

The command deletes one NSAP address from the TARP Manual Adjacency list in layer 4 of a OSI stack. Result should be an update of the OSI stack. Multiple Manual Adjacent NEs are deleted using multiple occurrences of the DLT-ULSDCC-L4 command.

The update is reported by means of DLT-ULSDCC-L4 notification.

Example input/output

The following example shows the result of DLT-ULSDCC-L4:

```
DLT-ULSDCC-L4:NE-UNITE::4744843::osinode1:
l4ajsys=08006A112345;
   NE-UNITE 01-01-19 10:09:52
M  4744843 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the DLT-ULSDCC-L4 command.

Validation rule: Check for existing TARP manual adjacent NSAP

The removal of a TARP manual adjacency shall only be allowed if an entry with the specified TARP manual adjacent NSAP exists for the *osinode*.

Error Code: `SNVS - Status, Not in Valid State, unknown TARP Manual Adjacent NSAP`

Related TL1 messages

- "RTRV-ULSDCC-L4: Retrieve OSI layer 4 related parameters" (p. 4-2232)
- "ENT-ULSDCC-L4: Enter layer 4 related parameters of the OSI stacks " (p. 4-1401)

□

DLT-ULSDCC-L4 notification

Output format

The DLT-ULSDCC-L4 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

The DLT-ULSDCC-L4 notification has the following specific syntax:

`DLT-ULSDCC-L4`::*osinode*:*spec_block*

Output parameters

Spec block parameters

1. l4ajsys – New Manual Adjacency: NET System Identifier
   This system parameter of the NSAP is set by the Equipment Manufacturer. The value is fix and globally unique among all NEs. For values of NSAP/NET system parameter.
   Type: hexadecimal number.
   Range: 000000000000 – FFFFFFFFFFFF.

Example output

```
   NE-UNITE 01-01-19 04:29:01
A  000 REPT DBCHG
   "TIME=04-29-00,DATE=01-01-19:DLT-ULSDCC-L4::
   osinode1:l4ajsys=08006A112345"
;
```

□

DLT-USER-SECU: Delete user security

The DLT-USER-SECU command is used by an administrator to remove a non-administrator type user from the NE.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S5

Priority: 1

Abortable: No.

Input format

Command Syntax: `DLT-USER-SECU`:*tid*:*uid*:*ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. uid – User ID
   This parameter specifies the *uid* which should be deleted. Only a single uid is supported in the command.
   This is the unique user login identifier for which the ACT-USER login command is intended. Grouping and/or ranging of uid values for the ACT-USER command are not allowed. Valid uid values for the ACT-USER command are case-sensitive alphanumeric strings which have been previously provisioned as valid login IDs in theNE.
   Type: alphanumeric string (case-sensitive).
   Range: 5 - 10 characters. The uid ALL is not allowed in any combination of upper or lower cases..
3. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output format

After receiving the DLT-USER-SECU command, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

Description: The DLT-USER-SECU command is used by an appropriate administrator to delete a user id specified by *uid* from the NE. The DLT-USER-SECU command is applicable where a user account has to be deleted from the NE. The user data stored in the NE will be updated.

It will be reported via the corresponding "DLT-USER-SECU notification" (p. 4-200) section.

It is not possible to delete the user id of one of the predefined super-users.

If the user with the specified *uid* is currently logged into the NE when this command is successfully executed, the user session identified by this *uid* is terminated, and the NE responds to the user who entered the DLT-USER-SECU command with a normal completion response.

Example input/output

The following example shows the successful completion of the DLT-USER-SECU command by the NE:

```
DLT-USER-SECU:LT-UNITE-123:nbguser1:123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

The general error responses defined in "RTRV-HDR: Retrieve header" (p. 4-1736) are also valid for this command.

Validation rule: Invalid *uid*

If the NE receives a DLT-USER-SECU command with a invalid (unknown) *uid*.

Error code: `IDNV - Input, Data Not Valid, invalid UID`

Validation rule: Attempt to delete administrator's *uid*

Attempt to delete administrator's *uid*.

Error code: `IDNV - Input, Data Not Valid. Attempting to delete an administrator login. Two administrator user logins are required at all times.`

Related TL1 messages

- "ENT-USER-SECU: Enter user security" (p. 4-1410)
- "ED-USER-SECU: Edit user security" (p. 4-945)
- "RTRV-USER-SECU: Retrieve user security" (p. 4-2240)

References

TR-NWT-000835, OTGR Section 12.5: Operations Applications Messages – NE and Network System Security Administration Messages.

□

DLT-USER-SECU notification

Output format

See definition of "REPT DBCHG: Report data base change" (p. 4-1517).

The DLT-USER-SECU notification will have following specific syntax:

`DLT-USER-SECU:`*uid*

Output parameters

Command parameters

1. uid – User ID
   This is the unique user login identifier for which the ACT-USER login command is intended. Grouping and/or ranging of uid values for the ACT-USER command are not allowed. Valid *uid* values for the ACT-USER command are case-sensitive alphanumeric strings which have been previously provisioned as valid login IDs in the NE.
   Type: alphanumeric string (case-sensitive).
   Range: 5 - 10 characters. The uid ALL is not allowed in any combination of upper or lower cases.

Example output

The example shows a normal notification after an DLT-USER-SECU command:

```
   LT-UNITE-123 00-01-01 08:00:50
A 815 REPT DBCHG
   "TIME=08-00-12,DATE=00-01-01:DLT-USER-SECU:nbguser1"
;
```

□

DLT-VC3 notification

Output format

The DLT-VC3 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `DLT-VC3:`*aid*

Output parameters

Command parameters

1. aid – Access Identifier
   Description: AID of the SDH tributary. The keyword `all` is not allowed on any level.
   Type: AID
   Range: STS1NumAID

Example output

```
   UNITE-NE 00-11-20 8:01:03
A  612 REPT DBCHG
   "Time=8-00-30,DATE=00-11-20:DLT-VC3:1-1-#-#-4-1-1&&-768"
;
```

□

DLT-VCG notification

Output format

The DLT-VCG notification uses the general format of a REPT DBCHG (Report Database Change) notification.

The DLT-VCG notification has the following specific syntax:

DLT-VCG:*aid;*

Output parameters

Command parameter

aid - Access Identifier

This parameter specifies the VCG to be operated on.

Type: AID.

Range: VCGAID as defined in AID structure with the exception of the value *vall.*

Example output

```
   LT-UNITE 00-11-11 11:11:00
A  001 REPT DBCHG
   "TIME=11-10-30,DATE=00-11-11:DLT-VCG:1-1-#-#-1-V1"
;
```

□

DLT-VCG-TRANS notification

Output format

The DLT-VCG-TRANS notification shall use the general format of a REPT DBCHG notification.

Syntax

DLT-VCG-TRANS*:aid;*

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter specifies the VCG to be operated on.
   Type: AID.
   Range: VCGAID as defined in AID structure with the exception of the value *vall.*

Example output

```
   LT-UNITE-123 00-01-01 08:00:50
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-01-01:DLT-VCG-TRANS:
   1-1-#-#-1-V1"
;
```

□

DLT-VCGTRIB notification

Output format

The DLT-VCGTRIB notification uses the general format of a REPT DBCHG (Report Database Change) notification.

The DLT-VCGTRIB notification has the following specific syntax:

DLT-VCGTRIB:*aid;*

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter specifies the VCG tributary whose attributes are reported.
   Type: AID.
   Range: VCGNumAID as defined in AID structure with exception of value all.

Example output

```
   LT-UNITE 00-11-11 11:11:00
A  001 REPT DBCHG
   "TIME=11-10-30,DATE=00-11-11:DLT-VCGTRIB:1-1-#-#-1-V1-1&&-21"
;
```

□

DLT-VRTSW notification

Output format

The DLT-VRTSW notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Command Syntax: `DLT-VRTSW`*:aid:vrtswid;*

Output parameters

Command parameters

1. aid – Access Identifier
   The access identifier specifies the slot containing a GE1 pack.
   Type: AID.
   Range: UnivSlotAID as defined in AID structure.
   The values
   - *all* and
   - *usall* for Simple_UnivSlotAID

   are accepted.
2. vrtswid – Virtual Switch Identifier
   This parameter identifiers the instance of the virtual switch.
   - A Virtual Switch ID is unique within a single circuit pack. When creating a new Virtual Switch, the system automatically assigns a unique ID to it.
   - There will be one virtual switch per physical switch, implicitly all LAN ports and all WAN ports on the physical switch are part of the single virtual switch. The ID of this virtual switch is fixed to 1. A future release may support multiple virtual switches per physical switch.

   Type: integer.
   Range: 1 - Currently this is the only allowed value.
   Default: 1.

Example output

```
   LT-UNITE 00-11-11 11:11:00
A  001 REPT DBCHG
   "TIME=11-10-30,DATE=00-11-11:DLT-VRTSW:1-1-#-#-1:1"
;
```

□

ED-ASAP-PROF: Edit alarm severity assignment profile

The ED-ASAP-PROF command is used to change the name or parameter values for an ASAP.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M3

Priority: 1

Abortable: No

Input format

Command Syntax: `ED-ASAP-PROF`:*tid*::*ctag*::*pftype*,*pfname*:*spec_block*;

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
3. pftype – Profile Type
   This parameter indicates the type of the ASAP (ASAP type).
   Type: alphanumeric value set. A '-' is also allowed for the values
   Range:
   - DCN: Data Communications Network
   - ENET: Ethernet
   - ENV: Environmental (Miscellaneous Discrete)
   - EQUIP-PROT: Equipment with Protection State Dependence
   - EQUIP-UNPROT: Equipment unprotected
   - MSSPRING-BLSR: MS-SPRing and Bilateral Switched Ring protection switch
   - MSP-APS: Automatic protection switch
   - PATH: Path MSA/NIM related
   - PATHTERM: Path Termination
   - PORT: SDH/SONET ports
   - SNCP-UPSR: Sub-Network Connection Protection and Unidirectional Path Switched Ring

- TIMING: System Timing
- TRANSPARENCY: Fully Transparent Service.

Default Value: There is no default value. The *pftype* does not change.

4. pfname – ASAP Profile Name
   This parameter indicates the name of the ASAP. The ASAP name distinguishes ASAPs of the same ASAP type specified by pftype. That means the same name can be used for several ASAP types.
   Type: alphanumeric character string. A hyphen (-) is additionally allowed in the name.
   Range: length 1-24 characters. For predefined ASAPs is the value of pfname "DEFAULT", but it is no default name in general.

Spec block parameters

1. newname – New Profile Name
   This parameter specifies the new ASAP name of the ASAP specified by *pftype* and *pfname*. The name of any default ASAP can not be changed.
   See definition of *pfname* in the input parameters above
2. Alarm Severity Profile parameters
   The spec block contains ASAP parameters. Each ASAP parameter defines for a probable cause (condtype) the assigned severity which will be reported when the alarm appears. If for one specific probable cause a service affecting (sa) or non service affecting (nsa) alarm can be reported then for each the sa-alarm and nsa-alarm an ASAP parameter exists.
   The severity indicates the urgency of an alarm. The severity of a sa-alarm must be more urgent that of a nsa-alarm for the same condtype.
   The description of the ASAP parameters, the relation to the profile types and the default values are described in: "Alarms, events, ASAPs" (6-4).
   All parameters have the same type and value range. Range: · · · · ·
   Type: alphanumeric value set.
   Range:
   - CR - Critical (ITU / Telcordia)
   - MJ - Major (ITU / Telcordia)
   - MN - Minor (ITU / Telcordia)
   - NA - Warning (ITU) / Not-Alarmed (Telcordia)
   - NR - Non-Alarmed (ITU) / Not-Reported (Telcordia).

   Example: Concrete ASAP parameters are *sa_eqpt* and *nsa_eqpt*. Both refers to the probable cause (*condtype*) EQPT and ASAP type EQUIPPROT. *sa_eqpt* contains the assigned severity for the service affecting alarm of probable cause EQPT and *nsa_eqpt* for the non service affecting alarm. *sa_eqpt* can have the concrete value CR and *nsa_eqpt* MN.

Output format

The following example shows the successful completion of the ED-ASAP-PROF command by the NE:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

If *newname* is specified the ASAP name will be changed to this new profile name. The specified ASAP parameters will be updated to its new severities.

If a ASAP parameter is not specified as part of the *spec_block*, then its value remains unchanged.

The default ASAP parameter values of the profiles named DEFAULT can be modified.

The modification is reported via the ED-ASAP-PROF notification.

Note: ED-ASAP-PROF notification includes all parameters instead of only changed parameters.

Update affected entities

The new ASAP name (if specified) will be updated in all ASAP pointer attributes of other entities of the system. Notice: No REPT DBCHG message will be sent reporting this change.

Note: There will be notifications generated for the affected entities.

Example input/output

The following example shows the successful completion of the ED-ASAP-PROF command by the NE if the *pfname* will be changed:

```
ED-ASAP-PROF:LT-UNITE-123::123456:PORT,NUERNBERG:
newname=CHEMNITZ;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
;
```

The following example shows the successful completion of the ED_ASAP-PROF command by the NE if assigned severities will be changed:

```
ED-ASAP-PROF:LT-UNITE-123::123456::PORT,NUERNBERG:sa_los=MJ,sa_lof=MJ,sa
    _eber=MJ;
   LT-UNITE-123 00-01-01 08:00:00
```

```
M  123456 COMPLD
;
```

The following example shows the successful completion of the ED_ASAP-PROF command by the NE if assigned severities and the ASAP name will be changed:

```
ED-ASAP-PROF:LT-UNITE-123::123456::PORT,NUERNBERG:newname= CHEMNITZ,sa_
     los=MJ,sa_lof=MJ,sa_eber=MJ;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command error responses section. The error responses listed there also apply to the ED-ASAP-PROF command.

Validation rule: *pfname* does not exist

An ASAP with the name *pfname* does not exist.

Error Code: `SDNC - Status, Data Not Consistent, invalid instance of profile`

Validation rule: Rename of default ASAP

A new profile name is specified for a default profile.

Error Code: `IDNC - Input, Data, Not Consistent, new name for default profile`

Validation rule: Inconsistent severity level

An ASAP parameter value has severity level inconsistency (for example, the Non Service Affecting value of a parameter is CR and the Service Affecting value is MJ).

Error Code: `IDNC - Input, Data, Not Consistent, inconsistent ASAP parameter`

Validation rule: Duplicate *newname*

The *newname* is already used for the specified *pftype*.

Error Code: `IEAE - Input, Entity Already Exists, duplicate profile name`

Related TL1 messages

- "DLT-ASAP-PROF: Delete alarm severity assignment profile" (p. 4-92)
- "ENT-ASAP-PROF: Enter alarm severity assignment profile" (p. 4-1018)
- "RTRV-ASAP-PROF: Retrieve ASAP profile" (p. 4-1616)
- "RTRV-ASAP-ASGNMT: Retrieve ASAP assignment" (p. 4-1612)

□

ED-ASAP-PROF notification

Output format

See definition of “REPT DBCHG: Report data base change” (p. 4-1517).

Syntax: The ED-ASAP-PROF notification has the following specific syntax:

`ED-ASAP-PROF`::*pftype*,*pfname*:*spec_bloc*

Output parameters

Command parameters

1. pftype – Profile Type
   This parameter indicates the type of the ASAP (ASAP type).
   Type: alphanumeric value set. A ’-’ is also allowed for the values
   Range:
   - DCN: Data Communications Network
   - ENET: Ethernet
   - ENV: Environmental (Miscellaneous Discrete)
   - EQUIP-PROT: Equipment with Protection State Dependence
   - EQUIP-UNPROT: Equipment unprotected
   - MSSPRING-BLSR: MS-SPRing and Bilateral Switched Ring protection switch
   - MSP-APS: Automatic protection switch
   - PATH: Path MSA/NIM related
   - PATHTERM: Path Termination
   - PORT: SDH/SONET ports
   - SNCP-UPSR: Sub-Network Connection Protection and Unidirectional Path Switched Ring
   - TIMING: System Timing
   - TRANSPARENCY: Fully Transparent Service.

   Default Value: There is no default value. The *pftype* does not change.
2. pfname – Profile Name
   This is the profile name. It is the previous profile name in case the profile name was changed with *newname*.

Spec block parameters

1. newname – New Profile Name
   This parameter specifies the new ASAP name of the ASAP specified by *pftype* and *pfname*. The name of any default ASAP can not be changed.
   See definition of *pfname* in the input parameters above
2. Alarm Severity Profile parameters
   The spec block contains ASAP parameters. Each ASAP parameter defines for a probable cause (condtype) the assigned severity which will be reported when the alarm appears. If for one specific probable cause a service affecting (sa) or non service affecting (nsa) alarm can be reported then for each the sa-alarm and nsa-alarm an ASAP parameter exists.
   The severity indicates the urgency of an alarm. The severity of a sa-alarm must be more urgent that of a nsa-alarm for the same condtype.
   The description of the ASAP parameters, the relation to the profile types and the default values are described in: “Alarms, events, ASAPs” (6-4).
   All parameters have the same type and value range. Range: · · · · ·
   Type: alphanumeric value set.
   Range:
   - CR - Critical (ITU / Telcordia)
   - MJ - Major (ITU / Telcordia)
   - MN - Minor (ITU / Telcordia)
   - NA - Warning (ITU) / Not-Alarmed (Telcordia)
   - NR - Non-Alarmed (ITU) / Not-Reported (Telcordia).

   Example: Concrete ASAP parameters are *sa_eqpt* and *nsa_eqpt*. Both refers to the probable cause (*condtype*) EQPT and ASAP type EQUIPPROT. *sa_eqpt* contains the assigned severity for the service affecting alarm of probable cause EQPT and *nsa_eqpt* for the non service affecting alarm. *sa_eqpt* can have the concrete value CR and *nsa_eqpt* MN.

Example output

The example shows a normal notification after an ED-ASAP-PROF command if the ASAP name was changed:

```
   LT-UNITE-123 00-01-01 08:00:50
A 815 REPT DBCHG
   "TIME=08-00-12,DATE=00-01-01:ED-ASAP-PROF::ENET,
   NUERNBERG:newname=CHEMNITZ"
;
```

The example shows a normal notification after an ED-ASAP-PROF command if severities was changed:

```
   LT-UNITE-123 00-01-01 08:00:50
A 815 REPT DBCHG
   "TIME=08-00-12,DATE=00-01-01:ED-ASAP-PROF::ENET,
```

```
   NUERNBERG:sa_vcg_loa=MJ,nsa_vcg_loa=MN,sa_vcg_ssf=MJ,
   nsa_vcg_ssf=MN"
;
```

The example shows a normal notification after an ED-ASAP-PROF command if the ASAP name and severities was changed:

```
   LT-UNITE-123 00-01-01 08:00:50
A 815 REPT DBCHG
   "TIME=08-00-12,DATE=00-01-01:ED-ASAP-PROF::ENET,
   NUERNBERG:newname=FUERTH,sa_vcg_loa=MJ,nsa_vcg_loa=MN,
   sa_vcg_ssf=MJ,nsa_vcg_ssf=MN"
;
```

□

ED-CRS: Edit cross-connection

The ED-CRS-modifier command can be initiated by a user to modify the following cross-connection parameters:

- *loca/locz* in specifying the source-/destination TID associated with *in_aid/out_aid*
- *omode* specifying the output-mode of the cross-connection
- *xcappl* specifying the cross-connection application number of the cross-connection
- *xcnum* specifying the cross-connection number of the cross-connection.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: No

Input format

Command Syntax: `ED-CRS-`*modifier*:*tid*:*in_aid*,*out_aid*:*ctag*:::*spec_block*;

Input parameters

Command parameters

1. modifier
   This parameter indicates the cross-connection on which the ED-CRS command acts on.
   For detailed description please refer to the "RTRV-CRS: Retrieve cross-connection" (p. 4-1649) command.
   Type: Alphanumeric value set.
   Range:
   - LOVC12
   - LOVC3
   - VC3
   - VC4
   - VC44C
   - VC416C
   - VC464C
   - LOVT1
   - STS1
   - STS3
   - STS12

- STS48
- STS192.

No `all` value is supported.

2. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and the description of this parameter.
3. in_aid – Input Access Identifier
   This parameter specifies the source of the cross-connection.
   For a detailed description please refer to the in_aid input parameter in "RTRV-CRS: Retrieve cross-connection" (p. 4-1649).
   Type: GenTribAID or GenLOTribAID.
   Range: No use of the `all` or `usall` or `vall` values within the *out_aid* shall be allowed.
4. out_aid – Output Access Identifier
   This parameter specifies the tributary which is the sink of the cross-connection.
   For a detailed description please refer to the out_aid output parameter in "RTRV-CRS: Retrieve cross-connection" (p. 4-1649).
   Type: GenTribAID or GenLOTribAID
   Range: n.a. No use of the `all` or `usall` or `vall` values within the *out_aid* shall be allowed.
5. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the NE in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters. Note: Current implementation also allows '0' as valid CTAG, which is an extension to GR-831.

Spec block parameters

1. loca – Location-a
   This parameter specifies the TID of the node at which service is added to the BLSR.
   This parameter is required for BLSR THROUGH, INTER-BLSR and DROP connections, if the Automatic Squelch Map Calculation function is disabled.
   The parameter *loca* can be specified for BLSR THROUGH, INTER-BLSR and DROP connections while the Automatic Squelch Map Calculation function is enabled to do a user override. The *loca* parameter value has to be omitted for ADD, non-BLSR connections.
   A 2-way cross-connection is considered to be a DROP if the *out_aid* is a non BLSR tributary.
   For lower-order cross-connections the parameter *loca* is the TID of that ring node

in the direction towards the specified input tributary (upstream), where the HO path termination source function resides. If there is no such function in an upstream ring node then *loca* is the TID of the node where the related HO circuit is first added to the ring. Refer to the figure "Lower-order cross-connections" (p. 4-1661) for further explanation.

Additional information are given for this parameter in the RTRV-CRS section with respect to:

- figure illustrating BLSR connections,
- inter-ring cross-connections with collapsed nodes,
- extra traffic handling.

Type: TID or empty string.
Range: Please refer to the TID definition in the "RTRV-HDR: Retrieve header" (p. 4-1736) description.
Default: empty string ″″:
Note: In output direction the empty string appears as \″\″.

2. locz – Location-z
   This parameter specifies the TID of the node at which service is dropped from the BLSR.
   This parameter is required for BLSR THROUGH, INTER-BLSR and ADD connections, if the Automatic Squelch Map Calculation function is disabled.
   The parameter *locz* can be specified for BLSR THROUGH, INTER-BLSR and ADD connections while the Automatic Squelch Map Calculation function is enabled to do a User Override.
   The *locz* parameter value has to be omitted for DROP and non-BLSR connections. A 2-way cross-connection is considered to be a ADD if the *in_aid* is a non BLSR tributary.
   For lower-order cross-connections the parameter *locz* is the TID of that ring node in the direction towards the specified output tributary (downstream), where the HO path termination sink function resides. If there is no such function in a downstream ring node then *locz* is the TID of the node, where the related HO circuit is last dropped from the ring.
   Refer to the figure in "Lower-order cross-connections" (p. 4-1661) for further explanation.

   Additional information are given for this parameter in the RTRV-CRS section with respect to:

   - figure illustrating BLSR connections,
   - inter-ring cross-connections with collapsed nodes,
   - extra traffic handling.

   Type: TID.
   Range: 1 to 20 characters. Please refer to the TID definition in the "RTRV-HDR: Retrieve header" (p. 4-1736) description.
3. omode – Output Mode

This parameter specifies the output mode of the cross-connection:

- for a 1-way cross-connection the output is clearly defined by the destination (*out_aid*)
- for a 2-way cross-connection the output is defined as the source-to-destination direction (*in_aid* to *out_aid*)
- NORM: this is the normal output i.e. the signal from the *in_aid* is passed through to the *out_aid*;
- IDLE/UNEQ: this mode outputs an unequipped signal;
- AIS: this mode outputs an AIS signal.

omode and adaptive-mode: In case a SONET-port is provisioned to adaptive-mode setting the *omode* to IDLE/UNEQ or AIS will be lead to transmitting the corresponding signal (UNEQ or AIS) on STS1 base for all the STS1 tributary comprising the STS-N signal. Thus for an output of an STS3 cross-connection, if either AIS or IDLE/UNEQ is selected each of the 3 STS1 will output the AIS or IDLE/UNEQ signal. When switching the *omode* back to NORM the original STS3 cross-connection-signal will re-appear again.

omode in case of path-protected cross-connection: In case of a path-protected cross-connection the *omode* affects the output of the path selector and is thus not setable on a per leg base. In other words the *omode* insertion is done after (downstream direction) the selector function.

Type: Alphanumeric value set.

Range:

- NORM (default)
- IDLE/UNEQ
- AIS

4. xcappl – cross-connection application
   This parameter is a numeric value which indicates the application for which the cross-connection is used in the context of compound cross-connection topologies. The parameter is not further processed in the NE, but only stored (when establishing or modifying the cross-connection) and returned when retrieving the cross-connection.
   Type: numerical value set.
   Range: {0, 1, 2,..., 255}.
   Default: The default value is 0.
5. xcnum – cross-connection number
   This parameter is a 9 digit number, identifying each leg in a specific compound cross-connection. (Compound cross-connection are a composition of several atomic cross-connection in order to form complex scenarios like e.g. described in ″Example input/output″ section of the RTRV-CRS command like UPSR, DRI etc.). Like the *xcappl* parameter the *xcnum* parameter is not further processed in the NE, but only stored (when establishing or modifying the cross-connection) and returned when retrieving the cross-connection. It may be used by a manager to characterize

and group cross-connections belonging to complex cross-connection topology (e.g. compound cross-connections as used in ring interworking scenarios).
Type: numeric value set (9 digit).
Range: 000000000 .. 999999999.
Default: The default value is 000000000.

Output format

If the ED-CRS command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of the "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

A cross-connection can be modified via the ED-CRS command when *xconcls*=TRADITIONAL or when only the parameters loca, locz are modified.. A privileged user may change *xconcls* to TRADITIONAL via ED-NNCRS.

The affected parameter, as listed in the *spec_block* parameters part of this command, will be updated in the corresponding cross-connection entity.

For updates in more complex scenarios the following holds: -update of *omode* of one leg for a path-protected XC will also update *omode* of the second leg – thus 2 ED-CRS notifications will be sent; -update of *locz* of one leg within a path-protected XC will also update *locz* of the second leg -update of *loca* of one leg will also update *loca* of all other XCs sharing *in_aid* as input.

Furthermore the *repleg* status will be updated to *loca/locz* change (conversion from 1-way to 2-way or vice versa).

Update *loca/locz* of low-order cross-connections

If the *loca/locz* information is changed for a low-order cross-connection at a MS-SPRING port, then *loca/locz* of all low-order cross-connections using the same HO PTF at the MS-SPRING port shall be updated to the same value.

Identification of VCG tributaries

The system shall allow to edit cross-connections at VCG tributaries using the AID format of an AU-3/STS-1 tributary. I.e. the VCG number specified in the port field of the AID shall be allowed with or without the leading ″v″.

Example input/output

Example: For an existing non-BLSR 1-way cross-connection with rate vc4 the omode will be set to AIS via:

```
ED-CRS-VC4:UNITE-NE:1-1-#-#-10-1-4,1-1-#-#-20-1-7:
123456:::omode=AIS;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
;
```

Error responses

Validation rule: Entities (tributaries) must exist

Cross-connection command processing verifies that the logical tributaries specified in the command do exist.

Error code: `IENE - Input Entity Not Exists, Specified tributary/tributaries do not exist`

Validation rule: Entity (cross-connection) must exist

Cross-connection command processing verifies that the specified cross-connection exists.

Error code: `IENE - Input Entity Not Exists, Specified cross-connection does not exist`

Validation rule: Specified rate consistent with the cross-connecton rate

Cross-connection command processing verifies that the specified rate (*modifier* parameter) is compliant with the rate of the existing cross-connection.

Error code: `IPNC - Input Parameter Not Consistent, Rate inconsistent with cross-connection rate`

Validation rule: Only those parameter present which are needed

command processing shall verify according to the given context only those parameter are present which are needed for that context.

This means that e.g.

- for editing a non-BLSR or BLSR-ADD cross-connection the *loca* parameter must not be present
- for editing a non-BLSR or BLSR-DROP cross-connection the *locz* parameter must not be present
- for editing a non-BLSR and unprotected cross-connection the *loca* and *locz* parameter must not be present

Error code: `IPNC - Input Parameter Not Consistent, Rate inconsistent with cross-connection rate`

Validation rule: TID validation

Cross-connection command processing verifies that the new TID(s) (*loca* and/or *locz*) are compliant with the actual cross-connection configuration according to the following rules:

- *loca* shall be a non-empty string in case the *in_aid* is involved in a BLSR protection roup and the automatic squelch map calculation is disabled
- *locz* shall be a non-empty string in case the *out_aid* is involved in a BLSR protection group and the automatic squelch map calculation is disabled
- *loca* shall be a empty string in case the *in_aid* is not involved in a BLSR protection group
- *locz* shall be a empty string in case the *out_aid* is not involved in a BLSR protection group.

Error code: `IPNC - Input Parameter Not Consistent, TID not compliant with cross-connection configuration`

Validation rule: Presence of spec_block parameter

Cross-connection command processing shall verify that at least one spec_block parameter is submitted with the command.

Error Code: `IDNV - Input, Data Not Valid`

Validation rule: Cross-connection must not be of *xconcls* NN

Cross-connection command processing shall verify, that the cross-connection is not of *xconcls* NN if other parameters than *loca* and *locz* are changed..

Error Code: `SNVS - Status, Not in Valid State, Cross connection must not be of xconcls NN`

Related TL1 messages

- "DLT-CRS: Delete cross-connection" (p. 4-97)
- "ENT-CRS: Enter cross-connection" (p. 4-1026)
- "ENT-ROLL: Enter roll" (p. 4-1262)
- "RTRV-CRS: Retrieve cross-connection" (p. 4-1649)
- "DLT-PATH: Delete ONNS path Connection" (p. 4-148)
- "ED-NNCRS: Edit NN cross-connection" (p. 4-335)
- "ENT-PATH: Create ONNS path connection" (p. 4-1190)

References

GR-199-CORE

□

ED-CRS notification

Output format

The ED-CRS notification shall use the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ED-CRS-`*modifier*:*in_aid*,*out_aid*:[*in_aid2*]:*spec-block*;

Output parameters

Command parameters

1. modifier
   This parameter indicates the cross-connection on which the ED-CRS command acts on.
   For detailed description please refer to the "RTRV-CRS: Retrieve cross-connection" (p. 4-1649) command.
   Type: Alphanumeric value set.
   Range:
   - LOVC12
   - LOVC3
   - VC3
   - VC4
   - VC44C
   - VC416C
   - VC464C
   - LOVT1
   - STS1
   - STS3
   - STS12
   - STS48
   - STS192.

   No `all` value is supported.
2. in_aid – Input Access Identifier
   This parameter specifies the source of the cross-connection.
   For a detailed description please refer to the in_aid input parameter in "RTRV-CRS: Retrieve cross-connection" (p. 4-1649).
   Type: GenTribAID or GenLOTribAID.
   Range: n.a. No use of the `all` or `usall` or `vall` values within the in_aid shall be allowed.

3. out_aid – Output Access Identifier
   This parameter specifies the tributary which is the sink of the cross-connection.
   Type: GenTribAID or GenLOTribAID. STS1NumAID are used for high-order tributaries on e.g. OPn, EPn packs, VCGNumAID are used for high-order tributaries on e.g. GEn, OPT2G5 packs, GenLOTribAID are used for low-order tributaries on I/O packs e.g. OPn, EP155.
   Range: n.a. (`all` or `usall` or `vall` values shall never occur as part of an output parameter).
4. in_aid2 – Input Access Identifier 2
   This parameter is applicable to and is present for path-protected cross-connections only and specifies either the source of the protection leg or the source of the working leg.
   This depends on the value of the *repleg* parameter:
   - E.g. for the combination: *in_aid*=IN1, *out_aid*=OUT, *in_aid2*=IN2 and *repleg*=1WAYPSW the worker leg is given by IN1 -> OUT and the protection leg is given by IN2 -> OUT;
   - for the combination: *in_aid*=IN1, *out_aid*=OUT,*in_aid2*=IN2 and *repleg*=1WAYPSP the worker leg is given by IN2 -> OUT and the protection leg is given by IN1 -> OUT.

   Thus *in_aid* and *out_aid* specify one leg of the legpair of a path-protected cross-connection, while *in_aid2* and *out_aid* specify the second leg.
   Type: STS1NumAID or GenLOTribAID STS1NumAID are used for high-order tributaries on e.g. OPn, EPn packs, GenLOTribAID are used for low-order tributaries on I/O packs e.g. OPn, EP155. NOTE: Using VCGNumAID (when using e.g. GEn packs) is NOT applicable as those packs can not be the input to a path-protected cross-connection. Therefore STS1NumAID us mentioned instead of GenTribAID..
   Note: Using VCGNumAID (when using GEn) s NOT applicable as the GEn can not be the input to a path-protected cross-connection.
   Range: n.a. (`all` values shall never occur as part of an output parameter).

Spec block parameters

1. loca – Location-a
   This parameter *loca* (location-a) specifies the TID of the node at which service is added to the BLSR. T
   his parameter is required for BLSR THROUGH, INTER-BLSR and DROP connections (please refer to [26] for those definitions). The *loca* parameter value is an empty string for ADD and non-BLSR connections.
   A 2way cross-connection is considered to be a DROP if the out_aid is a non BLSR tributary. The figure “2-way scenario” (p. 4-1661)in section RTRV-CRS (the 3 NEs should be seen as part of an BLSR) depicts the 2way scenario.
   Inter ring cross-connections with collapsed node: Note that beside the above described THROUGH case there can be also another situation where both *loca* and *locz* are different from the empty string: If two rings are interconnected in a collapsed node then *loca* refers to the (add-node of the) ring where the signal is

dropped from, and *locz* refers to the (drop-node of the) ring where the signal is added to. In such cases the cross-connection cannot be provisioned as bidirectional, thus the information is still unambiguous.

A note to the loca2 parameter: Although *loca2* (Location-a-2) is a parameter which is used in the ENT-CRS command, *loca2* is not retrieved explicitly. This is due to the fact that for path-protected cross-connections - and only for those this *loca2* is applicable - the retrieval will be on a leg-basis and not on a leg-pair basis. In other words: If a path-protected cross-connection is retrieved two entries will be sent, one for the working leg (incl. the *loca* and *locz* parameter) and one for the protection leg (incl. the *loca* parameter and the same *locz* parameter, and in this case the *loca* returned is the *loca2* as entered when establishing the path-protected cross-connection).

The parameter *loca* is also required for EXTRA TRAFFIC connections. (In contrast to incoming references from other commands to this whole chapter it is exclusively applicable for the command RTRV-CRS.).

For extra traffic the value will be generated automatically and thus it is only retrievable. For information about the automatic generation of loca refer to the parameter *sqfa*.

For lower-order cross-connections the parameter *loca* is the TID of that ring node in the direction towards the specified input tributary (upstream), where the HO path termination source function resides. If there is no such function in an upstream ring node then loca is the TID of the node where the related HO circuit is first added to the ring.

The picture “Lower-order cross-connections” (p. 4-1661)in section RTRV-CRS shows an example of a LO path through a part of a ring. The LO path is added to/dropped from the ring in NE-1 and NE-2. 2-way cross-connections are considered to be either an Add or a Drop connection depending whether the input or the output tributary is at the ring port.

In NE-3 there is a HO through connection, which contains the LO path. In NE-3 there is no HO path termination. In NE-4 there is a LO through connection. Consequently, there are HO path terminations in NE-4.

The fact that loca refers to the HO path terminations has the following consequences:

- All LO cross-connections through the same HO path termination at the MSSPRING port have the same loca value.
- Any LO through-connection will be treated as add/drop. loca will identify the node of the through connection, and not the node where the LO service is added to the ring.

Type: TID or empty-string
Range: Please refer to the TID definition in the "RTRV-HDR: Retrieve header" (p. 4-1736) description.
Default: empty string: ""

2. locz – Location-z
   This parameter *locz* (Location-z) specifies the TID of the node at which service is dropped from the BLSR. This parameter is required for BLSR THROUGH, INTER-BLSR and ADD connections. The *locz* parameter value is an empty string for DROP and non-BLSR connections. A
   2way cross-connection is considered to be a ADD if the in_aid is a non BLSR tributary.
   Refer to figure "2-way scenario" (p. 4-1661) in thr RTRV-CRS section for further explanation.
   locz is also required for EXTRA TRAFFIC connections.
   For extra traffic the value will be generated automatically and thus it is only retrievable. For information about the automatic generation of *locz* refer to the parameter *sqfz*.
   For lower-order cross-connections the parameter *locz* is the TID of that ring node in the direction towards the specified output tributary (downstream), where the HO path termination sink function resides. If there is no such function in a downstream ring node then *locz* is the TID of the node, where the related HO circuit is last dropped from the ring. Refer to figure "Lower-order cross-connections" (p. 4-1661) in the RTRV-CRS section for further explanation.

   The fact that *loca* refers to the HO path terminations has the following consequences:

   - All LO cross-connections through the same HO path termination at the MSSPRING port have the same loca value.
   - Any LO through-connection will be treated as add/drop. loca will identify the node of the through connection, and not the node where the LO service is added to the ring.

   Type: TID or empty-string
   Range: Please refer to the TID definition in the "RTRV-HDR: Retrieve header" (p. 4-1736) description.
   Default: empty string: "" Note: In output direction the empty string appears as \"\".

3. omode – Output Mode
   The parameter omode specifies the output mode of the crossconnection: · for a 1way crossconnection the output is clearly defined by the destination (out_aid) · for a 2way crossconnection the output is defined as the source-to-destination direction (in_aid to out_aid) NORM: this is the normal output i.e. the signal from the in_aid is passed through to the out_aid; IDLE/UNEQ: this mode outputs an unequipped signal; AIS: this mode outputs an AIS signal; Type Alphanumeric value set Range · NORM · IDLE/UNEQ · AIS Default NORM
4. repleg – Reported Leg Pair
   This parameter provides compact information about the leg(s) of cross-connections and is derived, as shown in "Derivation of repleg" (p. 4-1662), from a combination of the following elementary parameter:
   - atomic cross-connection topology
   - leg status
   - path-protected group working leg (if applicable i.e. being part of a protection group).

   Atomic cross-connection topology:

   Two atomic cross-connection topologies are supported:

   - Point to point: The point to point cross-connection consists of one leg only, which is defined by its source-trib (*in_aid*) and its destination-trib (*out_aid*) and its particular transmission rate.
   - path-protected: The path-protected cross-connection consists of a path protection group with two legs, a working leg and a protection leg – the declaration of working respectively protection is made when establishing the cross-connection (ENT-CRS command).

     The two legs are defined by two input tributaries and one output tributary – thus one input tributary and the output tributary form the working leg while the other input tributary and the output tributary form the protection leg.

     Note that:

     both input tributaries must belong to ports with the same interface standard (either SONET or SDH), due to different switch criteria;

     both legs must be at the same cross-connection rate.

   Leg status:

   The leg status indicates whether a leg is monitored and reported as a 1-way cross-connection or a leg pair i.e. a 2-way cross-connection.
   1-way: The leg status for a path-protected cross-connection is always defined as 1-way.
   2-way: The leg status for a (non path-protected) cross-connection is set to 2-way if all the following conditions are fulfilled: there are 2 cross-connections in opposite direction between the same tributaries; both of these cross-connections have the same rate (independent if the SONET or SDH rate was used when establishing i.e. VC3 is equivalent to STS1, VC4 is equivalent to STS3 etc); the source and destination TIDs do match i.e. the source TID of one leg is the destination TID of the other leg and vice versa (this condition of course holds only in case of BLSR

cross-connections).
Note that the criteria for a 2-way leg-pair do not depend on whether the two legs were set up at the same time, nor on whether either leg was set up as part of a 2-way cross-connection topology
Path Protection leg role:
This indicates if the leg of a path protection group is defined as the working (W) leg or the protection (P) leg.
1WAYPSW and 1WAYPSP stands for 1-way path switched working and 1-way path switched protection respectively.
In "repleg example" (p. 4-1662) examples show the *repleg* parameter for several cross-connection configurations including compound cross-connection.
Type: Alphanumeric value set.
Range

- 1WAY
- 2WAY
- 1WAYPSW
- 1WAYPSP.

The values 1WAYPAP and 1WAYPAW are not supported in the initial release.

5. rtntaccstat – Return Test Access Status
   This parameter indicates indicates whether the input tributary of the return direction (destination-to-source) of a 2-way cross-connection is cross-connected or bridged to a test access tributary of a test session. In the case of a 1-way cross-connection the parameter shall be omitted.
   Type: Alphanumeric value set.
   Range: YES, NO (default).
6. taccstat – Test Access Status
   This parameter indicates whether the input tributary of a 1-way cross-connection or the input tributary of the source-to-destination direction of a 2-way cross-connection is cross-connected or bridged to a test access tributary of a test session.
   Type: Alphanumeric value set.
   Range: YES, NO (default).
7. xcappl – cross-connection application
   The parameter xcappl (cross-connection application) is a numeric value which indicates the application for which the cross-connection is used in the context of compound cross-connection topologies. The parameter is not further processed in the NE, but only stored (when establishing or modifying the cross-connection) and returned when retrieving the cross-connection.
   Type: numerical value set
   Range: 0,1,2..,255
   Default: The default value is 0.

8. xcnum – cross-connection Number
   The parameter xcnum (crossconnection number) is a multiple digit number, identifiying each leg in a specific compound crossconnection. (Compound crossconnection are a composition of several atomic crossconnection in order to form complex scenarios like e.g. decribed in ″Example input/output″ section of the RTRV-CRS command like UPSR, DRI etc.).
   Like the xcappl parameter the xcnum parameter is not further processed in the NE, but only stored (when establishing or modifying the crossconnection) and returned when retrieving the crossconnection. It may be used by a manager to characterize and group crossconnections belonging to complex crossconnection topology (e.g. compound crossconnections as used in Ring Interworking scenarios)
   Recommendation.
   The customer documentation shall recommend the following format for the nine digits: two digits for the bay, one digit for the shelf, two digits for the slot, one digit for the port, and three digits for the trib (where the digits values pertain to out_aid)
   Type: numeric value set (9 digit)
   Range: 000000000 .. 999999999
   Default: The default value is 000000000.
   Note: *rtnxcappl*, *rtnxcnum* and *rtnomode* are not listed because these parameters are always in the scope of one leg.
   Note that in contrast to CG the ED-CRS notification is used to notify *repleg* changes - CG therefore did use the ENT-CRS notification which is not logical.
9. xconcls – cross-connection class
   This parameter identifies, whether the cross-connection has been setup in the TRADITIONAL way by an operator via the ENT-CRS command or via the NN application as part of an ENT-PATH command. This parameter therefore also indicates who is the owner of the cross-connection and can modify or delete it.
   Note: Refer to the NN TL1 catalogue for the ENT-PATH command.
   Type: alphanumeric value set.
   Range: TRADITIONAL, NN.

Example output

Refer to the ″Detailed behavior description″ of “ED-CRS: Edit cross-connection” (p. 4-213).

□

ED-DAT: Edit date and time

The ED-DAT command can be initiated by a user to change the date and time information in the NE.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S4

Priority: 1

Abortable: no

Input format

Command Syntax: `ED-DAT`*:tid::ctag::[date][,time]*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
3. date – Date
   The *date* specifies the current date as YY-MM-DD. If the parameter *time* is not specified, the current value is not changed, but then *date* must be specified for the ED-DAT command to complete successfully.
   Type: value set.
   Range: YY-MM-DD, with YY between 00 and 99, MM between 01 and 12, DD between 01 and 31.
   Default: 00-01-01 after start-up with default DB, current NE value, if not supplied in the command.
4. time – Time
   The *time* specifies the current time of day as HH-MM-SS. If the parameter *date* is not specified, the current value is not changed, but then *time* must be specified for the ED-DAT command to complete successfully.
   Type: value set.
   Range: HH-MM-SS, with HH between 00 and 23, MM between 00 and 59, SS between 00 and 59.
   Default: 00-00-00 after start-up with default DB current NE value, if not supplied in the command.

Output format

If the ED-DAT request completes successfully, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The following attributes of the system entity is updated due to that command

1. *date* as specified in the command input
2. *time* as specified in the command input.

If either *date* or *time* is not supplied in the command parameter, this value is left unchanged.

The update is reported by means of an ED-DAT notification for the system.

Update affected entities

If ED-DAT is changed so that a performance monitoring period is crossed, than one history bin will be lost. In every case the *validity* parameter is modified accordingly (see "RTRV-PM: Retrieve performance monitoring" (p. 4-1970)).

Example input/output

```
ED-DAT:LT-UNITE:789::123456::01-12-31,11-50-30;
   LT-UNITE:789 01-12-31 11:51:41
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the ED-DAT command.

Validation rule: Incorrect date/time format

If the NE receives an ED-DAT command with an incorrectly formatted date and/or time, the following error response is returned. This check includes checks for invalid days within a month (e.g. no 30th February).

Error code: `IDNV - Input, Data Not Valid, incorrect date/time format`

Related TL1 messages

"RTRV-HDR: Retrieve header" (p. 4-1736)

References

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□

ED-DAT notification

Output format

The ED-DAT notification uses the general format of a REPT DBCHG Report Database Change notification.

Syntax: `ED-DAT:::`[*date*][,*time*]

Output parameters

Command parameters

1. date – Date
   The *date* specifies the current date as YY-MM-DD. If the parameter *time* is not specified, the current value is not changed, but then *date* must be specified for the ED-DAT command to complete successfully.
   Type: value set.
   Range: YY-MM-DD, with YY between 00 and 99, MM between 01 and 12, DD between 01 and 31.
   Default: 00-01-01 after start-up with default DB, current NE value, if not supplied in the command.
2. time – Time
   The *time* specifies the current time of day as HH-MM-SS. If the parameter *date* is not specified, the current value is not changed, but then *time* must be specified for the ED-DAT command to complete successfully.
   Type: value set.
   Range: HH-MM-SS, with HH between 00 and 23, MM between 00 and 59, SS between 00 and 59.
   Default: 00-00-00 after start-up with default DB current NE value, if not supplied in the command.

Example output

```
ED-DAT:LT-UNITE:789::123456::01-12-31,11-50-30;
   LT-UNITE:789 01-12-31 11:51:41
M  123456 COMPLD
;
   LT-UNITE  01-12-31  11:52:03
A  078  REPT  DBCHG
   "Time=11-52-05,DATE=01-12-31:ED-DAT:::date=01-12-31,time=11-50-30"
;
```

□

ED-EC1: Edit EC1 port

The ED-EC1 command shall be used to retrieve all parameters related to the electrical EC1 port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: No.

Input format

Command Syntax:

`ED-EC1:`*tid:aid:ctag:::spec_block;*

Input parameters

Command parameters

1. tid – Target Identifier
   See definition in "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   Access Identifier of a EC1 port.
   Type: AID
   Range: SPortAID of EC1 port. The keyword ″all″ shall be allowed up to shelf level.
3. ctag – Correlation Tag
   See definition in "RTRV-HDR: Retrieve header" (p. 4-1736).

Spec block parameters

1. eif - Electrical Interface Type
   This parameter specifies the type of input to which the port shall be provisioned.
   Type: alphanumeric value set.
   Range: DS3, EC1 (default)
   The default vlaue EC1 leaves the interface type unchanged, if the parameter is omitted.
2. felpm - Far-end Line PM Enable
   Enable or disable of the performance monitoring of the multiplex section/line.
   Type: alphanumeric value set.
   Range: ENABLE, DISABLE (default)
3. lbo - Line Build Out
   This parameter defines the cable length applicable for the EC1 port.
   Type: alphanumeric value set.

Range:

- SHORT (default): 0 ... 68.5 m (0 ... 225 ft)
- LONG: 68.5 ... 137 m (225 ... 450 ft).

4. frcdus - Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message "do not use" will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range: ENABLE: set a forced DUS/DNU; DISABLE (default): clear a forced DUS/DNU
5. nelpm - Near-End Line PM Enable
   Enable or disable near-end multiplex section (near-end line) performance monitoring.
   Type: alphanumeric value set.
   Range: ENABLE, DISABLE (default).
6. pmmsfeses - Performance Monitoring Line Far-End SES Threshold
   This parameter describes the Line Far-End SES threshold value. It indicates the number of code violations per second to declare a second as severly errored.
   Type: numeric value set.
   Range: 1 - 6400.
   Default: 51
7. pmmsneses - Performance Monitoring Line Near-End SES Threshold
   This parameter describes the Line Far-End SES threshold value. It indicates the number of code violations per second to declare a second as severly errored.
   Type: numeric value set
   Range: 1 - 6400.
   Default: 51
8. pmode - Port Mode
   This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
   Type: alphanumeric value set.
   Range:
   - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
   - MON indicates that alarm monitoring is taking place on the port.
   - NMON means that alarm monitoring is not occurring on the port.
9. pmrsneses - Performance Monitoring Section Near-End SES Threshold
   This parameter describes the Section Near-End SES threshold value. It indicates the number of code violations per second to declare a second as severly errored.
   Type: numeric value set.
   Range: 1 ... 64000
   Default: 52

10. sdthr - Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applys when sdsfmode=POISSON.
    Type: numeric value set.
    Range: (as exponents of 10): -5 -6 (default), -7, -8, -9
11. servcond - Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
12. sfthr - Signal Failure Threshold
    Retrieving of the excessive degrade/signal failure threshold in exponent of 10. This parameter is available when sdsfmode=POISSON
    Type: numeric value set
    Range: (as exponents of 10): -3 (default), -4, -5
13. sltca - Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
14. sonet - SONET ASAP
    SONET Alarm Severity Assignment Profile. This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH Alarm Severity Assignment Profile for SDH ports of corresponding line rate (see RTRV-STM4, output parameter sdhpn) to be compatible with current generation applications.
    Type: alphanumeric string
    Range: String with a maximum of 24 characters. A hyphen (-) is additionally allowed in the name.
    Default: DEFAULT.
15. spm - Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set
    Range: ENABLE, DISABLE (default).
16. strcout - Value of outgoing J0
    This identifies the section trace message to be transmitted.
    Type: Hexadecimal digits
    Range: 1 byte string, One byte shall be expressed as two hexadecimal digits (example value: 6D).
    Default: 01Hex

Output format

If the ED-EC1 command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section for the RTRV-HDR command.

Detailed behavior description

The command shall modify the attributes (listed in the spec_block parameters part of this command) of the addressed port entitiy according to the parameters given with this command. The modification shall be reported by means of an ED-EC1 notification for port (except for parameter eif; see below).

Switching of interface type - Ignore other parameters

If additional parameters beside eif are specified with the ED-EC1 command they will be ignored by the NE.

Switching of interface type - Impact on port and Tributary Entities

Setting *eif* to T3 shall

- delete the STS-1 path termination entity related to the EC1 port,
- delete the EC1 port entity,
- create one T3 port entity with the defined default values for the port parameters,
- create one STS-1 path termination with the default values for the PTF parameters.

The deletion and creation of ports and tributaries shall be notified via the appropriate DLT and ENT notifications.

Switching of interface type - Impact on Fault Management

Setting *eif* to T3 shall

- clear all active alarms for the EC1 port and the related tributary
- re-evaluate the alarm status after the creation of the T3 port and the path termination
- raise all active alarms for the T3 port and the tributary.

The clearing and raising of alarms shall be notified with the appropriate notifications.

Switching of interface type - Impact on Performance Monitoring

Setting *eif* to T3 shall

- disable all active PM monitoring points for the EC1 port and the related tributary
- clear all current and history bins for the EC1 port and the related tributary.

Example input/output

```
ED-EC1:UNITE-NE:1-1-#-#-1-36:123456:::
FELPM=ENABLE,NELPM=ENABLE;
   UNITE-NE 04-12-23 08:00:00
M  123456 COMPLD
;
   UNITE-NE 04-12-23 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=04-12-23:ED-EC1:1-1-#-#-1-1::
   felpm=enable,nelpm=enable:"
;
```

Error responses

See definition in "RTRV-HDR: Retrieve header" (p. 4-1736) command error responses section for general validation rules. The error responses listed there also apply to the ED-EC1 command.

Validation rule: Check CCB against *ptype* and *eif*

Check wether the CCB fits to *ptype* and *eif*.

Error Code: `IENE - Input, Entity Not Exists`

Validation rule: ASAP profile exists

Check of the existance of the ASAP profile.

Error Code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: TCA profile exists

Check of the existance of the TCA profile.

Error Code: `IDNV - Input, Data Not Valid, TCA profile does not exist`

Validation rule: no cross-connections for interface type change

Check that eif is not changed when a facility loopback is still on this port.

Error Code: `SNVS - Status, Not in Valid State, cross-connections are still existing`

Validation rule: no XC loopbacks for interface type change

Check that *eif* is not changed when cross-connections loopback is still on this port.

Error Code: `SNVS - Status, Not in Valid State, XC loopbacks still exist`

Validation rule: No facility loopbacks for interface type change

Check that *eif* is not changed when a facility loopback is still on this port.

Error Code: `SNVS - Status, Not in Valid State, facility loopbacks still exist`

Validation rule: no test access session for interface type change

Check that *eif* is not changed when a tributary related to this port is used in a test access session either as tributary under test or as test access tributary.

Error Code: `SNVS - Status, Not in Valid State, a test access session exists`

Validation rule: Check whether system is in maintenance condition

Check that eif is not changed when the system in is maintenance condition.

Error Code: `SNVS - Status, Not in Valid State, maintenance condition`

Validation rule: servcond must be disabled for facility loopback

Check that the servcond is not enabled when a facility loobackp is existing for this port.

Error Code: `SNVS - Status, Not in Valid State, Facility Loopback is active for this port`

Validation rule: Maximum number of enabled PM monitors

Check that the number of enabled PM monitors is less than the maximum number of supported enabled PM monitors before a new PM monitor is enabled.

Error Code: `SSRE - Status, System Resources Exceeded, limit of PM monitors exceeded`

Validation rule: transmitted path trace length

Check that the length of the outgoing J0 trace value (strcout) fits to the length given by outgoing J0 trace mode, i.e. write format (*strcwfmt*).

Error Code: `IDNC - Input, Data Not Consistent, strcout length must match the given outgoing J0 trace mode`

Related TL1 messages

- "RTRV-EC1: Retrieve EC1 port" (p. 4-1672)
- "ED-EC1 notification" (p. 4-238)
- "ENT-EC1 notification" (p. 4-1067)
- "DLT-EC1 notification" (p. 4-114)

References

GR-199-CORE (ED-*rr*)

□

ED-EC1 Autonomous Notifications

LOS for Transmission port EC1 clears

If LOS is cleared and current port mode is AUTO, then portmode is updated (new value: MON). This update is reported via ED-EC1 notification with parameter pmode.

□

ED-EC1 notification

The ED-EC1 notification shall use the general format of a REPT DBCHG Report Database Change notification.

Output format

Command Syntax:

`ED-EC1:`*tid:aid:ctag:::spec_block;*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID
   Range: EC1 port AID

Spec block parameters

1. felpm - Far-end Line PM Enable
   Enable or disable of the performance monitoring of the multiplex section/line.
   Type: alphanumeric value set.
   Range: ENABLE, DISABLE (default)
2. frcdus - Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message “do not use” will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range: ENABLE: set a forced DUS/DNU; DISABLE (default): clear a forced DUS/DNU
3. fsflpbkstat - Far Side Facility Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output aid. A far-side loopback means that the signal on the outgoing port is looped to the incoming port - this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed - if NO then there is no (far-side) loopback exististing for the aid.
   Note: not both loopbacks (lpbk and fsflpbkstat) can be set to YES at the same time.
   Type: alphanumeric value set.
   Range: YES, NO (default).
4. lbo - Line Build Out
   This parameter defines the cable length applicable for the EC1 port.
   Type: alphanumeric value set.
   Range:
   - SHORT (default): 0 ... 68.5 m (0 ... 225 ft)
   - LONG: 68.5 ... 137 m (225 ... 450 ft).

5. lpbk - Loopback
   This parameter specifies the current near-side loopback status of the considered output aid. A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed - if NO then there is no (near-side) loopback exististing for the port.
   Type: alphanumeric value set
   Range: YES, NO (default)
6. nelpm - Near-End Line PM Enable
   Enable or disable near-end multiplex section (near-end line) performance monitoring.
   Type: alphanumeric value set
   Range: ENABLE, DISABLE (default)
7. pmmsfeses - Performance Monitoring Line Far-End SES Threshold
   This parameter describes the Line Far-End SES threshold value. It indicates the number of code violations per second to declare a second as severly errored.
   Type: numeric value set.
   Range: 1 - 6400.
   Default: 51
8. pmmsneses - Performance Monitoring Line Near-End SES Threshold
   This parameter describes the Line Far-End SES threshold value. It indicates the number of code violations per second to declare a second as severly errored.
   Type: numeric value set
   Range: 1 - 6400.
   Default: 51
9. pmode - Port Mode
   This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
   Type: alphanumeric value set.
   Range:
   - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
   - MON indicates that alarm monitoring is taking place on the port.
   - NMON means that alarm monitoring is not occurring on the port.
10. pmrsneses - Performance Monitoring Section Near-End SES Threshold
    This parameter describes the Section Near-End SES threshold value. It indicates the number of code violations per second to declare a second as severly errored.
    Type: numeric value set.
    Range: 1 ... 64000
    Default: 52

11. sdthr - Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applys when sdsfmode=POISSON.
    Type: numeric value set.
    Range: (as exponents of 10): -5 -6 (default), -7, -8, -9
12. servcond - Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
13. sfthr - Signal Failure Threshold
    Retrieving of the excessive degrade/signal failure threshold in exponent of 10. This parameter is available when sdsfmode=POISSON
    Type: numeric value set
    Range: (as exponents of 10): -3 (default), -4, -5
14. sltca - Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
15. sonet - SONET ASAP
    SONET Alarm Severity Assignment Profile. This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH Alarm Severity Assignment Profile for SDH ports of corresponding line rate (see RTRV-STM4, output parameter sdhpn) to be compatible with current generation applications.
    Type: alphanumeric string
    Range: String with a maximum of 24 characters. A hyphen (-) is additionally allowed in the name.
    Default: DEFAULT.
16. spm - Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set
    Range: ENABLE, DISABLE (default).
17. strcout - Value of outgoing J0
    This identifies the section trace message to be transmitted.
    Type: Hexadecimal digits
    Range: 1 byte string, One byte shall be expressed as two hexadecimal digits (example value: 6D).
    Default: 01Hex

Example Output

```
ED-EC1:UNITE-NE:1-1-#-#-21-1:123456:::
FELPM=ENABLE,NELPM=ENABLE;
   UNITE-NE 04-12-23 08:00:00
M  123456 COMPLD
;
   UNITE-NE 04-12-23 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=04-12-23:ED-EC1:1-1-#-#-21-1::
   felpm=enable,nepm=enable:"
;
```

□

ED-EPORT: Edit Ethernet port

The ED-EPORT command modifies the properties of an Ethernet port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: No

Input format

Command Syntax: `ED-EPORT`*:modifier:tid*:*aid*:*ctag:::spec_block*;

Input parameters

Command parameters

1. modifier
   This modifier specifies the type of the ethernet port at the LAN side.
   Type: alphanumeric value set.
   Range: 1GE.
2. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
3. aid – Access Identifier
   This parameter specifies the ethernet port to be operated on.
   Type: AID
   Range: EPortAID as defined in AID structure with the exception of the value *all*.
4. ctag – Correlation Tag
   Refer to the “RTRV-HDR: Retrieve header” (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameter

1. cnprole – Customer/Network Port Role
   This parameter specifies whether the addressed port is used as a customer LAN port or a network LAN port.
   Type: alphanumeric value set.
   Range: CUSTOMER (default), for a customer LAN port; NETWORK, for a network LAN port.
2. dftpri – Default User Priority
   This parameter specifies the default user priority acc. the IEEE 802.1Q tagging scheme.
   Type: alphanumeric value set.
   Range:
   - HIGH
   - LOW (default).
3. dftvlan – Default VLAN Identifier
   This parameter specifies the value of the VLAN identifier which is applied to frames (tagging) at LAN ingress (i.e. from LAN into the Ethernet-port). This only applies to frames carrying no VLAN identifier, yet. This parameter is also used to provision the customer tag (CID) to be used in transparent tagging mode.
   Type: alphanumeric value set.
   Range:
   - 1, 2, 3, ... 4092, 4093
   - UNAVAILABLE (default).

   To express the state UNAVAILABLE system internally the invalid VLAN ID 4094 is used.
4. enetpn – Ethernet Alarm Severity Assignment Profile
   This parameter points to a tributary ASAP profile name of type ENET for the designated AID.
   Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: 1 ... 24 characters length.
   Default: DEFAULT.
5. enettca – Ethernet TCA Profile
   This parameter specifies the name of the threshold crossing alert (TCA) profile used for Ethernet ports.
   Type: alphanumeric string.
   Range: 1 ... 24 characters length.
   Default: DEFAULT0.
6. epmode – Ethernet Port Monitoring Mode
   This parameter specifies the monitoring mode of the Ethernet port. Alarms for this port will be reported if in state MON otherwise not. The configuration of epmode will change from AUTO to MON if a valid signal is applied to that port.
   Type: alphanumeric value set.

Range:

- AUTO (default), for automatic
- MON, for monitored
- NMON, for not monitored.

7. eppm – Ethernet Port Performance Monitoring
   This parameter specifies whether the performance monitoring is enabled or disabled for this port.
   Type: alphanumeric value set.
   Range:
   - DISABLE (default)
   - ENABLE

8. fcmd – Flow Control Mode
   This parameter specifies the configuration for the pause operation of this port. This parameter is applicable only if the bridge operates in backward-compatible mode (*vlantagmd* = BCMD).
   Type: alphanumeric value set.
   Range:
   - AUTO (default), for auto-negotiate
   - DISABLE, for pause mode disabled.

9. rptmode – Repeater Mode
   This parameter sets the bridge device for this LAN port into the repeater mode (promiscuous mode), valid for a point to point connection between one LAN and one WAN port. Operating in repeater mode imposes some restrictions. See detailed behaviour section. Option: This parameter is meaningful only if the bridge operates in backward-compatible mode (vlantagmd == BCMD).
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).

10. servcond – Service Condition
    This parameter specifies the service condition for this port. Some configuration possibilities like loopbacks may be dependent on the state of *servcond*.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default)
    - OUTOFSERVICE.

11. stdis – Spanning Tree Protocol Disable
    This parameter allows to enable or disable the Spanning Tree Protocol for the given port. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: alphanumeric value set.
    Range:
    - DISABLE, STP is disabled, i.e. the port is not used in the spanning tree protocol
    - ENABLE (default), STP is enabled, i.e. the port is used in the spanning tree protocol.
12. stpcost – Spanning Tree Path Cost
    This parameter specifies the STP-related cost of the path egressing the given port. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: integer.
    Range: 1 to 200000000.
    Default: 20000.
13. stpp – Spanning Tree Port Priority
    This parameter specifies the priority of the given port for the Spanning Tree Protocol. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: integer.
    Range: 0 to 255.
    The stepping as recommended by the standard (steps of 16 starting at 0) should be implemented by the management system. The NE will accept any value in the range described above. This has the consequence, that also the range restriction ″0 to 240″ is not done by the NE.
    Default: 128.
14. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding. Two thresholding methods are applicable: TR-only. (also known as the implicit reset method), TR-RTR. (also known as the explicit reset method).
    Type: alphanumeric value set.
    Range: TR, TRRTR (default).
15. vvidls – Valid VLAN Identifier List (static)
    This parameter specifies a list of all static VLAN identifiers allowed for this port. The list shall be ampersand grouped (& and &&). The list shall be packed by the NE and the management systems as good as possible by using ’&’ and ’&&’ . The vlan identifier of an incoming frame must be a member of this static VLAN Id list or the dynamic VLAN Id list *vvidlsd*. Frames tagged by a vlan identifier not

member of these lists will be discarded. The port VLAN identifier (refer to parameter dftvlan of RTRV-EPORT Output Parameters) is not part of this list. This parameter is also used in transparent tagging mode to specify the list of valid customer tags (CIDs) for network ports (cnprole == NETWORK).
Type: alphanumeric string and the character '&'.
Range:

- Value of each single member (valid VLAN identifier) in the list 1, 2, ..., 4092, 4093
- In case the list has no members (empty list) -1.

The length of the list is limited only by the usual system limitations like e.g. TL1 line length. The number of entries in this list is limited to 64 by some NE-internal restrictions. Ranging and grouping by using the operators '&' and '&&' has no impact on the number of entries, it only reduces the length of the list being transported to/from CIT/EMS.
Default: -1.
Example 1:
vvidls=-1. The list has no members (empty list).
Example 2:
vvidls=3&5&40&&45. This list has the members 3, 5, 40, 41, 42, 43, 44 and 45.
Example 3:
vvidls=1&&4093 This list has the members 1,2, 3, ..., 4092, 4093.

Output format

If the NE fully complies with the ED-EPORT request, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time* and *ctag* included in the normal completion response are specified in the Output Parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behaviour description

The ED-EPORT generates a REPT DBCHG message.

The command modifies the attributes (listed in the *spec_block* parameters part of this command) of the addressed port entity according to the parameters given with this command.

The modification shall be reported by means of an ED-EPORT notification.

Update affected entities

A change of the value of the parameter *rptmode* shall have the following side effects: The change from disable to enable or enable to disable shall set the parameter *dftvlan* and *vvidls* for this port to their default values.

During repeater mode operation no VLAN ingress filtering for tagged frames or classification for untagged frames is done. It is not intended to keep the VLAN settings being active before a switch to the repeater mode for later restoration.

Relation of repeater mode - *rptmode* and VLAN tagging mode - *vlantagmd* of related slot

When *vlantagmd* is set to BCMD (backward compatible mode) the value of *rptmode* is relevant. When *vlantagmd* has a value different from BCMD the value of *rptmode* is irrelevant and changes of *rptmode* shall not be allowed. When switching *vlantagmd* back to BCMD the value of *rptmode* from the database becomes relevant again.

Reset to default values when switching from VLAN-aware p2p mode to repeater mode

When vlantagmd is set to BCMD and rptmode is changed from DISABLE to ENABLE the following parameters of the related EPORTs shall be set to their default values:

- *dftpri*, *dftvlan*, *vvidls*.

Implicit enabling/disabling of GVRP when enabling/disabling STP for a port

When enabling/disabling STP for a network port via parameter *stdis* GVRP is implicitly enabled/disabled for this port (if enabled via parameter *gvrpmode* of the virtual switch).

Disabling of PM monitor

The disabling of a PM monitor shall have the following impacts w.r.t. existing PM registers:

1. Stop PM counting
2. All current bins related to the PM monitor shall be deleted
3. All history bins related to the PM monitor shall be deleted

The term PM monitor has the same semantics as the term PM package as used in SRD_PerformanceMonitoring. The number of PM monitors is determined by means of the number of 'pm enable attributes'. PM monitors can be disabled explicitly by means of the 'pm enable' attribute or are implicitly disabled as part of a port/tributary deletion.

Additional to the above listed impacts the disabling of a PM monitor shall have the following impacts: the system has to clear all active TCA events of the deleted PM monitor if TCA mode TR-RTR was selected.

Changing TCA mode from TR-RTR to TR-only

The change of tcamd from TR-RTR (also known as the explicit reset method) to TR-only (also known as the implicit reset method) has the impact, that all active TCA events of the related entity must be cleared.

Example input/output

```
ED-EPORT-1GE:LT-UNITE:1-1-#-#-1-1:123457:::epmode=NMON;
   LT-UNITE 00-11-11 11:11:00
M  123457 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the ED-EPORT command.

Validation rule: ASAP profile exists

Check of the existence of the ASAP profile.

Error code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: TCA profile exists

Check of the existance of the TCA profile.

Error Code: `IDNV - Input, Data Not Valid, TCA profile does not exist`

Validation rule: servcond must be disabled for facility loopback

Check that the *servcond* is not enabled when a facility loopback is existing for this port.

Error Code: `SNVS - Status, Not in Valid State, Facility Loopback is active for this port`

Validation rule: Default VLAN ID not allowed in repeater mode

No VLAN ingress classification with dftvlan is possible during repeater mode operation. The default VLAN ID has to be the value ″unavailable″ during this state.

Error Code: `SNVS - Status, Not in Valid State, Active Repeater Mode for this Port does not allow dftvlan to be modified`

Validation rule: VLAN filtering database not allowed in repeater mode

No VLAN filtering database, extracted from the vvidls, is used during repeater mode operation. The valid VLAN list has to be an empty list during this state.

Error Code: `SNVS - Status, Not in Valid State, Active Repeater Mode for this Port does not allow vvidls to be modified`

Validation rule: Parameter modification not allowed in backward compatible mode

No modification of the following parameters is allowed if the VLAN tagging mode *vlantagmd* of the pack, to which the specified EPORT belongs to, is set to backward compatible mode (BCMD): *cnprole*, *stdis*, *stpp*, *stpcost*, *rstpmd*.

Error Code: `SNVS - Status, Not in Valid State, Modification not allowed in Backward Compatible Mode`

Validation rule: No modification of *rptmode* if *vlantagmd* = 802.1TAG

No modification of the repeater mode *rptmode* is allowed if the VLAN tagging mode *vlantagmd* of the pack, to which the specified EPORT belongs to, is set to 802.1TAG.

Error Code: `SNVS - Status, Not in Valid State, Modification not allowed`

Validation rule: No modification of *fcmd* if *vlantagmd* = 802.1TAG

NNo modification of the flow control mode fcmd shall be allowed if the VLAN tagging mode *vlantagmd* of the pack, to which the specified EPORT belongs to, is set to 802.1TAG.

Error Code: `SNVS - Status, Not in Valid State, Modification of flow control mode not allowed`

Validation rule: Default VLAN ID is already assigned for this system

The default VLAN ID of a LAN port cannot have the same value as the default VLAN Id of another LAN port in the system or any other instantiated VLAN in the system, except for the value 4094.

Error Code: `IDNC-Input, Data, Not Consistent, Default VLAN ID is already assigned for this System.`

System is here to be seen with the granularity of a GE1 circuit pack.

Validation rule: Default VLAN ID is no allowed member of valid VLAN list for this system

The default VLAN ID of a LAN port cannot be included into the valid VLAN list of any LAN port within the system.

Error Code: `IDNC-Input, Data, Not Consistent, Default VLAN ID is not an allowed member of valid VLAN list.`

System is here to be seen with the granularity of a GE1 circuit pack.

Validation rule: Maximum number of entries in valid VLAN ID list exceeded

If the number of VLAN IDs specified with parameter vvidls is greater than 256 the following error code is returned. For calculating the number of VLAN IDs being specified the grouping and ranging operators '&' and '&&' have to be resolved first.

Error code: `SSRE - Status, System Resources Exceeded, limit of VLAN Identifiers exceeded`

Related TL1 message

- "RTRV-EPORT: Retrieve Ethernet port" (p. 4-1685).

□

ED-EPORT notification

Output format

The ED-EPORT notification uses the general format of a REPT DBCHG (Report Database Change) notification.

The ED-EPORT notification has following specific syntax:

ED-EPORT-*modifier:aid::spec_block;*

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter specifies the Ethernet port to be operated on.
   Type: AID
   Range: EPortAID as defined in AID structure with the exception of the value all.

Spec block parameters

1. cnprole – Customer/Network Port Role
   This parameter specifies whether the addressed port is used as a customer LAN port or a network LAN port.
   Type: alphanumeric value set
   Range:
   - USTOMER for a customer LAN port
   - NETWORK for a network LAN port

   Default: CUSTOMER
2. dftpri – Default User Priority
   This parameter specifies the default user priority acc. the IEEE 802.1Q tagging scheme.
   Type: alphanumeric value set
   Range: HIGH, LOW (default).
3. dftvlan – Default VLAN Identifier
   This parameter specifies the value of the VLAN identifier which is applied to ingressing frames (tagging) . This only applies to frames carrying no VLAN identifier, yet.
   Type: alphanumeric value set
   Range: 1, 2, 3, ... 4092, 4093; UNAVAILABLE (default)
4. enetpn – Ethernet Alarm Severity Assignment Profile Name
   This parameter points to a tributary ASAP profile name of type ENET for the designated AID.
   Type: alphanumeric string A hyphen (-) is additionally allowed in the name.
   Range: 1 ... 24 characters length
   Default: DEFAULT

5. enettca – Ethernet TCA Profile Name
   This parameter specifies the name of the threshold crossing alert (TCA) profile used for Ethernet ports.
   Type: alphanumeric string
   Range: 1 ... 24 characters length
   Default: DEFAULT0
6. epmode – Ethernet Port Monitoring Mode
   This parameter specifies the monitoring mode of the Ethernet port.
   Type alphanumeric value set
   Range:
   - AUTO for automatic (default)
   - MON for monitored
   - NMON for not monitored.
7. eppm – Ethernet Port Performance Monitoring
   This parameter specifies whether the performance monitoring is enabled or disabled for this port.
   Type: alphanumeric value set
   Range: DISABLE (default), ENABLE
8. fcmd – Flow Control Mode
   This parameter specifies the configuration for the pause operation of this port. This parameter is applicable only if the bridge operates in backward-compatible mode (*vlantagmd* = BCMD). I
   Type: alphanumeric value set.
   Range:
   - AUTO (default), for auto-negotiate
   - DISABLE, for pause mode disabled.
9. fsflpbkstat – Far Side Facility Loopback Status
   This parameter reports the configuration of the far-side facility loopback of this port. A far-side loopback means that the signal on the outgoing port is looped to the incoming port (Tx -> Rx). For GE1 there is only this type of facility loopback. For changing the loopback operation refer to OPR-LPBK of section Transmission and Cross-Connection Handling, Port
   Type: alphanumeric value set.
   Range:
   - YES, for enabled loopback
   - NO (default), for disabled loopback.
10. servcond – Service Condition
    This parameter specifies the service condition for this port.
    Type alphanumeric value set
    Range: INSERVICE (default), OUTOFSERVICE

11. stdis – Spanning Tree Protocol Disable
    This parameter allows to enable or disable the Spanning Tree Protocol for the given port.
    This parameter is applicable only if the port is a network port (cnprole == NETWORK). For customer ports (cnprole == CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type alphanumeric value set.
    Range:
    - DISABLE: STP is disabled, i.e. the port is not used in the spanning tree protocol
    - ENABLE (default): STP is enabled, i.e. the port is used in the spanning tree protocol.
12. stpcost – Spanning Tree Path Cost
    This parameter specifies the STP-related cost of the path egressing the given port.
    This parameter is applicable only if the port is a network port (cnprole == NETWORK). For customer ports (cnprole == CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: integer
    Range: 1 to 200000000
    Default: 20000
13. stpp – Spanning Tree Port Priority
    This parameter specifies the priority of the given port for the Spanning Tree Protocol.
    This parameter is applicable only if the port is a network port (cnprole == NETWORK). For customer ports (cnprole == CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: integer
    Range: 0 to 255.
    The stepping as recommended by the standard (steps of 16 starting at 0) should be implemented by the management system. The NE will accept any value in the range described above. This has the consequence, that also the range restriction ″0 to 240″ is not done by the NE.
    Default: 128
14. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.

Two thresholding methods are applicable:

- TR-only. (also known as the implicit reset method)
- TR-RTR. (also known as the explicit reset method)

Type: alphanumeric value set
Range: TR, TRRTR (default)

15. vvidls – Valid VLAN Identifier List
    This parameter specifies a list of all static VLAN identifiers allowed for this port. The list shall be ampersand grouped (& and &&) acc. GR-833-CORE Input Commands and Responses.
    The list shall be packed by the NE and the management systems as good as possible by using '&' and '&&' .
    The vlan identifier of an incoming frame must be a member of this static VLAN Id list or the dynamic VLAN Id list vvidlsd. Frames tagged by a vlan identifier not member of these lists will be discarded. The port VLAN identifier (refer to parameter dftvlan of RTRV-EPORT Output Parameters) is not part of this list. This parameter is also used in transparent tagging mode to specify the list of valid customer tags (CIDs) for network ports (cnprole == NETWORK).
    Type: alphanumeric string and the character '&'.
    Range: Value of each single member (valid VLAN identifier) in the list 1, 2, ..., 4092, 4093. In case the list has no members (empty list) -1 (default).
    The length of the list is limited by the usual system limitations like e.g. TL1 line length and some NE internal restrictions as described below. The number of entries in this list is limited to 247 by some NE-internal restrictions. Ranging and grouping by using the operators '&' and '&&' has no impact on the number of entries, it only reduces the length of the list being transported to/from CIT/EMS.
    Example 1: *vvidls=-1*. The list has no members (empty list).
    Example 2: v*vidls=3&5&40&&45*. This list has the members 3, 5, 40, 41, 42, 43, 44 and 45.
    Example 3: *vvidls=1&&4093*. This list has the members 1,2, 3, ..., 4092, 4093.

Example output

```
   LT-UNITE 00-11-11 11:11:00
A  001 REPT DBCHG
   "TIME=11-10-30,DATE=00-11-11:ED-EPORT-1GE:1-1-#-#-1-1::fcmd=DISABLE"
;
```

□

ED-EQPT (CP): Edit equipment (circuit pack)

The ED-EQPT command modifies the provisioning values associated with equipment. Circuit packs must first be provisioned with the ENT-EQPT command or via auto provisioning before they can be modified.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: no

Input format

Command Syntax: `ED-EQPT`*:tid:aid:ctag:::spec_block;*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   The AID of an equipment.
   Type: AID
   Range:
   - CpAID ::= SlotAID-cp for for circuit pack in any slot
   - LoxcAID ::= UnivSlotAID-loxc for LOXCpack in universal slots.

   The keyword `usall` is not allowed for Simple_UnivSlotAID.
   The keyword `xcall` is not allowed for Simple_XCSlotAID.
   The keyword `ctlall` is not allowed for Simple_CTLSlotAID.
   The keyword `all` is not allowed for Simple_SlotAID.
   PowerAID for power interface: The keyword `piall` is not allowed for PowerAID.
   EciAID for ECI interface The keyword `eciall` shall not be allowed for EciAID.
   imingInterfaceAID for TI Interface board The keyword ″tiall″ shall not be allowed for TimingInterfaceAID.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. eqptpn – Equipment ASAP Profile Name
   The name of the current ASAP profile of type EQUIP-UNPROT of the circuit pack. This parameter is reported for a CpAID , PowerAID, EciAID, TimingInterfaceAID and LoxcAID.
   Type: Alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: up to 24 characters.
   Default: DEFAULT.
2. eqptprotpn – Protected Equipment ASAP Profile Name
   The name of the current ASAP profile of type EQUIP-PROT for the equipment.
   Option: This parameter is only reported for a CpAID, LoxcAID or PowerAID.
   Type: Alphanumeric string.
   Range: up to 24 characters. A hyphen (-) is additionally allowed in the name.
   Default: DEFAULT
3. vlantagmd – VLAN Tagging Mode
   VLAN tagging mode of the circuit pack. This parameter is relevant only for circuit packs of type GE1 (i.e. nvmname = GE1).
   Type: value set.
   Range:
   - BCMD (default), for the backward compatible mode
   - 802.1tag, for the VLAN tag based mode according to IEEE802.1Q.
4. loswcap – LOXC switch capacity
   Switch capacity of the LOXC pack. This parameter is relevant only for circuit packs of type LOXC (i.e. nvmname = LOXC).
   Type: value set.
   Range:
   - 0 (default): LOXC in suspended state, initial value after LOXC CP creation
   - 15: LOXC active or member of equipment protection group, switch capacity 15 Gbit/s.

Output format

If the ED-EQPT command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of “RTRV-HDR: Retrieve header” (p. 4-1736).

Detailed behavior description

The command modifies the value of *eqptpn*, *eqptprotpn* for a circuit pack entity as indicated by the *spec_block* parameter.

The update is reported by means of an ED-EQPT notification for circuit pack.

Change of VLAN tagging mode: changing *vlantagmd* to 802.1TAG - update affected entities

If *nvmname* is GE1 a change of parameter vlantagmd from BCMD to 802.1TAG has the following side effects:

- The command shall create one instance of entity virtual switch. This shall be notified by a ENT-VRTSW notification
- The attribute *fcmd* of all related EPORTs shall be set to DISABLED.
- The attribute *rptmode* of all related EPORTs shall be set to DISABLED.
- All other attributes of related EPORTs and VCGs shall remain unchanged.

Change of VLAN tagging mode: changing vlantagmd to BCMD - update affected entities

If *nvmname* is GE1 a change of parameter vlantagmd from 802.1TAG to BCMD has the following side effects: The command shall delete the instance of entity virtual switch. This shall be notified by a DLT-VRTSW notification.

The following attributes of the related EPORTs shall be set to their default values:

- *fcmd*, *stdis*, *stpp*, *stpcost*.

The following attributes of the related VCGs shall be set to their default values:

- *cnprole*, *stdis*, *stpp*, *stpcost.*

All other attributes of related EPORTs and VCGs shall remain unchanged.

Change of LOXC switch capacity: changing of *loswcap*

The paramter *loswcap* can be set with the ED-EQPT(cp) command. Changing this parameter to a different value than 0 is only allowed if there is no active LOXC pack in the system.

The term active LOXC pack refers to:

- either an unprotected pack with loswcap unequal to 0,
- or an active pack in a LOXC equipment protection group.

Standby LOXC packs are not considered as active LOXC pack.

Change of LOXC switch capacity: update of LO tributary Standard

If the parameter *loswcap* is set to a different value than 0, then the parameter *lostd* shall be set to the current value of the parameter *istddflt*. If the parameter *loswcap* is set to 0, then the parameter *lostd* shall be set to UNDEFINED.

Example input/output

```
ED-EQPT:UNITE-NE:1-1-#-#-1-cp:123456:::eqptpn=NOALARM;
   UNITE-NE 98-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the ED-EQPT command.

Validation rule: Validate ASAP profile

Check of the existance of the ASAP profile.

Error code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: Check whether VLAN lists are empty

If *nvmname* is GE1 and the parameter vlantagmd is set to BCMD it shall be checked whether for the specified slot:

- the static VLAN lists (vvidls) of all EPORT entities are empty
- the static VLAN lists (vvidls) of all VCG entities are empty
- the default VLAN Id (dftvlan) of all EPORT entities is set to unavailable
- the default VLAN Id (dftvlan) of all VCG entities is set to unavailable.

Errorcode: `SNVS - Status, Not in Valid State, static VLAN configuration not cleared`

Validation rule: Check whether circuit pack is member of an equipment protection group

If an attempt is made to change *loswcap* to 0, the circuit pack must not be member of an equipment protection group.

Errorcode: `SNVS - Status, Not in Valid State, circuit pack is member of an equipment protection group`

Validation rule: Check whether circuit pack is in use

If an attempt is made to change *loswcap* to 0, then no lower order cross-connection or cross-connection loopback must exist at any lower order tributary related to a port of an I/O pack.

Errorcode: `SNVS - Status, Not in Valid State, circuit pack is in use`

Validation rule: Check number of active LOXC packs

Not more than 1 (2 in case of equipment protection groups) LOXC packs with *loswcap* = 15 may exist in the system.

Errorcode: `SSRE - Status, System Resources Exceeded, allowed number of active LOXC packs exceeded`

Validation rule: LO switch capacity setting only for LOXC in worker slots

If an attempt is made, to change *loswcap* away from 0 for a LOXC pack which is not in a dedicated equipment protection worker slot, then the command shall be denied.

Errorcode: `IDNV - Input, Data Not Valid, invalid LO switch capacity for LOXC in this slot`

For the LOXC equipment protection dedicated pairs of worker and protection slots are defined. Only for the worker slots *loswcap* can be set away from 0. During creation of the protection group, *loswcap* of the protection LOXC is set autonomously.

Related TL1 messages

- "ENT-EQPT (slot): Enter equipment (slot)" (p. 4-1079)
- "RTRV-EQPT (CP): Retrieve equipment (circuit pack)" (p. 4-1698)
- "DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116)

References

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□

ED-EQPT (cp) notification

Output format

The ED-EQPT notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ED-EQPT`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   The AID of an equipment.
   Type: AID
   Range:
   - CpAID ::= SlotAID-cp for circuit pack in any slot
   - LoxcAID::=UnivSlotAID-loxc for LOXC pack in universal slots

   The keyword `usall` is not allowed for Simple_UnivSlotAID.
   The keyword `xcall` is not allowed for Simple_XCSlotAID.
   The keyword `ctlall` is not allowed for Simple_CTLSlotAID.
   The keyword `all` is not allowed for Simple_SlotAID.
   PowerAID for power interface: The keyword `piall` is not allowed for PowerAID.
   EciAID for ECI interface The keyword `eciall` shall not be allowed for EciAID.
   TimingInterfaceAID for TI Interface board The keyword ″tiall″ shall not be allowed for TimingInterfaceAID.

Spec block parameters

1. eqptpn – Equipment ASAP Profile Name
   The name of the current ASAP profile of type EQUIP-UNPROT of the circuit pack. This parameter is reported for a CpAID, PowerAID, EciAID, TimingInterfaceAID and LoxcAID.
   Type: Alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: up to 24 characters.
   Default: DEFAULT.
2. eqptprotpn – Protected Equipment ASAP Profile Name
   The name of the current ASAP profile of type EQUIP-PROT for the equipment.
   Option: This parameter is only reported for a CpAID, LoxcAID or PowerAID.
   Type: Alphanumeric string.
   Range: up to 24 characters. A hyphen (-) is additionally allowed in the name.
   Default: DEFAULT
3. vlantagmd – VLAN Tagging Mode
   VLAN tagging mode of the circuit pack. This parameter is relevant only for circuit packs of type GE1 (i.e. nvmname = GE1).
   Type: value set.

Range:

- BCMD (default), for the backward compatible mode
- 802.1tag, for the VLAN tag based mode according to IEEE802.1Q.

4. loswcap – LOXC switch capacity
   Switch capacity of the LOXC pack. This parameter is relevant only for circuit packs of type LOXC (i.e. nvmname = LOXC).
   Type: value set.
   Range:
   - 0 (default): LOXC in suspended state, initial value after LOXC CP creation
   - 15: LOXC active or member of equipment protection group, switch capacity 15 Gbit/s.
5. lostd – LO tributary standard
   LO tributary standard supported by the LOXC pack. This parameter is relevant only for circuit packs of type LOXC (i.e. nvmname = LOXC).
   Type: value set.
   Range:
   - SDH: LOXC supports SDH LO tributaries (VC3, VC12)
   - SONET: LOXC supports SONET LO tributaries (VT1.5)
   - UNDEFINED (default): no LO tributaries (loswcap = 0).

Example output

```
ED-EQPT:UNITE-NE:1-1-#-#-1-cp:123456:::eqptpn=NOALARM;
   UNITE-NE 00-11-14 08:00:00
M  123456 COMPLD
;
    UNITE-NE 00-11-14 08:00:30
A   001 REPT DBCHG
    "TIME=08-00-12,DATE=00-11-14:ED-EQPT:1-1-#-#-1-cp:::eqptpn=NOALARM"
;
```

□

ED-EQPT (shelf): Edit equipment (shelf)

The ED-EQPT command modifies the provisioning values associated with the shelf.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: no.

Input format

Command Syntax: `ED-EQPT`*:tid:aid:ctag:::spec_block;*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   The AID of the shelf/subrack.
   Type: AID
   Range: ShelfAID. The keyword `all` is allowed on bay AID and shelf AID level.
   Default: 1-1.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. eqptpn – Equipment ASAP Profile Name
   The name of the current ASAP profile of type EQUIP-UNPROT of the shelf level.
   Type: Alphanumeric string.
   Range: up to 24 characters. A hyphen (-) is additionally allowed in the name.
   Default: DEFAULT.
2. eqptprotpn – Protected Equipment ASAP Profile Name
   The name of the current ASAP profile of type EQUIP-PROT of the shelf level.
   Type: Alphanumeric string.
   Range: up to 24 characters. A hyphen (-) is additionally allowed in the name.
   Default: DEFAULT.
3. ssoride - SS Bits Overrides
   This parameter determines the value to be inserted into the SS bits of the pointer of every AU-N or STS-N signal in the output direction of every SDH or SONET port in the shelf.

The terms *override*, *enable* and *disable* are used since:

- the default value of the SS bits in 00
- the parameter allows you to diverge from that default.

Type: alphanumeric value set.
Range: ENABLE insert value 00 into SS bits, DISABLE insert value 10 into SS bits.
Default: DISABLE.

Output format

If the ED-EQPT command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The following attribute of the shelf entity is updated due to the command ED-EQPT:

- *eqptpn* as specified in the command input
- *eqptprotpn* as specified in the command input.

The modification is reported by means of an ED-EQPT notification for the shelf.

Example input/output

```
ED-EQPT:UNITE-NE:1-1:123456:::eqptpn=Nuernberg-1;
   UNITE-NE 98-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to RTRV-EQPT (shelf) command.

Validation rule: Check for ASAP profile existence

When no ASAP profile with the name specified by *eqptpn* or *eqptprotpn* does exist the following error message is returned.

Error code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Related TL1 messages

- "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720)
- "DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116)
- "RTRV-STATE-EQPT (system): Retrieve equipment state" (p. 4-2059)

References

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□

ED-EQPT (shelf) notification

Output format

The ED-EQPT notification uses the general format of a REPT DBCHG Report Database Change notification.

Syntax: `ED-EQPT`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   The AID of the shelf/subrack.
   Type: AID
   Range: ShelfAID. The keyword `all` is not allowed on bay AID and shelf AID level.
   Default: 1-1.

Spec block parameters

1. eqptpn – Equipment ASAP Profile Name
   The name of the current ASAP profile of type EQUIP-UNPROT of the shelf level.
   Type: Alphanumeric string.
   Range: up to 24 characters. A hyphen (-) is additionally allowed in the name.
   Default: DEFAULT.
2. eqptprotpn – Protected Equipment ASAP Profile Name
   The name of the current ASAP profile of type EQUIP-PROT of the shelf level.
   Type: Alphanumeric string.
   Range: up to 24 characters. A hyphen (-) is additionally allowed in the name.
   Default: DEFAULT.
3. ssoride - SS Bits Overrides
   This parameter determines the value to be inserted into the SS bits of the pointer of every AU-N or STS-N signal in the output direction of every SDH or SONET port in the shelf.

   The terms *override*, *enable* and *disable* are used since:

   - the default value of the SS bits in 00
   - the parameter allows you to diverge from that default.

   Type: alphanumeric value set.
   Range: ENABLE insert value 00 into SS bits, DISABLE insert value 10 into SS bits.
   Default: DISABLE.

Example output

```
ED-EQPT:UNITE-NE:1-1:123456:::eqptpn=Nuernberg-1;
   UNITE-NE 00-11-20 08:00:00
```

```
M  123456 COMPLD
;
   UNITE-NE  00-11-20  8:01:03
A  610  REPT  DBCHG
   "Time=8-00-30,DATE=00-11-20:ED-EQPT:1-1::
   eqptpn=Nuernberg-1"
;
```

□

ED-EQPT (slot): Edit equipment (slot)

The ED-EQPT command modifies the provisioning values associated with slot.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: No.

Input format

Command Syntax: `ED-EQPT`*:tid:aid:ctag:::spec_block;*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   The AID of a slot.
   Type: AID
   Range:
   - SlotAID
   - UnivSlotAID
   - XCSlotAID
   - CTLSlotAID.

   The keyword `usall` is allowed for Simple_UnivSlotAID.
   The keyword `xcall` is allowed for Simple_XCSlotAID.
   The keyword `ctlall` is allowed for Simple_CTLSlotAID.
   The keyword `all` is allowed for Simple_SlotAID.
   The keyword `all` is not allowed on bay/shelf level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. eqptpn – Equipment ASAP Profile Name
   The name of the current ASAP profile of type EQUIP-PROT on slot level
   Type: Alphanumeric string
   Range: up to 24 characters. A hyphen (-) is additionally allowed in the name.
   Default: DEFAULT.
   Note: *eqptpn* is used on system, shelf and circuit pack level for a profile of type EQUIP-UNPROT.
2. nvmname – Circuit Pack Name
   This parameter specifies the name of the provisioned circuit pack of the slot. If no circuit pack is provisioned the default value is reported.
   Type: value set.
   Range: 12 character.
   Default: UNDEFINED.
3. nvmqual – Circuit Pack Qualifier
   This parameter specifies the qualifier of the provisioned circuit pack of the slot. If no circuit pack is provisioned the value UNDEF is reported.
   Type: value set.
   Range: 7 characters.
   The allowed values are:
   - UNDEF (default)
   - EXTD
   - all values as defined in SRD_ConfigurationManagement

   Note: The TL1-representation of the functional qualifier follows the following rules:
   - alphanumeric characters or the special character '-' only
   - special characters like '/' and '.' to be omitted.

Output format

If the ED-EQPT command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The command shall modify the provisioned circuit pack for a specified slot. The spec block parameters of the slot entity as specified in the command input shall be updated due to that operation.

The modification is reported by means of ED-EQPT notification for the slot.

Example input/output

```
ED-EQPT:UNITE-NE:1-1-#-#-1:123456:::nvmname=OP10,
nvmqual=1.5LR1;
   UNITE-NE 98-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the ED-EQPT command.

Validation rule: Check whether CP is acceptable

Check of the circuit pack type which is allowed for the slot.

Consistency shall be checked at two levels:

- between *actlname/actlqual* with *nvmname/nvmqual* at system level
- between *actlname* with *nvmname* at slot level.

Error code: `ENRE - Equipage, Not Recognized Equipage, unrecognized CP for this slot.`

Validation rule: Check whether system is maintenance condition

Preprovisioning is not allowed, when the system in maintenance condition (see "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720)).

Error code: `SNVS - Status, Not in Valid State, maintenance condition`

Validation rule: Check for ASAP profile existence

When no ASAP profile with the name specified by *eqptpn* exists the following error is returned.

Error code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: Check exchangeability rules for optical packs

When the currently provisioned circuit pack is replaced by a new one by specifying the parameters *nvmname* and *nvmqual* the following exchangeability rules shall be checked whether all are fulfilled:

- the currently provisioned CP as well as the new one is an optical pack
- the holder state of the addressed slot is empty OR a pack with the specified *nvmname* and *nvmqual* is already plugged in
- the number of ports of both CPs is identical
- the transmission capacity of both CPs is identical.
- the current port configuration concerning forward error correction is supported by the new CP.

Error code: `ENRE - Equipage, Not Recognized Equipage, unrecognized CP for this slot.`

Validation rule: Check exchangeability rules for electrical packs

When the currently provisioned circuit pack is replaced by a new one by specifying the parameters nvmname and nvmqual the following exchangeability rules shall be checked whether all are fulfilled:

- the currently provisioned CP as well as the new one is an electrical pack
- the holder state of the addressed slot is empty OR a pack with the specified nvmname and nvmqual is already plugged in.
- the number of ports of both CPs is identical
- the transmission capacity of both CPs is identical.

Error Code: `ENRE - Equipage, Not Recognized Equipage, unrecognized CP for this slot`

Validation rule: Check exchangeability rules for XC packs

When the currently provisioned circuit pack is replaced by a new one by specifying the parameters nvmname and nvmqual the following exchangeability rules shall be checked whether all are fulfilled:

- the currently provisioned CP as well as the new one is a cross-connect pack AND
- the holder state of the addressed slot is empty OR a pack with the specified *nvmname* and *nvmqual* is already plugged in.

Error code: `ENRE - Equipage, Not Recognized Equipage, unrecognized CP for this slot.`

Related TL1 messages

- "RTRV-EQPT (slot): Retrieve Equipment (slot)" (p. 4-1708)
- "DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116)

- "RTRV-STATE-EQPT (slot): Retrieve equipment state (slot)" (p. 4-2053)
- "RTRV-ACTLCP: Retrieve acceptable circuit pack list" (p. 4-1590).

References

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□

ED-EQPT (slot) notification

Output format

The ED-EQPT notification uses the general format of a REPT DBCHG Report Database Change notification.

Syntax: `ED-EQPT`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Description: The AID of a slot.
   Type: AID
   Range: SlotAID
   The keyword `usall` is not allowed for Simple_UnivSlotAID.
   The keyword `xcall` is not allowed for Simple_XCSlotAID.
   The keyword `ctlall` is not allowed for Simple_CTLSlotAID.
   The keyword `all` is not allowed for Simple_SlotAID, Simple_UnivSlotAID, Simple_XCSlotAID, Simple_CTLSlotAID.
   The keyword `all` is not allowed on bay/shelf level.

Spec block parameters

1. actlname – Acceptable Circuit Pack Name
   This parameter is reported by itself The line is repeated for all groups of acceptable circuit packs in the slot. This list specifies the groups of circuit packs which can be provisioned for that slot. The detailed information about the groups can be requested via RTRV-ACTLCP.
   Type: value set.
   Range: 12 character.
2. nvmname – Circuit Pack Name
   This parameter specifies the name of the provisioned circuit pack of the slot. If no circuit pack is provisioned the default value is reported.
   Type: value set.
   Range: 12 character.
   Default: UNDEFINED.
3. nvmqual – Circuit Pack Qualifier
   This parameter specifies the qualifier of the provisioned circuit pack of the slot. If no circuit pack is provisioned the value UNDEF is reported.
   Type: value set.
   Range: 7 characters.

The allowed values are:

- UNDEF (default)
- EXTD
- all values as defined in SRD_ConfigurationManagement

Note: The TL1-representation of the functional qualifier follows the following rules:

- alphanumeric characters or the special character '-' only
- special characters like '/' and '.' to be omitted.

4. eqptpn – Equipment ASAP Profile Name
   The name of the current ASAP profile of type EQUIP-PROT on slot level
   Type: Alphanumeric string
   Range: up to 24 characters. A hyphen (-) is additionally allowed in the name.
   Default: DEFAULT.
   Note: *eqptpn* is used on system, shelf and circuit pack level for a profile of type EQUIP-UNPROT.
5. name – Circuit Pack Name
   Circuit Pack Name as stored in the EEPROM of the replaceable unit.
   Type: value set.
   Range: up to 12 characters.
   Default: empty string ″″
   The default is reported on CP plug-out or when the EEPROM is not readable.
   Note: In TL1 output direction the quotes have to escaped \″\″.
6. qual – Circuit Pack Qualifier
   Circuit Pack Qualifier as stored in the EEPROM of the replaceable unit.
   Type: value set.
   Range: up to 7 characters.
   Default: empty string ″″
   The default is reported on CP plug-out or when the EEPROM is not readable.
   Note: In TL1 output direction the quotes have to escaped \″\″.
7. app – Apparatus Code
   Apparatus Code as stored in the EEPROM of the replaceable unit.
   Type: alphanumeric string.
   Range: up to 9 characters.
   Default: empty string ″″
   The default is reported on CP plug-out or when the EEPROM is not readable.
   Note: In TL1 output direction the quotes have to escaped \″\″.

8. ssn – Series Number
   Series Number as stored in the EEPROM of the replaceable unit.
   Type: value set.
   Range: up to 6 characters.
   Default: empty string ""
   The default is reported on CP plug-out or when the EEPROM is not readable.
   Note: In TL1 output direction the quotes have to escaped \"\".
   Note: A dash (-) is used instead of a colon (:) for the series number in TL1.
9. clei – Common Language Equipment
   Common Language Equipment as stored in the EEPROM of the replaceable unit.
   Type: value set.
   Range: 10 characters.
   Default: empty string ""
   The default is reported on CP plug-out or when the EEPROM is not readable.
   Note: In TL1 output direction the quotes have to escaped \"\".
10. eci – Equipment Catalog Item
    Equipment Catalog Item as stored in the EEPROM of the replaceable unit.
    Type: value set.
    Range: 6 digits.
    Default: empty string ""
    The default is reported on CP plug-out or when the EEPROM is not readable.
    Note: In TL1 output direction the quotes have to escaped \"\".
11. sln – Serial Number
    Serial number as stored in the EEPROM on the circuit pack to identify the replaceable unit and indicate the date and place of manufacture.
    Type: Alphanumeric string.
    Range: 12 characters.
    Default: empty string ""
    The default is reported on CP plug-out or when the EEPROM is not readable.
    Note: In TL1 output direction the quotes have to escaped \"\".

Example output

The following examples shows the case after pre-provisioning of slot 1 for an OP2G5/13SR4 pack:

```
ED-EQPT:UNITE-NE:1-1-#-#-1:123456:::nvmname=OP2G5,
nvmqual=13SR4;
   UNITE-NE 00-11-14 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-14 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-14:ED-EQPT:1-1-#-#-1::
   nvmname=OP2G5,nvmqual=13SR4"
;
```

The following examples shows a case after auto-provisioning of slot 1 with an OP2G5/13SR4 pack (note: it is possible that change of *nvmname*, *nvmqual* and change of inventory data is reported in two notifications):

```
   UNITE-NE 00-11-14 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-14:ED-EQPT:1-1-#-#-1::
   nvmname=OP2G5,nvmqual=13SR4"
   UNITE-NE 00-11-14 08:00:31
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-14:ED-EQPT:1-1-#-#-1::
   name=OP2G5,qual=13SR4,app=KFA12,ssn=1-1,
   clei=WMTBJDGAAA,eci=276912,sln=123456789012"
;
```

The following examples shows a case after plug-out of the OP2G5/13SR4 pack from slot 1:

```
   UNITE-NE 00-11-14 08:00:31
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-14:ED-EQPT:1-1-#-#-1::
   name=\"\",qual=\"\",app=\"\",ssn=\"\",clei=\"\",
   eci=\"\",sln=\"\""
;
```

The following examples shows the case after auto-provisioning of an OP40 into slot 4 and the effect on slot 1:

```
   UNITE-NE 00-11-14 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-14:ED-EQPT:1-1-#-#-1::
   nvmname=OP40,nvmqual=EXTD"
   "TIME=08-00-12,DATE=00-11-14:ED-EQPT:1-1-#-#-1::
   actlname=\"\""
;
```

□

ED-EQPT (Socket): Edit equipment

The ED-EQPT command shall modify the provisioning values associated with socket.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: no.

Input format

Command Syntax: `ED-EQPT`*:tid:aid:ctag:::spec_block;*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   The AID of a socket.
   Type: AID.
   Range: SocketAID. The keyword *usall* or *all* shall be allowed for Simple_UnivSlotAID. The keyword *scall* shall be allowed for Simple_SocketAID. The keyword *all* is not allowed on bay/shelf level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. eqptpn – Equipment ASAP Profile Name
   The name of the current ASAP profile of type EQUIP-PROT on socket level.
   Type: Alphanumeric string.
   Range: up to 24 characters. A hyphen (-) is additionally allowed in the name.
   Default: DEFAULT.
2. nvmname – Provisioned Module Name
   This parameter shall specify the name of the provisioned module of the socket. If no module is provisioned the default value is reported.
   Type: value set.
   Range: 12 character.
   Default: UNDEFINED.

3. nvmqual – Provisioned Module Qualifier
   This parameter shall specify the qualifier of the provisioned module of the slot. If no module is provisioned the default value is reported..
   Type: value set.
   Range: 7 characters.
   Default: UNDEF.
   Note: The TL1-representation of the functional qualifier shall follow the rules as defined in SRD_ConfigurationManagement:
   - alphanumeric characters or the special character '-' only
   - special characters like '/' and '.' to be omitted.

Output format

If the ED-EQPT command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The command modifies the provisioned module for a specified socket. The spec block operation. The modification shall be reported by means of ED-EQPT notification for the slot.

Example input/output

This example shows an ED-EQPT command which reprovisions the socket and assigns a new ASAP:

```
ED-EQPT:UNITE-NE:1-1-#-#-5-sc2:123456:::nvmname=OM2G5,
nvmqual=15LR1,eqptpn=PROFILE1;
   UNITE-NE 98-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the ED-EQPT command.

Validation rule: Check whether system is in maintenance condition

Preprovisioning shall not be allowed, when the systemis in maintenance condition. (See "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).)

Error code: `SNVS - Status, Not in Valid State, maintenance condition`

Validation rule: Check for ASAP profile existence

When no ASAP profile with the name specified by *eqptpn* exists the following error shall be returned.

Error code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: Socket must already be provisioned

When re-provisioning a module, i.e. changing *nvmname/nvmqual*, it shall be checked whether the socket is already provisioned (i.e. *nvmname/nvmqual* is different from UNDEFINED/UNDEF).

Error code: `SNVS - Status, Not in Valid State, socket is not provisioned`

Validation rule: Exchangeability II: Invalid module plugged in

If

- the socket is already provisioned (i.e. *nvmname/nvmqual* is different from UNDEFINED/UNDEF)
- the socket is neither empty nor equipped with the new type of module being specified by *nvmname/nvmqual*

then re-provisioning of the socket is not allowed.

Error code: `SNVS - Status, Not in Valid State, the module is not plugged out`

Validation rule: Exchangeability III: Invalid module plugged in

If

- the socket is already provisioned (i.e. *nvmname/nvmqual* is different from UNDEFINED/UNDEF),
- the socket is not empty
- the socket is equipped with the new type of module being specified by *nvmname/nvmqual*
- the new type of module being specified by *nvmname/nvmqual* is not in the list of acceptable modules (given by parameters *actlname*, *actlqual* of RTRV-EQPT(socket))

then re-provisioning of the socket is not allowed.

Error code: `ENRE - Equipage, Not Recognized Equipage, unrecognized module for this socket`

Related TL1 messages

- "DLT-EQPT (Socket): Delete equipment" (p. 4-125)
- "ENT-EQPT (Socket): Enter equipment" (p. 4-1087)
- "RTRV-EQPT (Socket): Retrieve equipment" (p. 4-1713)
- "RTRV-STATE-EQPT (Socket): Retrieve equipment state " (p. 4-2056)

References

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□

ED-EQPT (Socket) notification

Output format

The ED-EQPT notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ED-EQPT`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   The AID of a socket.
   Type: AID.
   Range: SocketAID. The keyword *usall* or *all* shall be allowed for Simple_UnivSlotAID. The keyword *scall* shall be allowed for Simple_SocketAID. The keyword *all* is not allowed on bay/shelf level.

Spec block parameters

1. actlname – Acceptable Module Name
   This parameter shall be reported by itself together with actlmodqual. The line shall be repeated for all acceptable modules in the socket. This list specifies the modules which can be provisioned for that socket.
   Type: value set.
   Range: 12 characters.
2. actlqual – Acceptable Module Qualifier
   This parameter shall be reported by itself together with actlmodname. The line shall be repeated for all acceptable modules in the socket. This list specifies the modules which can be provisioned for that socket.
   Type: value set.
   Range: 7 characters.
   Note: The TL1-representation of the functional qualifier shall follow the rules as defined in SRD_ConfigurationManagement:
   - alphanumeric characters or the special character ’-’ only
   - special characters like ’/’ and ’.’ to be omitted
3. app - Apparatus Code
   Apparatus Code as stored in the EEPROM. This parameter shall be reported for a SocketAID, if the data in the EEPROM is stored according to the Small EEPROM Format.
   Type: alphanumeric string
   Range: up to 9 characters.
   Default: empty string ″″. The default is reported on module plug-out or when the EEPROM is not readable. Note: In TL1 output direction the quotes have to escaped \″\″.

4. ccode - Commercial Code
   Commercial code + suffix as stored in the EEPROM on the module. This parameter shall be reported for a SocketAID, if the data in the EEPROM is stored according to the SFP EEPROM Format.
   Type: alphanumeric string
   Range: up to 12 digits
   Default: empty string ″″. The default is reported on module plug-out or when the EEPROM is not readable. Note: In TL1 output direction the quotes have to escaped \″\″.
5. clei – Common Language Equipment
   Common Language Equipment as stored in the EEPROM of the module.
   Type: value set.
   Range: 10 characters.
   Default: empty string ″″.
   The default is reported on module plug-out or when the EEPROM is not readable. Note: In TL1 output direction the quotes have to escaped \″\″.
6. datecde - Date Code
   Vendor Date Code as stored in the EEPROM on the module. This parameter shall be reported for a SocketAID, if the data in the EEPROM is stored according to the SFP EEPROM Format.
   Type: Text string.
   Range: 8 characters.
   Default: empty string ″″.
   The default is reported on module plug-out or when the EEPROM is not readable. Note: In TL1 output direction the quotes have to escaped \″\″.
7. eci – Equipment Catalog Item
   Equipment Catalog Item as stored in the EEPROM of the module.
   Type: value set
   Range: 6 digits.
   Default: empty string ″″.
   The default is reported on module plug-out or when the EEPROM is not readable. Note: In TL1 output direction the quotes have to escaped \″\″.
8. eqptpn – Equipment ASAP Profile Name
   The name of the current ASAP profile of type EQUIP-PROT on socket level.
   Type: Alphanumeric string.
   Range: up to 24 characters. A hyphen (-) is additionally allowed in the name.
   Default: DEFAULT.
9. name – Module Name
   Module Name as stored in the EEPROM of the module.
   Type: value set.
   Range: up to 12 characters.
   Default: empty string ″″.
   The default is reported on module plug-out or when the EEPROM is not readable. Note: In TL1 output direction the quotes have to escaped \″\″.

10. nvmname – Provisioned Module Name
    This parameter shall specify the name of the provisioned module of the socket. If no module is provisioned the default value is reported.
    Type: value set.
    Range: 12 character.
    Default: UNDEFINED.
11. nvmqual – Provisioned Module Qualifier
    This parameter shall specify the qualifier of the provisioned module of the slot. If no module is provisioned the default value is reported..
    Type: value set.
    Range: 7 characters.
    Default: UNDEF.
    Note: The TL1-representation of the functional qualifier shall follow the rules as defined in SRD_ConfigurationManagement:
    - alphanumeric characters or the special character '-' only
    - special characters like '/' and '.' to be omitted.
12. prodid - Product Line Id
    Binary Compatibility + UNITE Serial Number Identifier as stored in the EEPROM on the module. This parameter shall be reported for a SocketAID, if the data in the EEPROM is stored according to the SFP EEPROM Format.
    Type: Hexadecimal Number
    Range: 5 bytes where each byte shall be represented as 2 hexadecimal digits.
    Default: empty string "".
    he default is reported on module plug-out or when the EEPROM is not readable.
    Note: In TL1 output direction the quotes have to escaped \"\".
13. qual – Module Qualifier
    Module Qualifier as stored in the EEPROM of the module.
    Type: value set.
    Range: up to 7 characters.
    Default: empty string "".
    The default is reported on module plug-out or when the EEPROM is not readable.
    Note: In TL1 output direction the quotes have to escaped \"\".
14. sln – Serial Number
    Serial number as stored in the EEPROM on the module to identify the module and indicate the date and place of manufacture.
    Type: alphanumeric string.
    Range: 12 characters.
    Default: empty string "".
    The default is reported on module plug-out or when the EEPROM is not readable.
    Note: In TL1 output direction the quotes have to escaped \"\".

15. ssn – Series Number
    Series Number as stored in the EEPROM of the module.
    Type: value set.
    Range: up to 6 characters.
    Default: empty string ″″.
    The default is reported on modlue plug-out or when the EEPROM is not readable.
    Note: In TL1 output direction the quotes have to escaped \″\″.
    Note: A dash (-) is used instead of a colon (:) for the series number in TL1.
16. vendorname - Vendor Name
    Vendor Name as stored in the EEPROM on the module. This parameter shall be reported for a SocketAID, if the data in the EEPROM is stored according to the SFP EEPROM Format.
    Type: Text string
    Range: 16 characters
    Default: empty string ″″
    The default is reported on module plug-out or when the EEPROM is not readable.
    Note: In TL1 output direction the quotes have to escaped \″\″.
17. vendoroui - Vendor Company Identifier
    Vendor Company Identifier as stored in the EEPROM on the module. This parameter shall be reported for a SocketAID, if the data in the EEPROM is stored according to the SFP EEPROM Format.
    Type: Hexadecimal number
    Range: 3 bytes where each byte shall be represented as 2 hexadecimal digits.
    Default: empty string ″″
    The default is reported on module plug-out or when the EEPROM is not readable.
    Note: In TL1 output direction the quotes have to escaped \″\″.
18. vendorpartno - Vendor Part Number
    Vendor Part Number as stored in the EEPROM on the module. This parameter shall be reported for a SocketAID, if the data in the EEPROM is stored according to the SFP EEPROM Format.
    Type: Text string
    Range: 16 characters
    Default: empty string ″″
    The default is reported on module plug-out or when the EEPROM is not readable.
    Note: In TL1 output direction the quotes have to escaped \″\″.

19. vendorrevlvl - Vendor Revision Level
    Vendor Revision Level as stored in the EEPROM on the module. This parameter shall be reported for a SocketAID, if the data in the EEPROM is stored according to the SFP EEPROM Format.
    Type: Text string
    Range: 4 characters
    Default: empty string ""
    The default is reported on module plug-out or when the EEPROM is not readable.
    Note: In TL1 output direction the quotes have to escaped \"\".
20. vendorsln - Vendor Serial Number
    Vendor Serial Number + WES Vendor Identifier as stored in the EEPROM on the module. This parameter shall be reported for a SocketAID, if the data in the EEPROM is stored according to the SFP EEPROM Format.
    Type: Text string
    Range: 20 characters
    Default: empty string ""
    The default is reported on module plug-out or when the EEPROM is not readable.
    Note: In TL1 output direction the quotes have to escaped \"\".

Example output

This example shows the ED-EQPT notifiation after reprovisioning of a socket:

```
   UNITE-NE 00-11-14 08:00:30
A 001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-14:ED-EQPT:1-1-#-#-5-sc2::nvmname=OM2G5,nvmqual=15LR1,
;
```

This example shows the ED-EQPT notification reporting the inventory data after plugging in a modul:

```
   UNITE-NE 00-11-14 08:00:30
A 001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-14:ED-EQPT:1-1-#-#-5-sc2::
   name=OM2G5,qual=15LR1,ccode=109192278000,
   clei=WM3ILPEDAA,eci=255694,sln=00NB01002333,ssn=1-1"
;
```

This example shows the ED-EQPT notification reporting the not readable inventory data after plug out of a module:

```
   UNITE-NE 00-11-14 08:00:30
A 001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-14:ED-EQPT:1-1-#-#-5-sc2::
   name=\"\",qual=\"\",comcde=\"\",clei=\"\",eci=\"\",
   sln=\"\",ssn=\"\""
;
```

□

ED-EQPT (system): Edit equipment (system)

The ED-EQPT command modifies the provisioning values associated with system (NE) level.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: no

Input format

Command Syntax: `ED-EQPT`*:tid:aid:ctag:::spec_block;*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   The aid of the system itself.
   Type: AID
   Range: system. The usage of the keyword `all` on system level is not allowed.
   Default: system
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. eqptpn – Equipment ASAP Profile Name
   The name of the current ASAP profile on the system level
   Type: Alphanumeric string
   Range: up to 24 characters. A hyphen (-) is additionally allowed in the name.
   Default: DEFAULT
2. istddflt – Interface Standard Default
   Defining the predominantly used interface standard for a port.
   Type: alphanumeric value set
   Range:
   - SONET
   - SDH

   Default: SDH

3. mondelay – Port Auto to Mon Delay
   The switch of the port mode from the value AUTO to the value MON shall be delayed by this timer. It requires that a valid signal is present for the set timer period prior to the port transitioning to monitored. If during the timer period the signal is interrupted, the time should reset and begin another period when a valid signal is once again presented.
   Type: numeric string
   Range:
   - 0 = no timer will be started
   - 1...480 = in steps of 1 representing a switch delay of the port mode in minutes.

   Default: 0
4. portclassdflt – Port Class Default
   Defines the default port class, which is used when a new port is created and xcsetup=SWISS. When xcsetup=TRADITIONAL this parameter is not evaluated.
   Type: alphanumeric value set.
   Range:
   - TRADITIONAL
   - EDGE

   Default: TRADITIONAL.
5. synccrtc – System Synchronization Characteristic
   This parameter specifies whether the NE uses the SDH or SONET timing function for synchronization.
   Type: alphanumeric value set.
   Range:
   - SONET
   - SDH.

   Default: SDH.
6. trbmddflt – Tributary Mode Default
   Defining the predominantly used tributary mode for a port.
   Type: alphanumeric value set.
   Range:
   - FIXED
   - ADAPTIVE

   Default: FIXED.
7. swmaxcap – Maximum Switch Capacity
   This parameter indicates the maximum switch capacity of the system that the user intends to use.
   Type: value set.
   Range:
   - LXC160 (default), 160 GBit/s switch capacity
   - LXC320, 320 GBit/s switch capacity.

8. upsrportalarming – Enh. SA/NSA Detection for UPSR
   The parameter specifies whether the Enhanced SA/NSA Detection for UPSR Rings is switched on or off.
   Type: alphanumeric value set
   Range: ENABLE, DISABLE (default).
9. xcsetup – Cross Connect Setup
   This parameter indicates whether the system supports the set-up of cross-connections via the ONNS application.
   Type: value set.
   Range: SWISS ONNS application is enabled; TRADITIONAL ONNS application is disabled.
   Default: TRADITIONAL.

Output format

If the ED-EQPT command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The command modifies the current values for the system. The values of the attributes as listed above in section spec block parameters shall be updated as specified in the command input.

Change of the parameters *istddflt, trbmddflt* has no effect on the corresponding parameters for existing entities on port and tributary level, but only on entities which are created afterwards.

The modification is reported by means of an ED-EQPT notification for the system.

Dependencies *istddflt* and *trbmddflt*

If *istddflt* is changed to SDH the *trbmddflt* parameter is set to FIXED by the system.

Updated affected entities

See discussion in Chapter 11, "TL1 messages - synchronization" after change of *synccrtc* and leave of MCOND.

Behaviour when setting of *xcsetup* from TRADITIONAL to SWISS or vice versa

The system must assure that the validation rules as listed in the Error responses section are met.

To set the system back from *xcsetup*=SWISS to *xcsetup*=TRADITIONAL it has to be ensured that no resources are in use by SWISS (ONNS).

The following steps are recommended to achieve this:

- identify all SDH/SONET ports with *portClass*=INNI or *portClass*=EDGE, then set *portControl*=LOCKOUT
- identify all GbE ports with *eportClass*=INNI or *eportClass*=EDGE, then set *eportControl*=LOCKOUT
- ensure that all NN paths which start, end, or traverse this NE are deleted or re-routed by the SWISS application via NN TL1 ENT/ED/DLT-PATH
- In exceptional cases, when the previous step is not possible: Identify all remaining cross-connections with *xconcls*=NN, then use ED-NNCRS to set *xconcls*=TRADITIONAL
- identify all SDH/SONET ports with *portClass*=INNI or *portClass*=EDGE, then set *portClass*=TRADITIONAL
- identify all GbE ports with *eportClass*=INNI or *eportClass*=EDGE, then set *eportClass*=TRADITIONAL
- identify all DCC channels with *scn_dccstat*=ENABLE, then set *scn_dccstat*=DISABLE
- identify all LANs with *osinode*=scnnode, then either set osinode to osinode{1..8} or DISABLE lanstat, ip_lanstat.

Dependency between setting of *xcsetup* and acceptable CP type list

By changing the value of *xcsetup* also the acceptable circuit pack type list changes.

Dependency between *xcsetup* and ONNS TL1 commands

While *xcsetup*=TRADITIONAL any ONNS TL1 command shall be rejected.

Update affected entities when changing *swmaxcap* from LXC160 to LXC320

When changing *swmaxcap* from LXC160 to LXC320 the acceptable circuit pack name list *actlname*:

- of all universal slots in the lower row shall change from an empty list to a non-empty list.
- of the XC slots 9 and 10 shall be modified such that it does not contain XC160 anymore.

The modification shall be reported by means of ED-EQPT notifications for the affected slot entities.

Update affected entities when changing *swmaxcap* from LXC320 to LXC640

When changing *swmaxcap* from LXC320 to LXC640 the acceptable circuit pack name list *actlname*:

- of universal slot n-1 shall change from an emtpy list to a non-empty list if currently a double density circuit pack is provisioned in slot n.
- of the XC slots 9 and 10 shall be modified such that it does not contain XC320 anymore.

The modification shall be reported by means of ED-EQPT notifications for the affected slot entities.

Update affected entities when changing *swmaxcap* from LXC160 to LXC640

When changing *swmaxcap* from LXC160 to LXC640 the acceptable circuit pack name list *actlname*:

- of all universal slots in the lower row shall change from an emtpy list to a non-empty list.
- of universal slot n-1 shall change from an emtpy list to a non-empty list if currently a double density circuit pack is provisioned in slot n
- of the XC slots 9 and 10 shall be modified such that it does not contain XC160 and XC320 anymore.

The modification shall be reported by means of ED-EQPT notifications for the affected slot entities.

Dependency *portclassdflt* with *xcsetup*

Change of the parameter *portclassdflt* shall not have effects on existing ports. The parameter *portclassdflt* shall automatically be set to TRADITIONAL, when *xcsetup* is set to TRADITIONAL.

Example input/output

```
ED-EQPT:UNITE-NE:system:123456:::istddflt=SONET;
   UNITE-NE 98-01-01 08:00:00
M  123456 COMPLD
;

ED-EQPT:UNITE-NE:system:123456:::
portclassdflt=EDGE,xcsetup=SWISS;
   UNITE-NE 98-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the ENT-EQPT command.

Validation rule: check for ASAP profile existence

When no ASAP profile with the name specified by *eqptpn* does not exist the following error shall be returned.

Error code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: check of the maintenance condition

System must be in MCOND for change of *synccrtc*.

Error code: `SNVS - Status, Not in Valid State, not in Maintenance Condition`

Validation rule: compatibility *istddflt* and *trbmddflt*

Change of *trbmddflt* to ADAPTIVE while *istddflt*= SDH is not allowed.

Error code: `SNVS - Status, Not in Valid State, incompatibility istddflt and trbmddflt`

Validation rule: Compatibility *xcsetup* and HW configuration

The system shall verify that ONNS capable HW is (pre-) provisioned during an attempt to set *xcsetup*=SWISS. Otherwise the following error shall be reported:

Error Code: `SNVS - Status, Not in Valid State, no SwiSS capable HW`

Compatibility *xcsetup* and NVM size

The system shall verify that the installed NVM has a capacity > 256 Mbytes during an attempt to set xcsetup=SWISS. Otherwise the following error shall be reported:

Error Code: `SNVS - Status, Not in Valid State, NVM size not sufficient`

Validation rule: Compatibility *xcsetup* and IP configuration for SCN

The system shall verify that the mandatory ASTN IP address is provisioned during an attempt to set *xcsetup*=SWISS. Otherwise the following error shall be reported:

Error Code: `SNVS - Status, Not in Valid State, incomplete IP configuration`

See corresponding validation rules in "ENT-ULS: Enter upper layer stack" (p. 4-1386) for details.

Validation rule: Compatibility *xcsetup* and software state

The system verifies that the software is not in trial phase during an attempt to set xcsetup=SWISS. Otherwise the following error shall be reported:

Error Code: `SNVS - Status, Not in Valid State, SW generic is in trial phase`

Validation rule: Setting *xcsetup* back to TRADITIONAL

On an attempt to set *xcsetup* to TRADITIONAL it has to be ensured that all of the following rules are fulfilled:

- for all (pre-)provisoned SDH/SONET ports (i.e. ports which are identified via SPortAID) in the system holds *portClass*=TRADITIONAL, see RTRV/ED-rr (port)
- for all (pre-)provisoned GbE ports (i.e. ports which are identified via EPortAID) in the system holds *eportClass*=TRADITIONAL, see RTRV/ED-EPORT
- for all cross-connections in the system holds *xconcls*=TRADITIONAL, see RTRV/ED-CRS, ED-NNCRS
- no DCC channel shall have *scn_dccstat*=ENABLED, see RTRV/ENT-FECOM
- no LAN shall be assigned to the SCN with *osinode*=scnnode, see RTRV/ENT-FECOM-LAN.

Otherwise the following error shall be reported:

Error Code: `SNVS - Status, Not in Valid State, resources in use by SwiSS`.

Validation rule: Do not accept ONNS TL1 commands when *xcsetup*=TRADITIONAL

The system shall DENY ONNS TL1 commands when *xcsetup*=TRADITIONAL.

Error code: `SNVS - Status, Not in Valid State, SwiSS not enabled`

Validation rule: Do not accept setting *portclassdflt* to EDGE when *xcsetup*=TRADITIONAL

The system shall DENY setting the parameter *portclassdflt* to the value EDGE when xcsetup=TRADITIONAL.

Error code: `SNVS - Status, Not in Valid State, SwiSS not enabled`

Validation rule: Maximum switch capacity according XC CP

If the *swmaxcap* parameter is set it shall be ensured that the provided switch capacity is not higher than the switch capacity of the provisioned XC circuit pack with the smallest switch capacity in the system.

Error Code: `SNVS - Status, Not in Valid State, switch capacity below provisioned XC CP switch capacity`

Validation rule: No decrease of maximum switch capacity

If the *swmaxcap* parameter is set it shall be ensured that the *swmaxcap* value in the ED-EQPT command is not lower than the actual provisioned swmaxcap value in the system.

Error Code: `IDNV - Input, Data Not Valid, switch capacity cannot be decreased`

Related TL1 messages

- "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720)
- "DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116)
- "RTRV-STATE-EQPT (system): Retrieve equipment state" (p. 4-2059)
- "RTRV-NNCNFG: Retrieve ONNS configuration data" (p. 4-1831)
- "ED-NNCNFG: Edit ONNS configuration data" (p. 4-329)

References

GR-199-CORE

□

ED-EQPT (system) notification

Output format

The ED-EQPT notification uses the general format of a REPT DBCHG Report Database Change notification.

Syntax: `ED-EQPT`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   The aid of the system itself.
   Type: AID
   Range: system. The usage of the keyword `all` on system level is not allowed.
   Default: system

Spec block parameters

1. eqptpn – Equipment ASAP Profile Name
   The name of the current ASAP profile on the system level
   Type: Alphanumeric string
   Range: up to 24 characters. A hyphen (-) is additionally allowed in the name.
   Default: DEFAULT
2. istddflt – Interface Standard Default
   Defining the predominantly used interface standard for a port.
   Type: alphanumeric value set
   Range:
   - SONET
   - SDH

   Default: SDH
3. mondelay – Port Auto to Mon Delay
   The switch of the port mode from the value AUTO to the value MON shall be delayed by this timer. It requires that a valid signal is present for the set timer period prior to the port transitioning to monitored. If during the timer period the signal is interrupted, the time should reset and begin another period when a valid signal is once again presented.
   Type: numeric string
   Range:
   - 0 = no timer will be started
   - 1...480 = in steps of 1 representing a switch delay of the port mode in minutes.

   Default: 0

4. portclassdflt – Port Class Default
   Defines the default port class, which is used when a new port is created and xcsetup=SWISS. When xcsetup=TRADITIONAL this parameter is not evaluated.
   Type: alphanumeric value set.
   Range:
   - TRADITIONAL
   - EDGE

   Default: TRADITIONAL.
5. synccrtc – System Synchronization Characteristic
   This parameter specifies whether the NE uses the SDH or SONET timing function for synchronization.
   Type: alphanumeric value set.
   Range:
   - SONET
   - SDH.

   Default: SDH.
6. trbmddflt – Tributary Mode Default
   Defining the predominantly used tributary mode for a port.
   Type: alphanumeric value set.
   Range:
   - FIXED
   - ADAPTIVE

   Default: FIXED
7. swmaxcap – Maximum Switch Capacity
   This parameter indicates the maximum switch capacity of the system that the user intends to use.
   Type: Value set
   Range:
   - LXC160 160 GBit/s switch capacity
   - LXC320 320 GBit/s switch capacity
   - LXC640 640 GBit/s switch capacity

   Default: LXC160.

8. upsrportalarming – Enh. SA/NSA Detection for UPSR
   The parameter specifies whether the Enhanced SA/NSA Detection for UPSR Rings is switched on or off.
   Type: alphanumeric value set
   Range: ENABLE, DISABLE (default).
9. xcsetup – Cross Connect Setup
   This parameter indicates whether the system supports the set-up of cross-connections via the ONNS application.
   Type: value set.
   Range: SWISS ONNS application is enabled; TRADITIONAL ONNS application is disabled.
   Default: TRADITIONAL.

Example output

```
ED-EQPT:UNITE-NE:system:123456:::istddflt=SONET;
   UNITE-NE 00-11-14 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-14 08:00:50
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-14:ED-EQPT:system::
   istddflt=SONET"
;
```

□

ED-FECOM notification

Output format

The ED-FECOM notification shall use the general format of a REPT DBCHG (Report Database Change) notification.

The ED-FECOM notification has the following specific syntax:

`ED-FECOM`::*port*,*dcctype*:*spec_block*

Output parameters

Command parameters

1. port
   This parameter indicates the port AID of a circuit pack which is used together with *dcctype* to identify the DCC channel.
   Type: AID.
   Range: SPortAID; the keyword `all` is not allowed.
2. dcctype
   This parameter specifies whether the LINE/MS or SECTION/RS DCC of the *port* is affected by the command.
   Type: Alphanumeric value set
   Range:
   - LINE
   - SECTION (default).

Spec block parameters

1. dccprottp
   This parameter reports the protection type of the DCC channel. 0X1 means the port is not involved in a protection group or DCC protection switching is disabled. 1+1 means DCC protection switching is enabled: In these case only the active worker line is shown.
   Type: Alphanumeric value set.
   Range: 0X1 (default), 1+1.
2. dccstat
   This parameter indicates whether MCN communication over the DCC channel is enabled or if it is used in a Transparent DCC Cross Connection.
   Type: Alphanumeric value set.
   Range: DISABLE, ENABLE (default), TRANSPARENT.
   Note: The default value of DISABLED is used when a DCC channel is created, this will be reported via the ENT-FECOM notification, or when a transparent DCC

cross-connection is deleted, this will be reported via the ED-FECOM notification. The value TRANSPARENT is reported when a transparent DCC cross-connection is created. In this case all other spec_block parameters does not have any effect on operation of the system if reported. The other spec_block parameters does have only operational effect if the value is ENABLED.

3. lapdmode
   This parameter indicates the type of LAPD service. Modes are AITS and UITS. Starting with R2.0 this parameter is also used to determine the service for the LinkID protocol.
   If dccstat = TRANSPARENT, scn_dccstat = TRANSPARENT, or scn_dccstat = ENABLE this parameter has no meaning and will not be reported.
   Type: Alphanumeric value set..
   Range:
   - UITS (default)
   - AITS.
4. lapdrl
   This parameter indicates the LAPD role. This parameter is also used to determine the service for the LinkID protocol. If *dccstat* = TRANSPARENT, *scn_dccstat* = TRANSPARENT, or *scn_dccstat* = ENABLE this parameter has no meaning and will not be reported.
   Type: Alphanumeric value set.
   Range:
   - USER-SIDE (default)
   - NETWORK-SIDE.
5. osinode
   Assignment of a DCC channel to an MCN node in the NE. The parameter is omitted when *dccstat* = ENABLE.
   An NE can have up to 8 instances of the OSI stack. Node-1 is default and has a NSAP. Nodes 2-8 have a NET and no SEL (NSAP = NET + SEL, for NET: SEL=00). Nodes 2-8 can be created and configured, see command ENT-ULSDCC-L3.
   Type: AID.
   Range: osinode{1-8}
6. scn_dccstat
   This parameter indicates whether the DCC channel is used for communication over the SCN or is involved in a transparent DCC cross-connection.
   Type: Alphanumeric value set.
   Range: DISABLE (default), ENABLE, TRANSPARENT.
   Note: Output responses with *scn_dccstat*=DISABLE will only sent when *dccstat*=ENABLE, see also Detailed behaviour description below.

Example output

```
   NE-UNITE 00-11-03 01:00:00
A  000 REPT DBCHG
   "TIME=01-00-00,DATE=00-12-13:ED-FECOM::1-1-#-#-5-3,
   line:dccprottp=0X1"
;
```

□

ED-FETID: Edit Far End Target Identifier

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S3

Priority: 1

Abortable: No

Input format

Command Syntax: `ED-FETID`:*tid*:[*aid*]:*ctag*::[*rid*],*spec_block;*

Input parameters

Command parameters

1. tid – Target Identifier
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   This parameter specifies the aid of a MS-SPRing/BLSR protection group or an port aid being a member of the group.
   Option: If *rid* is specified, then *aid* can be omitted.
   Type: AID.
   Range: TwoFibre_ProtGrpAID (not ranged) or FourFibre_ProtGrpAID (not ranged) or SPortAID (not ranged)
3. ctag – Correlation Tag
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
4. rid – Ring Identification
   This parameter specifies the ring identification name. Storage and retrieval of the *rid* is case sensitive, but actual use of the rid to determine the corresponding protection group is case insensitive. The parameter is used as an alias to identify exactly one MS-SPRing/BLSR protection group of any type. Therefore the value shall be unique for all protection groups of type 2F or 4F within the NE.
   Type: text string of chars allowed for TID strings.
   Range: 1 to 15 characters.
   Default: NONE.

Spec block parameters

1. oldtid – Old Target Identifier
   This parameter is the previous TID of a remote node on the ring which may be associated with one or more local cross-connections.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters.
   Default: LUCENT-UNITE-NE.
2. newtid – New Target Identifier
   The newtid parameter is the previous TID of a remote node on the ring which may be associated with one or more local cross-connections.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters.
   Default: LUCENT-UNITE-NE.

Output format

After receiving the ED-MAP-RING command, the following normal completion response shall be returned:

```
   sid date time
M  ctag COMPLD
;
```

Output parameters

See definition in output parameters section in "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The ED-FETID command is used to update the TID of a remote node on the ring which may be associated with one or more local cross-connections. The command can only be applied when automatic ring discovery is disabled. The network provider would then have to issue this command to every node on the ring. The ED-FETID command generates a REPT-DBCHG message.

Example input/output

The following is an example of the ED-FETID command:

```
ED-FETID:NENAME-1::123456::RingID:oldtid=NENAME-2,newtid=NENAME-3;
   NENAME-1 98-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Validation rule: Automatic ring discovery to be disabled

If the automatic ring discovery is enabled, the following error response shall be returned:

Error Code: `SNVS - Status, Not Valid State`

Validation rule: consistent aid and rid

If both an aid and an rid are specified as input parameters and they are inconsistent, then the following error response is returned.

Error Code: `IDNV - Input, Data Not Valid, inconsistent aid and rid`

Validation rule: Old TID not in ring map

If the specified Old Target Identifier value is not contained in the list of Ring Node Target Identifiers, the command shall be denied.

Error Code: `IDNV - Input, Data Not Valid, old TID not in in the list of ring node TIDs`

Validation rule: Local node TID not allowed

If the specified Old Target Identifier is the TID of the local node, the command shall be denied.

Error Code: `IDNV - Input, Data Not Valid, TID of local node not allowed`

Validation rule: No duplicate ring node TIDs

If the specified New Target Identifier is already contained in the list of ring node TIDs and is different from the Old Target Identifier, the command shall be denied.

Error Code: `IDNV - Input, Data Not Valid, duplicate ring node TID`

Related TL1 messages

- "ED-MAP-RING: Edit map ring" (p. 4-316)
- "RTRV-MAP-RING: Retrieve map ring" (p. 4-1819)
- "SET-MAP-RING: Set map ring" (p. 4-2304).

References

GR-199-CORE

□

ED-FETID notification

Output format

The SET-MAP-RING notification shall use the general format of a REPT DBCHG (Report Database Change) notification.

Command Syntax: `ED-FETID`:*aid*:[*rid*]*:spec_block;*

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter specifies the aid of a MS-SPRing/BLSR protection group or an port aid being a member of the group.
   Option: If *rid* is specified, then *aid* can be omitted.
   Type: AID.
   Range: TwoFibre_ProtGrpAID (not ranged) or FourFibre_ProtGrpAID (not ranged) or SPortAID (not ranged)
2. rid – Ring Identification
   This parameter specifies the ring identification name. Storage and retrieval of the *rid* is case sensitive, but actual use of the rid to determine the corresponding protection group is case insensitive. The parameter is used as an alias to identify exactly one MS-SPRing/BLSR protection group of any type. Therefore the value shall be unique for all protection groups of type 2F or 4F within the NE.
   Type: text string of chars allowed for TID strings.
   Range: 1 to 15 characters.
   Default: NONE.
   Option: The *rid* is only included in the ED-FETID notification if the *rid* has been specified in the ED-FETID command.

Spec block parameters

1. oldtid – Old Target Identifier
   This parameter is the previous TID of a remote node on the ring which may be associated with one or more local cross-connections.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters.
   Default: LUCENT-UNITE-NE.
2. newtid – New Target Identifier
   The newtid parameter is the previous TID of a remote node on the ring which may be associated with one or more local cross-connections.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters.
   Default: LUCENT-UNITE-NE.

Example input/output

The following example reports the change of a TID in an NE's ring map for a 4 fibre MS-SPRing/BLSR protection group:

```
LT-UNITE 00-11-03 15:00:00
A  000 REPT DBCHG
   "TIME=15-00-00,DATE=00-11-03:ED-FETID:RingID:oldtid=NE_1,newtid=NE_2"
;
```

□

ED-LONIM: Edit Low Order Non-Intrusive Monitor

The ED-LONIM command modifies the properties of a low-order tributary (LONIM).

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: No.

Input format

Command Syntax:

`ED-LONIM-`*modifier*:*tid*:*aid*:*ctag*:::*spec_block*;

Input parameters

Command parameters

1. modifier
   The modifier shall specify the type of the low-order tributary. The purpose is to distinguish between: - SDH/SONET tributaries.
   Type: alphanumeric value set
   Range:
   - LOVC
   - LOVT
2. tid – Target Identifier
   See definition in "RTRV-HDR: Retrieve header" (p. 4-1736).
3. aid – Access Identifier
   The access identifier shall specify a low-order tributary to be operated on.
   Type: AID
   Range: GenLOTribAID as defined in SRD_TL1_AID.
   Following wildcard values shall be accepted:
   - *all*, *usall* in Simple_UnivSlotAID,
   - *all* in Simple_SPortAID,

- *all* in Simple_PTNumAID,
- *all* in Simple_LONumAID.

The motiviation to allow a retrieval of all low-order tributaries at once (in combination with the ALL modifier) is that NE internally all slots and ports must be queried anyway to fill the response. If the retrieve command would be more restrictive then multiple commands would be necessary to retrieve all low-order tributaries which results internally to an unnecessary multiple full query.

4. ctag – Correlation Tag
   See definition in "RTRV-HDR: Retrieve header" (p. 4-1736).

Spec Block Parameters

1. degthr - Signal Degrade Threshold
   This parameter shall specify the exponent to base 10 for building the degraded threshold level. Note that only the POISSON mode is supported by HW for low-order tributaries. Therefore this parameter will be always valid (i.e. in contrast to RTRV-VCGTRIB, RTRV-VC3, RTRV-STS1).
   Type: integer
   Range: -5, -6 (default), -7, -8, -9; i.e. range is 10exp-9 to 10exp-5
2. dexcthr - Excessive Degrade Threshold
   This parameter shall specify the exponent to base 10 for building the excessive threshold level. Note that only the POISSON mode is supported by HW for low0order tributaries. Therefore this parameter will be always valid (i.e. in contrast to RTRV-VCGTRIB, RTRV-VC3, RTRV-STS1).
   Type: integer
   Range: -3 (default), -4, -5; i.e. range is 10exp-5 to 10exp-3
3. explptrc - Expected LO Path Trace Identifier
   This parameter shall specify the Expected Low Order Path Trace Identifier (J1 or J2). The first byte value shall be in the range from 80 to FF (MSB always set to 1). The other byte values shall be in the range from 00 to 7F (MSB always set to 0). This parameter is only useful if ptrcrfmt is set to 16.
   Type: hexadecimal number without a preceeding 'H'.
   Range: length: 32 hexadecimal; digits: value specific string acc. ITU/ETSI mode 1
   Default: 89000000000000000000000000000000
   This parameter is only significant if *ptrcrfmt* is set to 16. However, setting this parameter while the format is different will not be rejected but stored in the NE and needs not be set again if the format is set later to the 16 byte mode.
4. feppm - Far End Path PM Enable
   This parameter shall specify whether the performance monitoring for the far end is enabled or disabled for this tributary.
   Type:alphanumeric value set
   Range: DISABLE (default), ENABLE.

5. lonimpn - LO NIM ASA Profile Name
   This parameter points to a tributary ASAP profile name pfname for the designated AID.
   Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: 1 ... 24 characters
   Default: DEFAULT.
   Note that in *LambdaUnite*® MultiService Switch (MSS) Release 7.0, only the default ASAP can be used for lower order tributaries!
6. lptimmon - LO Path Trace Identifier Mismatch Monitor
   This parameter shall specify if the mode of the TIM detection. This parameter is relevant only if the related trace read format ptrcrfmt is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set
   Range: DISABLE (default), ENABLE.
7. neppm - Near End Path PM Enable
   This parameter shall specify whether the performance monitoring for the near end is enabled or disabled for this tributary.
   Type: alphanumeric value set
   Range: DISABLE (default), ENABLE
8. pmlpfeses - PM LO Path Far End SES Threshold
   This parameter shall specify the Low Order Path Far End Severely Errored Seconds Performance Monitioring Threshold for errored frames. If errored frames are crossing this threshold this will result in an SES count for the far end. The behaviour depends on interface standard specified by istd for the related port owning this tributary and the transmission rate of this low-order tributary. For definition of istd refer to RTRV-rr Output Parameters. The transmission rate can only be derived from the parameter inputsig of the related PTF entity.
   Type: integer
   Range:

   The range depends on the tributary type in input direction, which can be derived from inputsig of the related PTF:

   - 1, 2, 3, ..., 7998, 7999, 8000 (if the entity represents a LO-VC3 tributary)
   - 1, 2, 3, ..., 1998, 1999, 2000 (if the entity represents a VC12 tributary)
   - 1, 2, 3, ..., 3998, 3999, 4000 (if the entity represents a VT1.5 tributary)

   Default: The default value depends on the tributary type in input direction, which can be derived from inputsig of the related PTF: 2400 (if the entity represents a LO-VC3 tributary) 600 (if the entity represents a VC12 or VT1.5 tributary).
   Note that the value range depends on the LO tributary type this entity currently represents.

9. pmlpneses - PM LO Path Near End SES Threshold
   This parameter shall specify the Low Order Path Near End Severely Errored Seconds Performance Monitioring Threshold for errored frames. If errored frames are crossing this threshold this will result in an SES count for the near end. The behaviour depends on interface standard specified by istd for the related port owning this tributary and the transmission rate of this low-order tributary. For definition of istd refer to RTRV-rr Output Parameters. The transmission rate can only be derived from the parameter inputsig of the related PTF entity.
   Type: integer
   Range:
   The range depends on the tributary type in input direction, which can be derived from inputsig of the related PTF:
   - 1, 2, 3, ..., 7998, 7999, 8000 (if the entity represents a LO-VC3 tributary)
   - 1, 2, 3, ..., 1998, 1999, 2000 (if the entity represents a VC12 tributary)
   - 1, 2, 3, ..., 3998, 3999, 4000 (if the entity represents a VT1.5 tributary).

   Default: The default value depends on the tributary type in input direction, which can be derived from inputsig of the related PTF: 2400 (if the entity represents a LO-VC3 tributary) 600 (if the entity represents a VC12 or VT1.5 tributary).
   Note that the value range depends on the LO tributary type this entity currently represents.
10. ptca - Path TCA Profile Pointer
    The parameter ptca shall specify the name of the threshold crossing alert (TCA) profile used for this tributary.
    Type: alphanumeric string
    Range: 1 ... 24 characters
    Default: DEFAULT0
11. ptrcrfmt - Path Trace Read Format
    This parameter shall specify the format of the path trace (J1 or J2 byte) to be received (sink).
    Type: numeric string
    Range:
    - 2 (default), for non-specific repeating byte
    - 16, for 16 byte specific string
    - 64, for 64 byte string (only applicable if the entity represents a LO-VC3 tributary).

    To check whether the entity represents a LO-VC3 tributary or not, the parameter inputsig of the related PTF entity must be checked.
    Setting this parameter does not require to set explptrc at the same time. Setting this parameter to the value 64 is not allowed if the entity does not represent a LOVC3 tributary.

12. tcamd - TCA mode
    This parameter is only available for SDH mode and will therefore only be reported if the output parameter aidtype is LOVC. The parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable for SDH:
    - TR-only. (also known as the implicit reset method)
    - TR-RTR. (also known as the explicit reset method).

    For SONET the parameter tcamd does not exist. SONET ports only support ″TR-only″ mode. Thus the mode must be internally set to ″TR-only″.
    Type: alphanumeric value set
    Range: TR, TRRTR
    Default:
    - SDH mode: TRRTR
    - SONET mode: TR (internal).

    For SONET the parameter tcamd does not exist. SONET ports only support ″TR-only″ mode. Thus the mode must be internally set to ″TR-only″.
    Setting this parameter is not allowed if the entity represents a LOVT1 tributary.
13. tmonmd - Tributary Monitoring Mode
    This parameter shall specify the monitoring mode for the tributary.
    Type: alphanumeric value set
    Range: MON, NMON (default).

Output format

If the network element fully complies with the ED-LONIM request, the following normal completion response shall be returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time* and *ctag* included in the normal completion response are specified in the Output Parameter section for the RTRV-HDR command.

Detailed behavior description

The ED-LONIM shall generate a REPT DBCHG message. The command shall modify the attributes (listed in the spec_block parameters part of this command) of the addressed acgLOTrib entitiy according to the parameters given with this command. The modification shall be reported by means of an ED-LONIM notification.

Disabling of PM monitor

The disabling of a PM monitor shall have the following impacts w.r.t. existing PM registers:

1. stop PM counting
2. all current bins related to the PM monitor shall be deleted
3. all history bins related to the PM monitor shall be deleted

The term PM monitor has the same semantics as the term PM package as used in SRD_PerformanceMonitoring. The number of PM monitors is determined by means of the number of *pm enable attributes*.

PM monitors can be disabled explicitly by means of the *pm enable* attribute or are implicitly disabled as part of a port/tributary deletion.

Additional to the above listed impacts (ID 52924) the disabling of a PM monitor shall have the following impacts: the system has to clear all active TCA events of the deleted PM monitor if TCA mode TR-RTR was selected.

Changing TCA mode from TR-RTR to TR-only

The change of tcamd from TR-RTR (also known as the explicit reset method) to TR-only (also known as the implicit reset method) has the impact, that all active TCA events of the related entity must be cleared.

Example input/output

```
ED-LONIM-LOVC:LT-UNITE:1-1-#-#-39-16-1-43:
123456:::tmonmd=NMON;
   LT-UNITE 00-11-11 11:11:00
M  123456 COMPLD
;
```

Error responses

Refer to the RTRV-HDR command Error Responses section. The error responses listed there apply to the ED-LONIM command, too.

Validation rule: Check *aid* against PTF substructure

If the command is applied with an aid which does not exist according to the input signal substructure of the owning PTF entity then the command shall be denied.

Error code: `IENE - Input, Entity Not Exists, aid not part of substructure`

Example:

Given the parameter of HPT[1-1-#-#-39-16-1]:inputsig is 23-2112, the following aid will be rejected: 1-1-#-#-39-16-1-43.

Note that the status of the parameter HPT:unequiposig is irrelevant.

Validation rule: Check *modifier* and *tcamd* consistency

If the command is applied with *modifier* = LOVT and the parameter *tcamd* is part of the spec_block then the command shall be denied.

Error code: `IPNC - Input, Parameter Not Consistent, TCA mode not allowed`

Validation rule: Check *modifier* and *ptrcrfmt* consistency

If the command is applied with the parameter ptrcrfmt which is going to be set to 64 and the addressed entity does not represent a LO VC3 tributary then the command shall be denied.

Error Code: `IPNC - Input, Parameter Not Consistent, 64 byte path trace not allowed`

64 byte path trace format only allowed for LO-VC3 tributaries. The tributary type the addressed entity represents can only be derived from the parameter inputsig of the related PTF entity.

Validation rule: Check *modifier* and *pmlpneses*/*pmlpnefeses* consistency

If the command is applied for:

- an entity representing a LO-VC3 tributary and one of the parameters pmlpneses or pmlpfeses is not in the range from 1 to 8000,
- an entity representing a VC12 tributary and one of the parameters pmlpneses or pmlpfeses is not in the range from 1 to 2000,
- an entity representing a VT1.5 tributary and one of the parameters pmlpneses or pmlpfeses is not in the range from 1 to 4000,

then the command shall be denied.

Error Code: `IPNC - Input, Parameter Not Consistent, SES threshold out of range for this modifier`

Validation rule: ASAP profile exists

Check of the existance of the ASAP profile.

Error Code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: TCA profile exists

Check of the existance of the TCA profile.

Error Code: `IDNV - Input, Data Not Valid, TCA profile does not exist`

Related TL1 messages

- "RTRV-LONIM: Low-Order Non-Intrusive Monitor" (p. 4-1782)

□

ED-LONIM notification

The ED-LONIM notification shall use the general format of a REPT DBCHG Report Database Change notification.

Output format

Command Syntax:

`ED-LONIM-`*modifier*:*aid*:*ctag*::*spec_block*;

Output parameters

Command parameters

1. modifier
   The modifier shall specify the type of the low-order tributary. The purpose is to distinguish between: - SDH/SONET tributaries.
   Type: alphanumeric value set
   Range:
   - LOVC
   - LOVT
2. aid – Access Identifier
   The access identifier shall specify a low-order tributary to be operated on.
   Type: AID
   Range: GenLOTribAID as defined in SRD_TL1_AID.
   Following wildcard values shall be accepted:
   - *all*, *usall* in Simple_UnivSlotAID,
   - *all* in Simple_SPortAID,
   - *all* in Simple_PTNumAID,
   - *all* in Simple_LONumAID.

   The motiviation to allow a retrieval of all low-order tributaries at once (in combination with the ALL modifier) is that NE internally all slots and ports must be queried anyway to fill the response. If the retrieve command would be more restrictive then multiple commands would be necessary to retrieve all low-order tributaries which results internally to an unnecessary multiple full query.

Spec Block Parameters

1. crslpbkstat - Crossconnect Loopback Status
   This parameter shall report the configuration of the crossconnection loopback of this triburay. For changing the loopback operation refer to OPR-LPBK.
   Type: alphanumeric value set

Range:

- YES: for enabled loopback
- NO: for disabled loopback.

2. degthr - Signal Degrade Threshold
   This parameter shall specify the exponent to base 10 for building the degraded threshold level. Note that only the POISSON mode is supported by HW for low-order tributaries. Therefore this parameter will be always valid (i.e. in contrast to RTRV-VCGTRIB, RTRV-VC3, RTRV-STS1).
   Type: integer
   Range: -5, -6 (default), -7, -8, -9; i.e. range is 10exp-9 to 10exp-5
3. dexcthr - Excessive Degrade Threshold
   This parameter shall specify the exponent to base 10 for building the excessive threshold level. Note that only the POISSON mode is supported by HW for low0order tributaries. Therefore this parameter will be always valid (i.e. in contrast to RTRV-VCGTRIB, RTRV-VC3, RTRV-STS1).
   Type: integer
   Range: -3 (default), -4, -5; i.e. range is 10exp-5 to 10exp-3
4. explptrc - Expected LO Path Trace Identifier
   This parameter shall specify the Expected Low Order Path Trace Identifier (J1 or J2). The first byte value shall be in the range from 80 to FF (MSB always set to 1). The other byte values shall be in the range from 00 to 7F (MSB always set to 0). This parameter is only useful if ptrcrfmt is set to 16.
   Type: hexadecimal number without a preceeding 'H'.
   Range: length: 32 hexadecimal; digits: value specific string acc. ITU/ETSI mode 1
   Default: 89000000000000000000000000000000
5. feppm - Far End Path PM Enable
   This parameter shall specify whether the performance monitoring for the far end is enabled or disabled for this tributary.
   Type:alphanumeric value set
   Range: DISABLE (default), ENABLE.
6. lonimpn - LO NIM ASA Profile Name
   This parameter points to a tributary ASAP profile name pfname for the designated AID.
   Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: 1 ... 24 characters
   Default: DEFAULT.
7. lptimmon - LO Path Trace Identifier Mismatch Monitor
   This parameter shall specify if the mode of the TIM detection. This parameter is relevant only if the related trace read format ptrcrfmt is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set
   Range: DISABLE (default), ENABLE.

8. neppm - Near End Path PM Enable
   This parameter shall specify whether the performance monitoring for the near end is enabled or disabled for this tributary.
   Type: alphanumeric value set
   Range: DISABLE (default), ENABLE
9. pmlpfeses - PM LO Path Far End SES Threshold
   This parameter shall specify the Low Order Path Far End Severely Errored Seconds Performance Monitioring Threshold for errored frames. If errored frames are crossing this threshold this will result in an SES count for the far end. The behaviour depends on interface standard specified by istd for the related port owning this tributary and the transmission rate of this low-order tributary. For definition of istd refer to RTRV-rr Output Parameters. The transmission rate can only be derived from the parameter inputsig of the related PTF entity.
   Type: integer
   Range:

   The range depends on the tributary type in input direction, which can be derived from inputsig of the related PTF:

   - 1, 2, 3, ..., 7998, 7999, 8000 (if the entity represents a LO-VC3 tributary)
   - 1, 2, 3, ..., 1998, 1999, 2000 (if the entity represents a VC12 tributary)
   - 1, 2, 3, ..., 3998, 3999, 4000 (if the entity represents a VT1.5 tributary)

   Default: The default value depends on the tributary type in input direction, which can be derived from inputsig of the related PTF: 2400 (if the entity represents a LO-VC3 tributary) 600 (if the entity represents a VC12 or VT1.5 tributary).
10. pmlpneses - PM LO Path Near End SES Threshold
    This parameter shall specify the Low Order Path Near End Severely Errored Seconds Performance Monitioring Threshold for errored frames. If errored frames are crossing this threshold this will result in an SES count for the near end. The behaviour depends on interface standard specified by istd for the related port owning this tributary and the transmission rate of this low-order tributary. For definition of istd refer to RTRV-rr Output Parameters. The transmission rate can only be derived from the parameter inputsig of the related PTF entity.
    Type: integer
    Range:

    The range depends on the tributary type in input direction, which can be derived from inputsig of the related PTF:

    - 1, 2, 3, ..., 7998, 7999, 8000 (if the entity represents a LO-VC3 tributary)
    - 1, 2, 3, ..., 1998, 1999, 2000 (if the entity represents a VC12 tributary)
    - 1, 2, 3, ..., 3998, 3999, 4000 (if the entity represents a VT1.5 tributary).

    Default: The default value depends on the tributary type in input direction, which can be derived from inputsig of the related PTF: 2400 (if the entity represents a LO-VC3 tributary) 600 (if the entity represents a VC12 or VT1.5 tributary).

11. ptca - Path TCA Profile Pointer
    The parameter ptca shall specify the name of the threshold crossing alert (TCA) profile used for this tributary.
    Type: alphanumeric string
    Range: 1 ... 24 characters
    Default: DEFAULT0
12. ptrcrfmt - Path Trace Read Format
    This parameter shall specify the format of the path trace (J1 or J2 byte) to be received (sink).
    Type: numeric string
    Range:
    - 2 (default), for non-specific repeating byte
    - 16, for 16 byte specific string
    - 64, for 64 byte string (only applicable if the entity represents a LO-VC3 tributary).

    To check whether the entity represents a LO-VC3 tributary or not, the parameter inputsig of the related PTF entity must be checked.
13. tcamd - TCA mode
    This parameter is only available for SDH mode and will therefore only be reported if the output parameter aidtype is LOVC. The parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable for SDH:
    - TR-only. (also known as the implicit reset method)
    - TR-RTR. (also known as the explicit reset method).

    For SONET the parameter tcamd does not exist. SONET ports only support ″TR-only″ mode. Thus the mode must be internally set to ″TR-only″.
    Type: alphanumeric value set
    Range: TR, TRRTR
    Default:
    - SDH mode: TRRTR
    - SONET mode: TR (internal).

    For SONET the parameter tcamd does not exist. SONET ports only support ″TR-only″ mode. Thus the mode must be internally set to ″TR-only″.
14. tmonmd - Tributary Monitoring Mode
    This parameter shall specify the monitoring mode for the tributary.
    Type: alphanumeric value set
    Range: MON, NMON (default).

Example output

Example of ED-LONIM notification representing a LO-VC3 tributary:

```
   LT-UNITE 00-11-11 11:11:00
A  001 REPT DBCHG
```

```
   "TIME=11-10-30,DATE=00-11-11:ED-LONIM-LOVC:
   1-1-#-#-39-16-1-43::\crslbkstat=NO,degthr=-6,
   dexcthr=-3,\explptrc=8900000000000000000000000000000,
   feppm=DISABLE,\lptimmon=DISABLE,lonimpn=DEFAULT,
   neppm=DISABLE,pmlpfeses=2400,\pmlpneses=2400,ptca=DEFAULTO,
   ptrcrfmt=1,tcamd=TRRTR,tmonmd=NMON"
;
```

Example of ED-LONIM notification representing a VC12 tributary:

```
   LT-UNITE 00-11-11 11:11:00
A  001 REPT DBCHG
   "TIME=11-10-30,DATE=00-11-11:ED-LONIM-LOVC:
   1-1-#-#-39-16-1-63::\crslbkstat=NO,degthr=-6,
   dexcthr=-3,\explptrc=8900000000000000000000000000000,
   feppm=DISABLE,\lptimmon=DISABLE,lonimpn=DEFAULT,
   neppm=DISABLE,pmlpfeses=600,\pmlpneses=600,ptca=DEFAULTO,
   ptrcrfmt=1,tcamd=TRRTR,tmonmd=NMON"
;
```

Example of ED-LONIM notification representing a VT1.5 tributary:

```
   LT-UNITE 00-11-11 11:11:00
A  001 REPT DBCHG
   "TIME=11-10-30,DATE=00-11-11:ED-LONIM-LOVT:
   1-1-#-#-39-16-3-28::\crslbkstat=NO,degthr=-6,
   dexcthr=-3,\explptrc=8900000000000000000000000000000,
   feppm=DISABLE,\lptimmon=DISABLE,lonimpn=DEFAULT,
   neppm=DISABLE,pmlpfeses=600,\pmlpneses=600,ptca=DEFAULTO,
   ptrcrfmt=1,tmonmd=NMON"
;
```

□

ED-MAP-RING: Edit map ring

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M3

Priority: 1

Abortable: No.

Input format

Command Syntax: `ED-MAP-RING`:*tid*:[*aid*]:*ctag*::[*rid*],*spec_block;*

Input parameters

Command parameters

1. tid – Target Identifier
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   This parameter specifies the aid of a MS-SPRing/BLSR protection group or an port aid being a member of the group.
   Option: If *rid* is specified, then *aid* can be omitted.
   Type: AID.
   Range: TwoFibre_ProtGrpAID (not ranged) or FourFibre_ProtGrpAID (not ranged) or SPortAID (not ranged)
3. ctag – Correlation Tag
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
4. rid – Ring Identification
   This parameter specifies the ring identification name. Storage and retrieval of the *rid* is case sensitive, but actual use of the rid to determine the corresponding protection group is case insensitive. The parameter is used as an alias to identify exactly one MS-SPRing/BLSR protection group of any type. Therefore the value shall be unique for all protection groups of type 2F or 4F within the NE.
   Type: text string of chars allowed for TID strings.
   Range: 1 to 15 characters.
   Default: NONE.
   Option: If *aid* is specified, then *rid* can be omitted. If *rid* is omitted, the *aid* parameter is used to select a ring. The values of *aid* and *rid* must not both be omitted.

Spec block parameters

1. localnid – Local Node ID
   This parameter specifies the local node ID of the NE receiving the retrieve request (i.e. the node which has been addressed within RTRV-MAP-Ring command) as used by the MS-SPRing/BLSR APS protocol.
   Type: numeric string
   Range: 0 .. 15
   Option: The operator is responsible of the uniqueness of the value in the ring.
2. ringdir – Ring Direction
   This parameter indicates whether the local node's east or west provisioned or hardwired direction port is connected to the next node in the ring map.
   Type: alphanumeric string.
   Range: E.
3. rnids – Ring Node Identifiers
   This is an ampersand-seperated list with a maximum of 16 entries, where each entry is an integer between 0 and 15. The first entry shall be the lowest numbered node ID on the ring. Each subsequent value is the node IF of the next node on the ring. Each permitted value may only be used once in the list. The number of values defines the number of nodes on the ring. If the number of nodes specified is smaller than previously specified, those unspecified entries in the ring map are set to the default value.
   Type: string.
   Range: All permutations of a subset of {0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15} separated by a '&'.
4. rtids – Ring Node Target Identifiers
   This is an ampersand-seperated list with a maximum of 16 entries, where each entry is a valid TID. Each entry in the list is the TID corresponding to the entry in that position of the *rnids* list. Similarly, if the size of the ring map decreases from the previous ED-MAP-RING command, those unspecified TID entries in the ring map are set to the default value. The number of values for *rnids* and *rtids* must be equal.
   Option: If *aid* is specified, then *rid* can be omitted.
   Type: string.
   Range: 16 ampersand-seperated TIDs.
   Default: None (empty).

Note:

When different numbers of ring node identifiers (*rnids*) and ring node target identifiers (*rtids*) are entered, the command is denied. However, the related error message is not precise enough, but it simply states: `/* Input, Data Not Valid */`. The correct error message should be: `/* Input, Data Not Valid, different number of values in rnids and rtids */`

Output format

After receiving the ED-MAP-RING command, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

Output parameters

See definition in output parameters section in "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

For open rings, the output shall start at the end with the lower nid value and shall continue to the other end. For closed rings, the output shall start at the node with the lowest *nid* value and shall continue in the direction of the first node's east neighbor. The ED-MAP-RING command is also denied if the list does not contain the local node , if the list does not contain at least 2 nodes, or if duplicate nid values appear in the list.

Example input/output

The following is an example of the ED-MAP-RING command. Manually, node numbers 3 for NENAME-1, 14 fr NENAME-2 and 8 for NENAME-3 are assigned:

```
ED-MAP-RING:NENAME-1::123456::RingID:rnids=3&14&8,
rtids=NENAME-1&NENAME-2&NENAME-3;
   NENAME-1 98-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Validation rule: consistent aid and rid

If both an *aid* and an *rid* are specified as input parameters and they are inconsistent, then the following error response is returned.

Error Code: `IDNV - Input, Data Not Valid, inconsistent aid and rid`

Validation rule: No duplicate Ring Node Identifiers

If the list of ring node identifiers specified in the parameter rnids contains duplicate values, the command shall be denied.

Error Code: `IDNV - Input, Data Not Valid, duplicate ring node identifiers`

Validation rule: No duplicate Ring Node Target Identifiers

If the list of ring node target identifiers specified in the parameter rtids contains duplicate values, the command shall be denied.

Error Code: `IDNV - Input, Data Not Valid, duplicate ring node target identifiers`

Validation rule: Consistent *rnids* and *rtids* lists

The lists of ring node identifiers and ring node target identifiers specified in the parameters *rnids* and *rtids* shall contain the same number of values, otherwise the command shall be denied.

Error Code: `IDNV - Input, Data Not Valid, different number of values in rnids and rtids`

Validation rule: Illegal local node ID

If the local node identifier specified with the parmater localnid is not contained in the list of ring node identifers, or if the local node identifier has not been specified, the command shall be denied.

Error Code: `SNVS - Status, Not in Valid State, illegal local node identifier`

Validation rule: Less than 2 nodes specified

If the list of ring node identifiers contains less than 2 values, the command shall be denied.

Error Code: `INUP - Input, Non-null Unimplemented Parameter`

Related TL1 messages

- "ED-FETID: Edit Far End Target Identifier" (p. 4-299)§
- "ED-PROTN-GRP: Edit protection group" (p. 4-551)
- "ENT-PROTN-GRP: Enter protection group" (p. 4-1222)
- "RTRV-MAP-RING: Retrieve map ring" (p. 4-1819)
- "SET-MAP-RING: Set map ring" (p. 4-2304).

References

GR-199-CORE

□

ED-NE: Edit NE

The ED-NE command is used to activate or de-activate DCN functions associated with the NE at the system level, e.g. the IP tunneling function or the TL1 Translation Device (T-TD) function.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S3

Priority: 1

Abortable: No.

Input format

Command Syntax: `ED-NE:`*tid*`::`*ctag*`:::`*spec_block*`;`

Input parameters

Command parameters

1. tid – Target Identifier
   Description: Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Description: Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
   Type: CTAG.

Spec block parameters

1. ftamftpgw - File Transfer Translation Device (FT-TD) function
   This parameter is used to enable or disable the File Transfer Translation Device (FT-TD) function.
   Type: Value set.
   Range: ENABLE, DISABLE (default).
2. tl1tcpipgw – TL1 Translation Device (T-TD) function
   This parameter is used to enable or disable the TL1 Translation Device (T-TD) function.
   Type: Value set.
   Range: ENABLE, DISABLE (default).
3. dcnpn – DCN ASAP Profile Name
   This parameter specifies the name of the current ASAP profile used for DCN alarms.
   Type: Alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: up to 24 characters.
   Default: DEFAULT.

Output format

If the ED-NE command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736) .

Detailed behavior description

The command activates or de-activate the DCN function associated with the parameters specified in the *spec_block* section.

Disabling *ftamftpgw*

When the parameter ftamftpgw is set to DISABLE existing file transfers via FT-TD shall complete normally, but no new file transfer via FT-TD shall be allowed.

Example input/output

The following example shows the result of an ED-NE command, where IP tunneling is enabled:

```
ED-NE:LT-UNITE::123456:::tunstat=ENABLE;
   LT-UNITE 00-11-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the RTRV-NE command.

Validation rule: Check for correct IP configuration

The request to ENABLE *ftamftpgw*, *tl1tcpipgw* or *tunstat* is only allowed if there is already a valid IP configuration (IP address of LAN1, subnet mask of LAN1, default router) provisioned for the system.

Error code: `SNVS - Status, Not in Valid State, incomplete IP configuration`

For the specific checks refer to

- ENT-FECOM-LAN, parameter ip_lanstat
- ENT-FECOM-LAN, parameter ip_snm
- ENT-ULS, parameter ip_drad.

Validation rule: Check for correct TARP configuration

The request to ENABLE *tl1tcpipgw* shall only be allowed if TARP originator, propagator and responder roles are enabled for node 1.

Error code: `SNVS - Status, Not in Valid State, TARP not enabled`

Related TL1 messages

- "RTRV-NE: Retrieve NE" (p. 4-1826)
- "RTRV-FECOM-LAN: Retrieve LAN channel related parameters" (p. 4-1732)
- "ENT-FECOM-LAN: Enter LAN related parameters" (p. 4-1105)

□

ED-NE notification

Output format

The ED-NE notification has the following specific syntax:

ED-NE:::*spec_block*

The output parameters *sid*, *date*, *time*, and *atag* are described in the REPT DBCHG notification.

Output parameters

1. ftamftpgw - File Transfer Translation Device (FT-TD) function
   This parameter is used to enable or disable the File Transfer Translation Device (FT-TD) function.
   Type: Value set.
   Range: ENABLE, DISABLE (default).
2. tl1tcpipgw – TL1 Translation Device (T-TD) function
   This parameter is used to enable or disable the TL1 Translation Device (T-TD) function.
   Type: Value set.
   Range: ENABLE, DISABLE (default).
3. dcnpn – DCN ASAP Profile Name
   This parameter specifies the name of the current ASAP profile used for DCN alarms.
   Type: Alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: up to 24 characters.
   Default: DEFAULT.

Example output

The following is an example ED-NE notification in case the *tunstat* function has been enabled:

```
   LT-UNITE 00-11-01 15:00:00
A  000 REPT DBCHG
   "TIME=15-00-00,DATE=00-11-03:ED-NE:::tunstat=ENABLE"
;
```

□

ED-NE-SECU: Edit NE security

The ED-NE-SECU command can be initiated by a user to modify global security parameters in the NE.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S5

Priority: 1

Abortable: No

Input format

Command Syntax: `ED-NE-SECU`:*tid*::*ctag*:::*spec_block*;

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).

Spec block parameters

1. age – Lockout Aging Period
   The time interval during which the number of invalid login attempts are counted. When *age* expires after the last invalid login attempt, the counter of invalid login attempts by that *uid* is reset to zero.
   Type: numeric string
   Range: 1 – 999 [minute]
   Default: 60
2. intrvl – Lockout Period
   The time during which login attempts using that *uid* will not be allowed. This occurs when the number of consecutive invalid login attempts by a *uid* reaches *thrshld.* When *intrvl* expires, login attempts will again be allowed from that *uid*. If this parameter is set to 0 (zero), the lockout feature is disabled.
   Type: numeric string
   Range: 0 – 99 [minute]
   Default: 10

3. thrshld – Lockout Threshold
   The maximum number of consecutive invalid login attempts that are allowed by a *uid*. If the count of invalid login attempts is equal to the threshold, the *uid* is locked out for *intrvl* period of time. If a login attempt is successful, the count of *invalid* login attempts by that *uid* is reset to zero.
   Type: numeric string
   Range: 2 – 99
   Default: 5
4. usrage – User ID Aging Period
   If a *uid* has never been used to perform a successful login during a specified time interval it shall be disabled. A value of 0 disables user ID aging.
   The *usrage* does not apply to the super-users. Super-users will be never disabled.
   Type: numeric string
   Range: 0 – 999 [days]
   Default: 10

Output format

After receiving the ED-NE-SECU command, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The NE returns the successful completion response even if none of the parameter values are modified using the ED-NE-SECU command.

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section for the RTRV-HDR command.

Detailed behavior description

This command updates the NE security administration values of *thrshld* (Lockout Threshold), *intrvl* (Lockout Period), *age* (Lockout Aging Period), *usrage* (User ID Aging Period) according the values in the parameters .

This update is reported via the corresponding ED-NE-SECU notification – see "ED-NE-SECU notification" (p. 4-327).

Example input/output

The following example shows the successful completion of the ED-NE-SECU command by the NE:

```
ED-NE-SECU:LT-UNITE-123::123456:::thrshld=5,intrvl=2,
age=50,usrage=200;
   LT-WBM-789 00-01-01 08:00:00
M  123456 COMPLD
```

;

Error responses

The general error responses defined in "RTRV-HDR: Retrieve header" (p. 4-1736) are also valid for this command.

Related TL1 messages

- "ACT-USER: Activate user" (p. 4-14)
- "RTRV-NE-SECU: Retrieve NE security" (p. 4-1828)

□

ED-NE-SECU notification

Output format

See definition of "REPT DBCHG: Report data base change" (p. 4-1517).

The ED-NE-SECU notification will have following specific syntax:

`ED-NE-SECU:::`*spec_block*

Output parameters

Spec block parameters

1. age – Lockout Aging Period
   The time interval during which the number of invalid login attempts are counted. When age expires after the last invalid login attempt, the counter of invalid login attempts by that uid is reset to zero.
   Type: numeric string
   Range: 1 - 999 [minute]
   Default: 60
2. intrvl – Lockout Period
   The time during which login attempts using that uid will not be allowed. This occurs when the number of consecutive invalid login attempts by a uid reaches thrshld. When intrvl expires, login attempts will again be allowed from that uid. If this parameter is set to 0 (zero), the lockout feature is disabled.
   Type: numeric string
   Range: 0 - 99 [minute]
   Default: 10
3. thrshld – Lockout Threshold
   The maximum number of consecutive invalid login attempts that are allowed by a uid. If the count of invalid login attempts is equal to the threshold, the uid is locked out for intrvl period of time. If a login attempt is successful, the count of invalid login attempts by that uid is reset to zero.
   Type: numeric string
   Range: 2 - 99
   Default: 5
4. usrage – User ID Aging Period
   Type: numeric string
   Range: 0 - 999 [days], default: 10

Example output

The example shows a normal notification after an ED-NE-SECU command:

```
   LT-UNITE-123 00-01-01 08:00:50
A 815 REPT DBCHG
   "TIME=08-00-12,DATE=00-01-01:ED-NE-SECU:::thrshld=5,
```

```
    intrvl=2,age=50,usrage=200"
;
```

□

ED-NNCNFG: Edit ONNS configuration data

Overview

The ED-NNCNFG command modifies the values of certain ONNS System Configuration parameters. Not all configuration parameters can be modified. The time when changes become effective depends on the individual parameter. The ED-NNCNFG command generates a REPT NNCHG message.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P4

Abortable: No

Input format

Command Syntax: `ED-NNCNFG:`*srcTid:[srcAid]:ctag::specBlock;*

Input parameters

Command parameters

1. srcTid – Source Target Identifier
   Target Identifier of the source node is the logical name of the Host NE. ONNS uses the same *tid* used by Host NE.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: The *srcTid* parameter is a case insensitive ASCII character string of up to 20 characters with the allowed character set.
2. srcAid
   Source node ONNS application access identifier of the ONNS controller OS command interface port.
   Range: Source node Access IDentifier parameter of the source node controller ONNS command interface entity has the allowed values shown here: snn.
3. ctag – Correlation Tag
   This parameter is included in the command by the TL1 user and is repeated by the NE in the response to allow the TL1 user to associate the command and response messages.
   The *ctag* parameter is a character strings of up to 6 ASCII characters. The allowed ASCII character string is comprised of alphanumeric characters beginning with a letter, or decimal numerals (a decimal numeral is a string of decimal digits with an optional non-trailing “.”).

Spec block parameters

1. AdminCostEscalation
   Determines whether a cost escalation algorithm is applied or not. This algorithm raises the cost of a link bundle to reduce the attractiveness when the link bundle fills up.
   Type: alphanumeric value set
   Range: DISABLE, ENABLE (default).
2. WaitToRevertTimer
   Determines how long an original path must be steadily OK before it is made active again through tear-down of the restoration path. Applies only to auto-reroute revertive connections.
   Range: 60 - 1800 seconds (default = 300 seconds).
3. DefaultRstrPriority
   Determines the connection restoration priority default to be used if a value is not specified in the ENT-PATH command. Lower values denote higher priority.
   Type: integer
   Range: 0 - 7 (default = 0, highest priority).
4. TCAThresholdLow
   Lower threshold in percent for the supervision of the unavailable bandwidth in the link bundles. Exceeding this threshold for a link bundle results in a TCA status LOW or HIGH for this link bundle.
   Range: 10 - 100%, default = 40%
5. TCAThresholdHigh
   Upper threshold in percent for the supervision of the unavailable bandwidth in the link bundles. Exceeding this threshold for a link bundle results in a TCA status HIGH for this link bundle
   Range: 10 - 100%, default = 70%
6. NNFunctionUpgradeState
   After a SW upgrade, new ONNS functionality must be explicitely enabled. This parameter can be used to enable the ONNS functionality.
   Type: alphanumeric value set
   Range: ENABLE: Enable new ONNS functionality.

Note: When parameters *WaitToRevertTimer* or *DefaultRstrPriority* have been changed via the ED-NNCNFG command, such changes will not be confirmed by the system with a REPT-NNCHG notification. Execute RTRV-NNCHG to get confirmation about changed values from the system.

Output format

If the ED-NNCNFG request completes successfully, then the following normal completion response is returned:

```
   srcTid date time
M  ctag COMPLD
```

```
    "specBlock"
;
```

Output parameters

The output parameters *srcTid*, *date*, *time*, *ctag*, *completionCode* and their syntax are included in the Output parameters section of the "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950) command.

Spec block parameters

This block contains the descriptions and allowed values for the reported output parameters.

1. AdminCostEscalation
   Determines whether a cost escalation algorithm is applied or not. This algorithm raises the cost of a link bundle to reduce the attractiveness when the link bundle fills up.
   Type: alphanumeric value set
   Range: DISABLE, ENABLE (default).
2. WaitToRevertTimer
   Determines how long an original path must be steadily OK before it is made active again through tear-down of the restoration path. Applies to auto-reroute revertive connections. This parameter shall apply to M:N protected connections as well.
   Range: 60 - 1800 seconds (default = 300 seconds).
3. DefaultRstrPriority
   Determines the connection restoration priority default to be used if a value is not specified in the ENT-PATH command. Lower values denote higher priority.
   Range: 0 - 7 (default = 0, highest priority).
4. TCAThresholdLow
   Lower threshold in percent for the supervision of the unavailable bandwidth in the link bundles. Exceeding this threshold for a link bundle results in a TCA status LOW or HIGH for this link bundle.
   Range: 10 - 100%, default = 40%
5. TCAThresholdHigh
   Upper threshold in percent for the supervision of the unavailable bandwidth in the link bundles. Exceeding this threshold for a link bundle results in a TCA status HIGH for this link bundle
   Range: 10 - 100%, default = 70%
6. NNFunctionUpgradeState
   After a SW upgrade, new ONNS functionality must be explicitely enabled. This parameter can be used to enable the ONNS functionality.
   Type: alphanumeric value set
   Range: ENABLE: Enable new ONNS functionality.

Example input/output

The following example demonstrates the usage of the ED-NNCNFG command for provisioning the system configuration of the wait to revert timer to 60 seconds:

```
ED-NNCNFG:LT-ONNS-A::123456::waitToRevertTimer=60;
   LT-ONNS-A 2002-08-01 08:00:24
M  123456 COMPLD
   "waitToRevertTimer=60"
;
```

The following example demonstrates the usage of the ED-NNCNFG command for provisioning the system configuration of the default connection restoration priority to 5:

```
ED-NNCNFG:LT-ONNS-A::123456::defaultRstrPriority=5;
   LT-ONNS-A 2002-08-01 08:00:24
M  123456 COMPLD
   "defaultRstrPriority=5"
;
```

The following example demonstrates the usage of the ED-NNCNFG command for provisioning the system configuration of the lower TCA threshold to 42%:

```
ED-NNCNFG:LT-ONNS-A::123456::TCAThresholdLow=42;
   LT-ONNS-A 2002-08-01 08:00:24
M  123456 COMPLD
   "TCAThresholdLow=42"
;
```

The following example demonstrates the usage of the ED-NNCNFG command for provisioning the system configuration of the upper TCA threshold to 69%:

```
ED-NNCNFG:LT-ONNS-A::123456::TCAThresholdLow=69;
   LT-ONNS-A 2002-08-01 08:00:24
M  123456 COMPLD
   "TCAThresholdHigh=69"
;
```

The following example demonstrates the usage of the ED-NNCNFG command for disabling the cost escalation algorithm:

```
ED-NNCNFG:LT-ONNS-A::123456::AdminCostEscalation=
DISABLE
   LT-ONNS-A 2003-08-01 09:00:35
M  123456 COMPLD
   "AdminCostEscalation=DISABLE"
;
```

The following example demonstrates the usage of the ED-NNCNFG command for the provisioning of multiple ONNS system configuration parameters:

```
ED-NNCNFG:LT-ONNS-A:onn:123456::waitToRevertTimer=120,
defaultRstrPriority=4;
   LT-ONNS-A 2002-08-01 08:00:24
M  123456 COMPLD
   "waitToRevertTimer=120,
   defaultRstrPriority=4"
;
```

The following example demonstrates the usage of the ED-NNCNFG command to enable new ONNS functionality after a SW upgrade:

```
ED-NNCNFG:LT-ONNS-A::123456::NNFunctionUpgradeState=
ENABLE
   LT-ONNS-A 2003-08-01 08:00:24
M  123456 COMPLD
   "NNFunctionUpgradeState=ENABLE"
;
```

Error responses

The error codes defined in the "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950) Error responses section also apply to the ED-NNCNFG command.

Command parameter invalid

If the NE receives an ED-NNCNFG command with an invalid specific block input named parameter, then one of the following error responses is returned:

Error code: `E030 - Syntax, Parameter Data Invalid, invalid_parameter=fieldName`

Error code: `E246 - Syntax, Parameter Name Invalid, invalid_parameter=fieldName`

TCA related error messages

If the NE receives an ED-NNCNFG command with a *TCAThresholdHigh* value which is out of range, then the following error response is returned:

Error code: `"E420::\"Input, Parameter out of Range\",invalid_parameter=TCAThresholdHigh"`

If the NE receives an ED-NNCNFG command with a *TCAThresholdLow* or *TCAThresholdHigh* which does not fulfill the condition *TCAThresholdLow* <= *TCAThresholdHigh*, the following error response is returned:

Error code: `"E422::\" Input, TCAThresholdLow Greater than TCAThresholdHigh \","`

If both parameters are changed with the same command, the validation will be done among these two parameters, otherwise the new value will be compared against the value of the existing second TCA threshold value.

Related TL1 messages

- "REPT-NNCHG Notification: Report ONNS data repository changes" (p. 4-1531)
- "REPT-NNEVT Notification: Report ONNS internal events" (p. 4-1536)
- "RTRV-NNCNFG: Retrieve ONNS configuration data" (p. 4-1831)
- "RTRV-NNEVT-TCA" (p. 4-1851)

□

ED-NNCRS: Edit NN cross-connection

The ED-NNCRS-modifier command can be initiated by a user to set the cross-connection class parameter (*xconcls*) to TRADITIONAL. The command is available for privileged users as a precondition to delete a cross-connection with *xconcls*=NN via DLT-CRS.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P5

Priority: 1

Abortable: No

Input format

Command Syntax: `ED-NNCRS-`*modifier*:*tid*:*in_aid*,*out_aid*:*ctag*:::*spec_block*;

Input parameters

Command parameters

1. modifier
   This parameter indicates the cross-connection on which the ED-NNCRS command acts on.
   For detailed description please refer to the RTRV-CRS command.
   Type: Alphanumeric value set.
   Range: VC3, VC4, VC44C, VC416C, VC464C, STS1, STS3, STS12, STS48, STS192.
   No ″all″ value is supported.
2. tid – Target Identifier
   Refer to the “RTRV-HDR: Retrieve header” (p. 4-1736) command for the input parameter syntax and the description of this parameter.
3. in_aid – Input Access Identifier
   This parameter specifies the source of the cross-connection.
   In case of a 1-way cross-connection the source of a cross-connection is unambiguous. In this case the cross-connection will be retrieved by the RTRV-CRS, which has the identical *in_aid.*
   In case of a 2-way cross-connection the source is not defined (the source could be the *in_aid* or the *out_aid* of the cross-connection). In this case both aids (*in_aid* or *out-aid*) of the cross-connection can be used as the *in_aid* parameter of the RTRV-CRS command. The RTRV-CRS command will then return the *in_aid* – parameter used in the RTRV-CRS command as the *in_aid* of the RTRV-CRS reply.
   Example:
   ENT-CRS-VC4:NEname:1-1-#-#-1-1-1,1-1-#-#-2-1-1:123456:2way;

RTRV-CRS-VC4:NEname:1-1-#-#-2-1-1:123457;
M 123457 COMPLD ″1-1-#-#-1-1-,1-1-#-#-2-1-1:vc4….. ;
Type: GenTribAID.
Range: No use of the ″all″ or ″usall″ or ″vall″ values within the in_aid shall be allowed.

4. out_aid – Output Access Identifier
   This parameter specifies the tributary which is the sink of the cross-connection.
   Type: GenTribAID.
   Range: No use of the ″all″ or ″usall″ or ″vall″ values within the in_aid shall be allowed..
5. ctag – Correlation Tag
   See defintion of *ctag* in “RTRV-HDR: Retrieve header” (p. 4-1736).

Spec block parameters

1. xconcls – cross-connection class
   This parameter identifies, whether the cross-connection has been switched explicitly on the traditional way via an ENT-CRS command or implicitly via setting up an ONNS path. It can be set to TRADITIONAL via this command.
   Type: alphanumeric value set.
   Range: TRADITIONAL

Output format

If the ED-NNCRS command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of the “RTRV-HDR: Retrieve header” (p. 4-1736).

Detailed behavior description

The *xconcls* parameter of a cross-connection shall be set to TRADITIONAL via the ED-NNCRS command.

The change is reported via an ED-CRS (not ED-NNCRS!) notification.

Path-protected cross-connections

If the ED-NNCRS command is applied on one leg of a path-protected cross-connection, then the cross-connection class of both legs of the path-protected cross-connection shall be changed.

2-way cross-connections

If the ED-NNCRS command is applied on one direction of a 2-way cross-connection, then only the cross-connection class of the specified direction shall be changed. The class of the other direction shall remain unchanged.

Example input/output

```
ED-NNCRS-VC4:UNITE-NE:1-1-#-#-10-1-4,1-1-#-#-20-1-7:123456:::xconcls=TRADITIONAL
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
;
```

Error responses

Validation rule: Entities (tributaries) must exist

Cross-connection command processing verifies that the logical tributaries specified in the command do exist.

Error code: `IENE - Input Entity Not Exists, Specified tributary/tributaries do not exist`

Validation rule: Entity (cross-connection) must exist

Cross-connection command processing verifies that the specified cross-connection exists.

Error code: `IENE - Input Entity Not Exists, Specified crossconnection does not exist`

Validation rule: Specified rate consistent with the cross-connecton rate

Cross-connection command processing verifies that the specified rate (*modifier* parameter) is compliant with the rate of the existing cross-connection.

Error code: `IPNC - Input Parameter Not Consistent, Rate inconsistent with cross-connection rate`

Validation rule: Cross-connection must have *xconcls* = NN

Cross- connection command processing shall verify that the specified cross-connection has set *xconcls* = NN.

Error Code: `SNVS - Status, Not in Valid State, Cross connection not of class NN`

Validation rule: Cross-connection not involved in Test Access Session

Cross-connection command processing shall verify that the specified cross- connection is not involved in a Test Access Session.

Error Code: `SNVS - Status, Not in Valid State, Cross connection involved in Test Access Session`

Related TL1 messages

- "DLT-CRS: Delete cross-connection" (p. 4-97)
- "ENT-CRS: Enter cross-connection" (p. 4-1026)
- "ENT-ROLL: Enter roll" (p. 4-1262)
- "RTRV-CRS: Retrieve cross-connection" (p. 4-1649)

□

ED-OC3: Edit OC3 port

The ED-OC3 command is used to provision all parameters related to optical OC3 port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: no

Input format

Command Syntax: `ED-OC3`:*tid:aid:ctag:::spec_block*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   Access Identifier of an OC3 port.
   Type: AID.
   Range: OC3 port AID
   For changing the *portControl* parameter the ALL qualifier for the port aid shall be allowed.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of *portClass*=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. Parameter name adapted to ONNS specific TL1. *adminCost* is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....65535
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.

3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
5. felpm – Far-end Line PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
6. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU
7. inputsig – Tributary Input Signal Rate List
   This parameter is a list of STSn rates across the port's bandwidth.
   If *trbmd* is FIXED, then *inputsig* constrains the cross-connection rates that can be entered for the port. If *trbmd* is ADAPTIVE, then *inputsig* is setable and retrievable as in fixed mode but does not influence the port behavior.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 1 or 3 representing STS1 or STS3C.
   Default: 31.
   Example: An O-3 signal might be represented by 31 which implies 3 STS1's or 13 which implies 1 STS3C.

8. istd – Interface Standard
   Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter istddflt.
   Type: alphanumeric value set.
   Range: SONET, SDH.
   Default: As specified via *istddflton* system level, see definition in RTRV-EQPT (system).
9. maxNNXCRate – Maximum NN Cross Connect Rate
   This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
   maxNNXCRate is introduced specifically for use by ONNS application.
   Type: alphanumeric value set.
   Range: STS3 (default), STS1.
10. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS1 (default), STS3.
11. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of *portClass* INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
12. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of *portClass*=INNI to be used for ONNS application. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if *ndetmd*=MAN.
    If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.

neighborASTNNodeID is introduced specifically for use by ONNS application.
Type: Four dot separated numeric string.
Range: Each numeric string: 0...255.
Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.

13. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of *portClass*=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if *ndetmd*=MAN. If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″
14. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if *ndetmd*=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborPortID is introduced specifically for use by NN application.
    Type: Four dash separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0-0-0-0.
    Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.
15. nelpm – Near-End Line PM Enable
    Enable or disable near-end near-end line performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).

16. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.

    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

    - STM-1/OC-3: 1 – 192000.

    Default: The default values differ for SDH and SONET:

    - STM1: 28800
    - OC3: 154.

17. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.

    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

    - STM-1/OC-3: 1 – 192000.

    Default: The default values differ for SDH and SONET and the different rates:

    - STM1: 28800
    - OC3: 154.

18. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set

    Range:

    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.

19. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000.
    Default: The default values differ for SDH and SONET and the different rates:
    - STM1: 2400
    - OC3: 155.
20. portClass – Port Class
    This identifies the port class of the AID.
    portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.
21. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
    portControl is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.
22. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(default) ...255.
23. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable consequent action for TIM
    - DISABLE (default): disable consequent action for TIM.

24. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
25. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST
    - POISSON (default).
26. sdthr – Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
27. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
28. sfthr – Signal Failure Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –3; –4; –5.
    Default: –3.
29. sltca – Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.

30. sonet – SONET ASAP
    SONET Alarm Severity Assignment Profile. This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH ASAP for SDH ports of corresponding line rate (see "RTRV-STM4: Retrieve STM4 port" (p. 4-2086), output parameter *sdhpn*) to be compatible with current generation applications.
    Type: alphanumeric string.
    Range: String with a maximum of 24 characters. A hyphen (-) is additionally allowed in the name.
    Default: DEFAULT.
31. spm – Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
32. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0-0-0-0-0-0-0-0.
33. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).

34. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
35. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
36. unequiposig – Unequipped Output Signal List
    This parameter is a list of STSn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need to have the identical setting. Mixed rates for tx and rx side of the port are allowed. If *trbmd* is ADAPTIVE, then *unequiposig* is settable and retrievable as in fixed mode but does not influence the port behavior.
    Type: numeric value set.
    Range: NX-NX-NX-...
    N is the number of Xs. X can be 1 or 3 representing STS1 or STS3C.
    Default: 3 1 = all STS1.
37. z0outmode – Mode of outgoing Z0 byte insertion
    The Z0 insertion is configurable to support interworking with old SONET equipment for STS-M interfaces (M=3, 12, 48).
    Type: alphanumeric value set.

Range:

- FIXEDCC (default): for inserting the fixed value CChex
- STSID: for inserting the STS-Id of the current frame.

Output format

If the ED-OC3 command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The command modifies the attributes (listed in the *spec_block* parameters part of this command) of the addressed port entity according to the parameters given with this command.

The modification is reported by means of an ED-OC3 notification for port (except for parameter *istd;* see below).

Switching of interface standard – Ignore other parameters

If additional parameters beside *istd* are specified with the *ED-rr* command they will be ignored by the NE.

This simple approach has the advantage that all ambiguous situations are avoided and it is not necessary to implement an order or follow a certain sequence when evaluating the parameters.

Switching of interface standard – FM impact

The change of the interface standard of a port from SONET to SDH has the following impact related to Fault Management:

- all SONET alarms related to that port are cleared
- the corresponding SDH alarms are raised.

Switching of tributary mode

When changing the parameter *trbmd* – tributary mode from FIXED to ADAPTIVE the parameter *crstat* may change its value, too, depending on the current input signal structure. This change is notified using the related ED-OC3 notification.

When changing the parameter *trbmd* – tributary mode from ADAPTIVE to FIXED the parameter *crstat* may change its value, too, depending on the current setting of parameter *inputsig*. This change is notified using the related ED-OC3 notification.

Supply outgoing J0 trace value and format together

When changing the format of the outgoing J0 trace *strcwfmt*, the parameter *strcout* specifying the outgoing J0 trace is always supplied within the same TL1-command to always have a consistent set of trace format and value.

When the format of the outgoing J0 trace *strcwfmt* is set to 2 (non-specific repeating byte) then the outgoing J0 trace (mandatory parameter strcout) specified in the command shall be ignored.

Supply outgoing J0 trace value according to format of outgoing J0

When changing the outgoing J0 trace value, the format must be according to the format parameter *strcwfmt* for the outgoing J0 trace.

Change of J0 expected format - FM impact

When the expected J0 format (strcfmt) is changed to 16 (16 byte specific string) while the TI Mismatch detection is enabled, then the TI Mismatch alarm shall be updated according to the provisioned ecpected J0 (expstrc) and the currently received J0 (strc).

When the expected J0 format is changed away from 16, while the TI Mismatch alarm is active, then the TI Mismatch alarm shall be cleared.

Switching of interface standard – Impact on port parameters

The switching of *istd* should not result in an deletion and recreation of the port. NE internally there are no differences between SDH and SONET.

Switching of interface standard I:

In detail the following attributes are influenced by switching of the *istd* from SONET to SDH (see also the related RTRV-STM*n* command for SDH parameter description):

- *brstintvl* is set to the default value
- *brstthr* is set to the default value
- *crstat* may change according to its semantics (see description of *crstat*)
- *degthr* is set to the default value for an SDH port
- *dexcthr* is set to the default value for an SDH port
- *felpm* is mapped to *femspm* (no changes)
- *inputsig* is set to the default value
- *istd* is set to SDH
- *nelpm* is mapped to *nemspm* (no changes)
- *rstimca* is set to the default value for a SDH port
- *rstimmon* is set to the default value for a SDH port

- *sdsfmode* is set to the default value for an SDH port
- *spm* is mapped to *rspm* (no changes)
- *sonet* is mapped to *sdhpn* (no changes)
- *trbmd* is set to the default value for an SDH port
- *unequiposig* is set to its default value.

All other port parameters remain unchanged.

Switching of interface standard II:

In addition to the list of attributes above the following attributes are influenced by switching of the *istd* from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- *rsmstca* is set to the default value for an SDH port
- *tcamd* is set to the default value for a SDH port.

Switching of interface standard III:

In addition to the list of attributes above the following attributes are influenced by switching of the *istd* from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- *pmmsfeses* is set to the default value for a SDH port
- *pmmsneses* is set to the default value for a SDH port
- *pmrsneses* is set to the default value for a SDH port.

Switching of interface standard IV:

In addition to the list of attributes above the following attributes are influenced by switching of the *istd* from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- minNNXCrate is set to the default value for a SDH port
- maxNNXCrate is set to the default value for a SDH port

Switching of interface standard – Side effects on tributaries

The switching of *istd* should not result in an deletion and recreation of the tributaries of a port. NE internally there are no differences between SDH and SONET.

In detail the following side-effects apply to the related tributary attributes when switching the *istd* from SONET to SDH (see also the related RTRV-STM*n* command for SDH parameter description):

- *brstintvl* is set to the default value for a SDH tributary
- *brstthr* is set to the default value for a SDH tributary
- *pse* (PDI-P parameter) shall be set to the default value for a SDH tributary
- *sdsfmode* is set to the default value for a SDH tributary.

Switching of interface standard – Side effects on tributaries II

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- *degthr* is set to the default value for an SDH tributary
- *dexcthr* is set to the default value for an SDH tributary
- *ptca* shall be set to the default value for a SDH tributary
- *tcamd* is set to the default value for a SDH tributary.

Switching of interface standard – Side effects on tributaries III

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- *pmhpneses* is set to the default value for an SDH tributary
- *pmhpfeses* is set to the default value for an SDH tributary.

Switching of interface standard – notification behavior for port attributes

When changing the interface standard *istd* using the ED-OCn command all resulting parameter changes are reported by ED-STMn notifications of the related port rate. This is valid for the parameter istd itself as well as for all other parameters which might change as a consequence of changing the interface standard.

Switching of interface standard – notification behavior for tributary attributes

When changing the interface standard *istd* using the ED-OCn command all resulting tributary parameter changes are reported by ED-VC3 notifications.

Switching of interface standard – PM impact

The change of interface standard has the following impacts w.r.t. existing PM registers:

1. all current bins related to the port will be reset
2. all history bins related to the port remain unchanged
3. all current bins related to tributaries being a member of the port will be reset
4. all history bins related to tributaries being a member of the port remain unchanged.

Retrieving the bins after switching the interface standard may result in a strange reporting behavior:

- When switching the interface standard to SONET the periods before the switch contain SDH-related parameters and values even though the port is addressed as a SONET port.
- When switching the interface standard to SDH the periods before the switch contain SONET-related parameters and values even though the port is addressed as a SDH port.

Disabling of PM monitor

The disabling of a PM monitor shall have the following impacts w.r.t. existing PM registers:

1. stop PM counting
2. all current bins related to the PM monitor shall be deleted
3. all history bins related to the PM monitor shall be deleted

The term PM monitor has the same semantics as the term PM package as used in SRD_PerformanceMonitoring. The number of PM monitors is determined by means of the number of *pm enable attributes*.

PM monitors can be disabled explicitly by means of the *pm enable* attribute or are implicitly disabled as part of a port/tributary deletion.

Additional to the above listed impacts the disabling of a PM monitor shall have the following impacts: the system has to clear all active TCA events of the deleted PM monitor if TCA mode TR-RTR was selected.

ONNS specific behaviour - Impact on *portControl* when changing *portClass*

When *portClass* is changed to TRADITIONAL, *portControl* shall be set to NORMAL, if not set differently within the same command.

Such a change shall be reported by an ED-OC3 notification for the parameter *portControl*.

ONNS specific behaviour - Impact on tributary mode setting when *portClass* is set to INNI

When *portClass* is set to INNI for a port, the parameter *trbmd* shall be set to ADAPTIVE. This shall be reported by an ED-OC3 notification for the parameter *trbmd*.

ONNS specific behaviour - Impact on tributary mode setting when *portClass* is set to EDGE

When *portClass* is set to EDGE for a port, the parameter *trbmd* shall be set to FIXED. This shall be reported by an ED-OC3 notification for the parameter *trbmd*.

ONNS specific behaviour - Impact on *loca*, *locz* when setting *portClass* from EDGE to TRADITIONAL when port is involved in a 2F or 4F BLSR/MSSPRING protection group

For all tributaries of that port the *loca*, *locz* parameters shall be reset to their default values (empty string). This is reported by an ED-STS1 (istd=SONET for the port) or ED-VC3 (istd=SDH for the port) notification using a range over the port.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI and *ndetmd* is set to AUTO

When *portClass* is set to INNI and *ndetmd* is set to AUTO for a port, the parameter *pmode* shall be set to MONITORING. This shall be reported by an ED-OC3 notification for the parameter *pmode*.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI and *ndetmd* is set to MAN

When *portClass* is set to INNI and *ndetmd* is set to MAN for a port, the parameters *rstimca* and *rstimmon* are set to DISABLE. This is reported by an ED-OC3 notification for the parameters *rstimca* and *rstimmon*.

ONNS specific behaviour - Impact on tributary parameter settings when *portClass* is set to INNI

When *portClass* is set to INNI, the parameter *hptimmon* is set to DISABLE for all tributaries located on this port.. This is reported by ED-STS1 notifications for the parameter *hptimmon*.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI

When *portClass* is set to INNI, each of the following parameters shall take its default value, unless a value is specified together with the transition of *portClass* to INNI:

- *ndetmd*
- *neighborASTNNodeID*
- *neighborNodeID*
- *neighborPortID*

ONNS specific behaviour - Impact on neighbour related parameters if *portClass* is changed away from INNI

When *portClass* is changed away from INNI, the following parameters shall be set to their default values: *neighborASTNNodeID*, *neighborNodeID*, *neighborPortID*.

ONNS specific behaviour - Impact on port parameter settings when *ndetmd* is set to AUTO

When *ndetmd* is set to AUTO for a port, the parameters *neighborNodeID*, *neighborPortID* or *neighborASTNNodeID* shall keep their current values until automatic neighbor detection delivers new valid values.

ONNS specific behaviour - Impact on port parameter settings while *portClass* is INNI

When *portClass* has the value INNI for a port, setting of the following parameters shall be inhibited:

- *exprstrc*
- *rstimca*

- *rstimmon*
- *strcfmt*
- *strcout*
- *strcwfmt*.

At the moment *portClass* is changed away from INNI the parameters are set back to their default values. This shall be reported by means of an ED-OC3 notification.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is different from INNI

When *portClass* has a value being different from INNI for a port, setting of the following parameters shall be accepted, but shall have no impact until *portClass* is changed to INNI:

- *propagationDelay*, *adminCost*, *srlgList*, *link_includeID,maxNNXCRate*, *minNNXCRate*.

At the moment the *portClass* is changed to INNI the current values of these parameters shall be considered as valid.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is different from INNI

When *portClass* has a value being different from INNI for a port, setting of the following parameters shall be acceptedI:

- *ndetmd*, *adminCost*, *neighborASTNNodeID*, *neighborNodeID,neighborPortID*.

ONNS specific behaviour - Impact on port parameter settings while *portClass* is TRADITIONAL

When *portClass* has the value TRADITIONAL for a port, setting of the following parameters shall be accepted, but shall have no impact until *portClass* is changed away from TRADITIONAL: *portControl*.

At the moment the *portClass* is changed away from TRADITIONAL the current values of these parameters shall be considered as valid.

Example input/output

```
ED-OC3:UNITE-NE:1-1-#-#-1-1:123456:::INPUTSIG=31,
UNEQUIPOSIG=31;
   UNITE-NE 00-11-28 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-OC3:1-1-#-#-1-1::
   inputsig=31,unequiposig=31:"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the ED-OC3 command.

Validation rule: ASAP profile exists

Check of the existence of the ASAP profile.

Error code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: TCA profile exists

Check of the existance of the TCA profile.

Error Code: `IDNV - Input, Data Not Valid, TCA profile does not exist`

Validation rule: *inputsig* consistent with existing cross-connections for fixed tributary mode

Check of the consistency of the structure of the input signal (*inputsig*) with existing cross-connections if the port operates in the fixed tributary mode.

Error code: `SNVS - Status, Not in Valid State, signal structure cannot be changed for connected parts of a fixed port`

Validation rule: *unequiposig* consistent with existing cross-connections for fixed tributary mode

Check of the consistency of the structure of the output signal (*unequiposig*) with existing cross-connections if the port operates in the fixed tributary mode.

Error code: `SNVS - Status, Not in Valid State, signal structure cannot be changed for connected parts of a fixed port`

Validation rule: No lower order cross-connections for *istd*, *trbmd* change

Check that istd is not changed or the trbmd is not set ADAPTIVE when lower order cross-connections exist at a tributary of the port. If lower order cross-connections exist, the following error message shall be returned:

Error code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

Validation rule: no cross-connections for *istd*, *trbmd* change

Check that *istd* is not changed or the *trbmd* is not set FIXED when cross-connections are still on this port.

Error code: `SNVS - Status, Not in Valid State, cross-connections are still existing`

Validation rule: no loopbacks for *istd*, *trbmd* change

Check that istd is not changed or the *trbmd* is not set FIXED when cross-connection loopback is still on this port.

Error code: `SNVS - Status, Not in Valid State, a loopback is existing`

Validation rule: no test access session for *istd*, *trbmd* change

Check that *istd* is not changed or the *trbmd* is not set FIXED when a tributary related to this port is used in a test access session either as tributary under test or as test access tributary.

Error Code: `SNVS - Status, Not in Valid State, a test access session exists`

Validation rule: no protection for *istd*, *trbmd* change

Check that *istd* is not changed or the *trbmd* is not set FIXED when this port is in an protection group.

Error code: `SNVS - Status, Not in Valid State, a protection group is existing`

Validation rule: no ONNS for interface standard change

Check that the interface standard parameter (istd) is not changed if ONNS functionality is available.

This means:

- *portClass* must be TRADITIONAL or
- *portControl* must be LOCKOUT.

Error code: `SNVS - Status, Not in Valid State, SwiSS access possible`

Validation rule: no path protection for *trbmd* change to ADAPTIVE

Check that *trbmd* is not set to ADAPTIVE when tributaries of this port are used as input tributaries in a path protection group.

Error code: `SNVS - Status, Not in Valid State, a path protection group is existing`

Validation rule: *servcond* must be enabled when timing source

Check that the *servcond* is not disabled when the port is used as a timing source.

Error code: `SNVS - Status, Not in Valid State, Timing reference is assigned to this port`

Validation rule: *servcond* must be enabled when DCC enabled

Check that the *servcond* is not disabled when DCC channels are still existing for this port.

Error code: `SNVS - Status, Not in Valid State, DCC channels are active for this port`

Validation rule: servcond must be enabled when portClass=INNI

Check that the servcond is not OUTOFSERVICE when *portClass*=INNI.

Error code: `SNVS - Status, Not in Valid State, can not disable servcond for INNI ports`

Validation rule: *servcond* must be enabled for protection ports

Check that the *servcond* is not OUTOFSERVICE if the port is used as protection port.

Error code: `SNVS - tatus, Not in Valid State, can not disable servcond for protection ports`

Validation rule: *servcond* must be disabled for facility loopback

Check that the *servcond* is not enabled when a facility loopback is existing for this port.

Error code: `SNVS - Status, Not in Valid State, Facility Loopback is active for this port`

Validation rule: Supply of outgoing J0 trace

Check that an outgoing J0 trace value (*strc* out) is supplied, too, if the format of the outgoing J0 trace (*strcwfmt*) is changed.

Error code: `IDNC - Input, Data Not Consistent, a new trace value must also be supplied for a trace format change.`

Validation rule: transmitted path trace length

Check that the length of the outgoing J0 trace value (*strcout*) fits to the length given by outgoing J0 trace mode, i.e. write format (*strcwfmt*).

Error code: `IDNC - Input, Data, Not Consistent, strcout length must match the given outgoing J0 trace mode.`

Validation rule: 'ALL' qualifier used for wrong parameters

The AL' qualifier for the port aid is only allowed for changing the *portControl* parameter.

Error Code: `IDNC - Input, Data Not Consistent, 'ALL' qualifier for port aid not allowed`

Check CCB against *ptype* and *istd*

Check wether the CCB fits to ptype and istd.

Error Code: `ICNV - Input, Command Not Valid, Interface Standard does not match`

ONNS specific validation rule: *portClass* only settable when *xcsetup*=SWISS

Modification of the *portClass* parameter shall only be allowed when *xcsetup*=SWISS.

Error Code: `SNVS - Status, Not in Valid State, SwiSS not enabled`

ONNS specific validation rule: Not allowed to change the *portClass* directly from INNI to EDGE or EDGE to INNI

It is not be allowed to change the *portClass* of a port directly from INNI to EDGE or from EDGE to INNI.

Error Code: `SNVS - Status, Not in Valid State, Port Class must not be EDGE or INNI`

ONNS specific validation rule: Setting of *portClass* to INNI not possible for ports in protection groups

It shall not be allowed to change *portClass* of a port to INNI, if this port is member of a Line/MS protection scheme.

Error Code: `SNVS - Status, Not in Valid State, Port must not be member of a protection group`

ONNS specific validation rule: Setting of *portClass* to INNI only possible, if no cross-connection existing

It shall not be allowed to change *portClass* to INNI, if cross-connections on that port are still existing.

Error Code: `SNVS - Status, Not in Valid State, Cross-connections still existing`

ONNS specific validation rule: Setting of *portClass* to INNI only possible, if no lower order cross-connections exist

Check if lower order cross-connections exist which involve the port to be changed. If lower order cross-connections exist, the following error message shall be returned:

Error Code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

ONNS specific validation rule: Setting of *portClass* to INNI only possible, if service condition not OUTOFSERVICE

It shall not be allowed to change *portClass* to INNI, if servcond=OUTOFSERVICE.

Error code: `SNVS - Status, Not in Valid State, port in out of service state`

ONNS specific validation rule: Setting of *portClass* to INNI or EDGE only possible, if no test access session active

It shall not be allowed to change *portClass* of a port to INNI or EDGE when a tributary related to this port is used in a test access session either as tributary under test or as test access tributary.

Error Code: `SNVS - Status, Not in Valid State, a test access session exists`

ONNS specific validation rule: Setting of *portClass* away from INNI only possible, if the port is not in use

For setting *portClass* from INNI to TRADITIONAL or EDGE the following must be fulfilled:

- No cross-connection may exist on any tributary of the port
- *portControl* must be LOCKOUT.

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

ONNS specific validation rule: Setting of *portClass* away from INNI only possible, if the port is not in use by M:N reservation

For setting *portClass* from INNI to TRADITIONAL or EDGE the following must be fulfilled:

- No reservation related to a protecting NN connection within an M:N protected connection group may exist on any tributary of the port

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

ONNS specific validation rule: Changing of *portClass* from INNI to EDGE or TRADITIONAL only possible, if no DCC for SCN is enabled on the port

For changing the value of the parameter *portClass* no DCC of the port must be enabled for the SCN.

Error Code: `SNVS - Status, Not in Valid State, DCC on SCN may not be enabled`

ONNS specific validation rule: Setting of *portClass* from EDGE to TRADITIONAL only possible, if the tributaries on the port are not in use by ONNS:

For setting *portClass* from EDGE to TRADITIONAL the following must be fulfilled:

- No cross-connections of xconcls=NN may exist on any tributary of the port
- *portControl* must be LOCKOUT.

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

ONNS specific validation rule: Setting of *portClass* from TRADITIONAL to EDGE

For setting *portClass* from TRADITIONAL to EDGE the port must not be the protection port of a 1+1 MSP group.

Error Code: `SNVS - Status, Not in Valid State, Port must not be a 1+1 protection port`

For setting portClass from TRADITIONAL to EDGE the port must not be the protection port of a 1:1 MSP group.

Error Code: SNVS - `Status, Not in Valid State, Port must not be a 1:1 protection port`

ONNS specific validation rule: Some parameters not settable for ports of *portClass* INNI

The following parameters shall not be changeable for ports with *portClass* INNI: *trbmd.*

Error Code: `SNVS - Status, Not in Valid State, portClass must not be INNI`

ONNS specific validation rule: Setting of some INNI properties only possible, if no cross-connection existing

It shall not be allowed to change one of the following parameters on a port with *portClass*=INNI, if cross-connections on that port are existing:

- *link_IncludeID*, *neighborNodeID*, *neighborPortID*, *propagationDelay*, *srlgList,neighborASTNNodeID, maxNNXCRate, minNNXCRate*

Error code: `SNVS - Status, Not in Valid State, no XCs allowed for change of iNNI parameters`

ONNS specific validation rule: Setting of some INNI properties only possible, if no reservations wrt. M:N protecting connections existing

It shall not be allowed to change one of the following parameters on a port with portClass=INNI, if reservations wrt. M:N protecting NN connections on that port are existing:

- *link_IncludeID, neighborNodeID, neighborPortID, propagationDelay, srlgList, neighborASTNNodeID, maxNNXCRate, minNNXCRate*

Error Code: `SNVS - Status, Not in Valid State, no XC reservations allowed for change of iNNI parameters`

ONNS specific validation rule: Setting of INNI properties only possible if port control is LOCKOUT

The system shall allow to change the following parameters only under the conditions

- if the port control is LOCKOUT while port class is INNI
- together with the transition of port control from LOCKOUT to NORMAL while port class is INNI or
- together with the transition of port class to INNI

adminCost, *link_IncludeID*, *maxNNXCRate, minNNXCRate, ndetmd, neighborASTNNodeID, neighborNodeID*, *neighborPortID*, *propagationDelay*, *srlgList.*

Error code: `SNVS - Status, Not in Valid State, only allowed for INNI port in lockout state`

ONNS specific validation rule: Some parameters not settable for ports of *portClass*=INNI

The following parameters shall not be changeable for ports with *portClass*=INNI: *exprstrc*, *rstimca*, *rstimmon*, *strcfmt*, *strcout*, *strcwfmt*.

Error code: `SNVS - Status, Not in Valid State, J0 parameters can not be set for INNI ports`

ONNS specific validation rule: Some parameters not settable for ports of *portClass* EDGE

The following parameters shall not be changeable for ports with *portClass* EDGE: *trbmd.*

Error Code: `SNVS - Status, Not in Valid State, portClass must not be EDGE`

ONNS specific validation rule: Port mode not settable for ports of *portClass* EDGE

The system shall not allow to change the parameter pmode if *portClass* has been set to INNI prior to this command or if *portClass* is set to INNI with this command. The paramer pmode shall either be omitted or specified with he only allowed value MON.

Error Code: `SNVS - Status, Not in Valid State, port mode change not allowed for INNI ports`

ONNS specific validation rule: Some parameters not settable for ports of *ndetmd* AUTO

The following parameters shall not be changeable for ports with *ndetmd* AUTO: *neighborNodeID*, *neighborPortID, neighborASTNNodeID.*

Error Code: `SNVS - Status, Not in Valid State, ndetmd must not be AUTO`

ONNS specific validation rule: Additional parameters required when setting *ndetmd* to MAN

Values for the following parameters must be given, if *ndetmd* is changed to MAN: *neighborNodeID*, *neighborPortID, neighborASTNNodeID*.

Error Code: `IDNV - Input, Data Not Valid, additional parameter required`

ONNS specific validation rule: No setting of duplicate *neighborASTNNodeID* and *neighborPortID* parameter combination

Setting of the parameters *neighborASTNNodeID* and *neighborPortID* is only possible, if the same combination of values does not already exists for a different INNI port in the system.

Error Code: IDNV - `Input, Data Not Valid, duplicate neighbor port information`

ONNS specific validation rule: No setting of *neighborASTNNodeID* and *neighborNodeID* parameter combination

It shall not be allowed to configure parameters *neighborASTNNodeID* or neighbor NodeID to corresponding values of the local node itself, i.e. it shall not be possible to configure a node to be its own ONNS neighbor.

Error Code: IDNV - `Input, Data Not Valid, node itself is not a valid neighbor`

ONNS specific validation rule: Setting of neighbor information to UNKNOWN

In order to set neighbor information to UNKNOWN, zero values must be set for all parameters *neighborASTNNodeID*, *neighborNodeID* and *neighborPortID* consistently. It shall not be possible to set zero value for only one or two of them.

Error Code: `IDNV - Input, Data Not Valid, zero values can only be set for all neighbor information consistently`

ONNS specific validation rule: No setting of *minNNXCRate* to values larger than value of *maxNNXCRate* and vice versa

It shall not be allowed to configure parameters *maxNNXCRate* and *minNNXCRate* in a way, that the value of *minNNXCRate* is larger than the value of *maxNNXCRate*

Error Code: IDNV - `Input, Data Not Valid, Min. and max. NN XC rates incompatible`

Related TL1 messages

"RTRV-OC3: Retrieve OC3 port" (p. 4-1868)

References

GR-199-CORE (ED-*rr*)

□

ED-OC3 autonomous notifications

LOS for transmission port OC3 clears

If LOS is cleared and current port mode is AUTO, then portmode is updated (new value: MON). This update is reported via ED-OC3 notification with parameter *pmode*.

Change of the constituent rates status list

If *trbmd*=ADAPTIVE a change of the attribute *crstat* is notified by the related ED-OC3 notification.

□

ED-OC3 notification

Output format

The ED-OC3 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ED-OC3`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Access Identifier of an OC3 port.
   Type: AID.
   Range: SPortAID of OC3 port.
   The keyword `all` is allowed up to shelf level.

Spec block parameters

1. adminCost - Administrative Cost
   This identifies the provisioned administrative link cost setting for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
   Type: Numeric string
   Range: 1 (default) ...65535.
2. brstintvl – Bursty Interval
   Description Bursty Interval. Measurement period for determining bursty errors. This parameter applys when sdsfmode=BURST.
   Type: numeric value set
   Range: 2 to 10
   Default: 7
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applys when sdsfmode=BURST.
   Type: numeric value set (as percentage) 5, 10, ... 50
   Default: 30
4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. It is the pointer processor setup if adaptive mode (*trbmd* = ADAPTIVE) is selected.
   When switching *trbmd* from FIXED to ADAPTIVE or when creating a port newly *crstat* inherits the current value of *inputsig* until the system delivers an up-to-date value from the pointer processor. If no value is available from the pointer processor the latest known value is retained.

For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the Tributary Input Rate Signal List.
Type: numeric value set.
Range: NX-NX-NX-...
N is the number of Xs. X can be 1 or 3 representing STS1 or STS3C.

5. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier. The parameter expstrc specifying the expected path trace is only relevant for the section trace supervision when the related trace read format strcfmt is set to 16 (16-byte-specific-string mode).
   Type: Hexadecimal digits
   Range: 16 byte string Each byte shall be expressed as two hexadecimal digits (example value: 6D). The first byte value shall be in the range from 80 to FF. The other byte values shall be in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
6. felpm – Far-end Line PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set
   Range: ENABLE, DISABLE (default)
7. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message “do not use” will be transmitted from that optical interface.
   Type: alphanumeric value set
   Range: ENABLE: set a forced DUS/DNU, DISABLE (default): clear a forced DUS/DNU
8. fsflpbkstat – Far Side Facililiy Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output *aid.*
   A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
   Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).
9. inputsig – Tributary Input Signal Rate List
   This parameter shall be a list of STSn rates across the port’s bandwidth. If trbmd is FIXED, then inputsig constrains the cross connection rates that can be entered for the port. If trbmd is ADAPTIVE, then inputsig is settable and retrievable as in fixed mode but does not influence the port behaviour.
   Type: numeric value set

Range: NX-NX-NX-. N is the number of Xs. X can be 1 or 3 representing STS1 or STS3C
Default: 31
Example: An OC3 signal might be represented by 31 which implies 3 STS1's or 13 which implies 1 STS3C

10. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET.
    Type: alphanumeric value set
    Range: SONE, SDH
    Default: As specified via istddflton system level, see definition in RTRV-EQPT (system)

11. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).

12. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS3 (default), STS1.

13. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS1 (default), STS3.

14. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
15. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
16. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN. If ndetmd=MAN,
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″
17. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    Type: Four dash separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0-0-0-0.
    Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.
18. nelpm – Near-End Line PM Enable
    Enable or disable near-end near-end line performance monitoring.
    Type: alphanumeric value set.

Range:

- ENABLE
- DISABLE (default).

19. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
Type: numeric value set.
Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-1/OC-3: 1 – 192000.

    Default: The default values differ for SDH and SONET:
    - STM1: 28800
    - OC3: 154.

20. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
Type: numeric value set.
Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-1/OC-3: 1 – 192000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM1: 28800
    - OC3: 154.

21. pmode – Port Mode
This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
Type: alphanumeric value set
Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.

22. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000.
    Default: The default values differ for SDH and SONET and the different rates:
    - STM1: 2400
    - OC3: 155.
23. portClass – Port Class
    This identifies the port class of the AID.
    portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.
24. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
    portControl is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.
25. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(default) ...255. The unit of this value is ″milliseconds″.
26. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable consequent action for TIM
    - DISABLE (default): disable consequent action for TIM.

27. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
28. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST
    - POISSON (default).
29. sdthr – Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
30. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
31. sfthr – Signal Failure Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –3; –4; –5.
    Default: –3.
32. sltca – Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.

33. sonet – SONET ASAP
    SONET Alarm Severity Assignment Profile. This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH ASAP for SDH ports of corresponding line rate (see "RTRV-STM4: Retrieve STM4 port" (p. 4-2086), output parameter *sdhpn*) to be compatible with current generation applications.
    Type: alphanumeric string.
    Range: String with a maximum of 24 characters. A hyphen (-) is additionally allowed in the name.
    Default: DEFAULT.
34. spm – Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
35. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0-0-0-0-0-0-0-0.
36. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc).
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
37. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    Type: Hexadecimal digits.

Range:

- 1 byte string
- 16 bytes string
- 64 bytes string dependent on the strcwfmt parameter.

Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
Default: 01Hex

38. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout).
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
39. unequiposig – Unequipped Output Signal List
    This parameter is a list of STSn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need to have the identical setting. Mixed rates for tx and rx side of the port are allowed. If *trbmd* is ADAPTIVE, then *unequiposig* is settable and retrievable as in fixed mode but does not influence the port behavior.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 1 or 3 representing STS1 or STS3C.
    Default: 3 1 = all STS1.
40. z0outmode – Mode of outgoing Z0 byte insertion
    The Z0 insertion is configurable to support interworking with old SONET equipment for STS-M interfaces (M=3, 12, 48).
    Type: alphanumeric value set.
    Range:
    - FIXEDCC (default): for inserting the fixed value CChex
    - STSID: for inserting the STS-Id of the current frame.

Example output

```
ED-OC3:UNITE-NE:1-1-#-#-u1-1:123456:::INPUTSIG=31,
UNEQUIPOSIG=31;
   UNITE-NE 00-11-28 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
```

```
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-OC3:1-1-#-#-1-1::
   inputsig=31,unequiposig=31:"
;
```

ED-OC12: Edit OC12 port

The ED-OC12 command is used to provision all parameters related to optical OC12 port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: no

Input format

Command Syntax: `ED-OC12`:*tid:aid:ctag:::spec_block*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   Access Identifier of an OC12 port.
   Type: AID.
   Range: OC12 port AID
   For changing the *portControl* parameter the ALL qualifier for the port aid shall be allowed.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....65535
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
5. felpm – Far-end Line PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
6. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.

Range:

- ENABLE , set a forced DUS/DNU
- DISABLE (default), clear a forced DUS/DNU

7. inputsig – Tributary Input Signal Rate List
   This parameter is a list of STSn rates across the port's bandwidth.
   If *trbmd* is FIXED, then *inputsig* constrains the cross-connection rates that can be entered for the port. If *trbmd* is ADAPTIVE, then *inputsig* is setable and retrievable as in fixed mode but does not influence the port behavior.
   Type: numeric value set.
   Range: NX-NX-NX-...
   N is the number of Xs. X can be 1, 3 or 12 representing STS1, STS3C, STS12C.
   Default: 121.
   Example: An OC12 signal might be represented by 31-33 which implies 3 STS1's, 3 STS3C's.
8. istd – Interface Standard
   Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter istddflt.
   Type: alphanumeric value set.
   Range: SONET, SDH.
   Default: As specified via istddflton system level, see definition in RTRV-EQPT (system).
9. maxNNXCRate – Maximum NN Cross Connect Rate
   This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
   maxNNXCRate is introduced specifically for use by ONNS application.
   Type: alphanumeric value set.
   Range: STS12 (default), STS3, STS1.
10. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS1 (default), STS3, STS12.

11. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
12. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
13. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN. If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″
14. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.

neighborPortID is introduced specifically for use by NN application.
Type: Four dash separated numeric string.
Range: Each numeric string: 0...255.
Default: 0-0-0-0.
Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.

15. nelpm – Near-End Line PM Enable
    Enable or disable near-end line performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
16. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-4/OC-12: 1 – 768000.

    Default: The default values differ for SDH and SONET:
    - STM4: 115200
    - OC12: 615.
17. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-4/OC-12: 1 – 768000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM4: 115200
    - OC3: 615.

18. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
19. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000.
    Default: The default values differ for SDH and SONET and the different rates:
    - STM4: 2400
    - OC12: 616.
20. portClass – Port Class
    This identifies the port class of the AID.
    portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.
21. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
    portControl is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.

22. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(default) ...255.
23. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable consequent action for TIM
    - DISABLE (default): disable consequent action for TIM.
24. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
25. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST
    - POISSON (default).
26. sdthr – Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
27. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.

Range:

- INSERVICE (default): Provisioning values for service are accepted
- OUTOFSERVICE: Provisioning values for service are not accepted.

28. sfthr – Signal Failure Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –3; –4; –5.
    Default: –3.
29. sltca – Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
30. sonet – SONET ASAP
    SONET Alarm Severity Assignment Profile. This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH ASAP for SDH ports of corresponding line rate (see "RTRV-STM4: Retrieve STM4 port" (p. 4-2086), output parameter *sdhpn*) to be compatible with current generation applications.
    Type: alphanumeric string.
    Range: String with a maximum of 24 characters. A hyphen (-) is additionally allowed in the name.
    Default: DEFAULT.
31. spm – Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
32. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0-0-0-0-0-0-0-0.

33. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
34. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
35. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).

36. unequiposig – Unequipped Output Signal List
    This parameter is a list of STSn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need to have the identical setting. Mixed rates for tx and rx side of the port are allowed. If *trbmd* is ADAPTIVE, then *unequiposig* is settable and retrievable as in fixed mode but does not influence the port behavior.
    Type: numeric value set.
    Range: NX-NX-NX-...
    N is the number of Xs. X can be 1, 3 or 12 representing STS1, STS3C or STS12C.
    Default: 121 = all STS1 (fixed).
37. z0outmode – Mode of outgoing Z0 byte insertion
    The Z0 insertion is configurable to support interworking with old SONET equipment for STS-M interfaces (M=3, 12, 48).
    Type: alphanumeric value set.
    Range:
    - FIXEDCC (default): for inserting the fixed value CChex
    - STSID: for inserting the STS-Id of the current frame.

Output format

If the ED-OC12 command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The command modifies the attributes (listed in the *spec_block* parameters part of this command) of the addressed port entity according to the parameters given with this command.

The modification is reported by means of an ED-OC12 notification for port (except for parameter *istd;* see below).

Switching of interface standard – Ignore other parameters

If additional parameters beside *istd* are specified with the *ED-rr* command they will be ignored by the NE.

This simple approach has the advantage that all ambiguous situations are avoided and it is not necessary to implement an order or follow a certain sequence when evaluating the parameters.

Switching of interface standard – FM impact

The change of the interface standard of a port from SONET to SDH has the following impact related to Fault Management:

- all SONET alarms related to that port are cleared
- the corresponding SDH alarms are raised.

Switching of tributary mode

When changing the parameter *trbmd* – tributary mode from FIXED to ADAPTIVE the parameter *crstat* may change its value, too, depending on the current input signal structure. This change is notified using the related ED-OC12 notification.

When changing the parameter *trbmd* – tributary mode from ADAPTIVE to FIXED the parameter *crstat* may change its value, too, depending on the current setting of parameter *inputsig*. This change is notified using the related ED-OC12 notification.

Supply outgoing J0 trace value and format together

When changing the format of the outgoing J0 trace *strcwfmt*, the parameter *strcout* specifying the outgoing J0 trace is always supplied within the same TL1-command to always have a consistent set of trace format and value.

When the format of the outgoing J0 trace *strcwfmt* is set to 2 (non-specific repeating byte) then the outgoing J0 trace (mandatory parameter strcout) specified in the command shall be ignored.

Supply outgoing J0 trace value according to format of outgoing J0

When changing the outgoing J0 trace value, the format must be according to the format parameter *strcwfmt* for the outgoing J0 trace.

Change of J0 expected format - FM impact

When the expected J0 format (strcfmt) is changed to 16 (16 byte specific string) while the TI Mismatch detection is enabled, then the TI Mismatch alarm shall be updated according to the provisioned ecpected J0 (expstrc) and the currently received J0 (strc).

When the expected J0 format is changed away from 16, while the TI Mismatch alarm is active, then the TI Mismatch alarm shall be cleared.

Switching of interface standard – Impact on port parameters

The switching of *istd* should not result in an deletion and recreation of the port. NE internally there are no differences between SDH and SONET.

Switching of interface standard I:

In detail the following attributes are influenced by switching of the *istd* from SONET to SDH (see also the related RTRV-STM*n* command for SDH parameter description):

- *brstintvl* is set to the default value
- *brstthr* is set to the default value
- *crstat* may change according to its semantics (see description of *crstat*)
- *degthr* is set to the default value for an SDH port
- *dexcthr* is set to the default value for an SDH port
- *felpm* is mapped to *femspm* (no changes)
- *inputsig* is set to the default value
- *istd* is set to SDH
- *nelpm* is mapped to *nemspm* (no changes)
- *rstimca* is set to the default value for a SDH port
- *rstimmon* is set to the default value for a SDH port
- *sdsfmode* is set to the default value for an SDH port
- *spm* is mapped to *rspm* (no changes)
- *sonet* is mapped to *sdhpn* (no changes)
- *trbmd* is set to the default value for an SDH port
- *unequiposig* is set to its default value.

All other port parameters remain unchanged.

Switching of interface standard II:

In addition to the list of attributes above the following attributes are influenced by switching of the *istd* from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- *rsmstca* is set to the default value for an SDH port
- *tcamd* is set to the default value for a SDH port.

Switching of interface standard III:

In addition to the list of attributes above the following attributes are influenced by switching of the *istd* from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- *pmmsfeses* is set to the default value for a SDH port
- *pmmsneses* is set to the default value for a SDH port
- *pmrsneses* is set to the default value for a SDH port.

Switching of interface standard IV:

In addition to the list of attributes above the following attributes are influenced by switching of the istd from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- minNNXCrate is set to the default value for a SDH port
- maxNNXCrate is set to the default value for a SDH port

Switching of interface standard – Side effects on tributaries

The switching of *istd* should not result in an deletion and recreation of the tributaries of a port. NE internally there are no differences between SDH and SONET.

In detail the following side-effects apply to the related tributary attributes when switching the *istd* from SONET to SDH (see also the related RTRV-STM*n* command for SDH parameter description):

- *brstintvl* is set to the default value for a SDH tributary
- *brstthr* is set to the default value for a SDH tributary
- *pse* (PDI-P parameter) shall be set to the default value for a SDH tributary
- *sdsfmode* is set to the default value for a SDH tributary.

All other tributary parameters remain unchanged.

Switching of interface standard – Side effects on tributaries II

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- *degthr* is set to the default value for an SDH tributary
- *dexcthr* is set to the default value for an SDH tributary
- *ptca* shall be set to the default value for a SDH tributary
- *tcamd* is set to the default value for a SDH tributary.

Switching of interface standard – Side effects on tributaries III

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- *pmhpneses* is set to the default value for an SDH tributary
- *pmhpfeses* is set to the default value for an SDH tributary.

Switching of interface standard – notification behavior for port attributes

When changing the interface standard *istd* using the ED-OCn command all resulting parameter changes are reported by ED-STMn notifications of the related port rate. This is valid for the parameter istd itself as well as for all other parameters which might change as a consequence of changing the interface standard.

Switching of interface standard – notification behavior for tributary attributes

When changing the interface standard *istd* using the ED-OCn command all resulting tributary parameter changes are reported by ED-VC3 notifications.

Switching of interface standard – PM impact

The change of interface standard has the following impacts w.r.t. existing PM registers:

1. all current bins related to the port will be reset
2. all history bins related to the port remain unchanged
3. all current bins related to tributaries being a member of the port will be reset
4. all history bins related to tributaries being a member of the port remain unchanged.

Retrieving the bins after switching the interface standard may result in a strange reporting behavior:

- When switching the interface standard to SONET the periods before the switch contain SDH-related parameters and values even though the port is addressed as a SONET port.
- When switching the interface standard to SDH the periods before the switch contain SONET-related parameters and values even though the port is addressed as a SDH port.

Disabling of PM monitor

The disabling of a PM monitor shall have the following impacts w.r.t. existing PM registers:

1. stop PM counting
2. all current bins related to the PM monitor shall be deleted
3. all history bins related to the PM monitor shall be deleted

The term PM monitor has the same semantics as the term PM package as used in SRD_PerformanceMonitoring. The number of PM monitors is determined by means of the number of *pm enable attributes*.

PM monitors can be disabled explicitly by means of the *pm enable* attribute or are implicitly disabled as part of a port/tributary deletion.

Additional to the above listed impacts (ID 52924) the disabling of a PM monitor shall have the following impacts: the system has to clear all active TCA events of the deleted PM monitor if TCA mode TR-RTR was selected.

ONNS specific behaviour - Impact on *portControl* when changing *portClass*

When *portClass* is changed to TRADITIONAL, *portControl* shall be set to NORMAL, if not set differently within the same command.

Such a change shall be reported by an ED-OC12 notification for the parameter *portControl*.

ONNS specific behaviour - Impact on tributary mode setting when *portClass* is set to INNI

When *portClass* is set to INNI for a port, the parameter *trbmd* shall be set to ADAPTIVE This shall be reported by an ED-OC12 notification for the parameter *trbmd*.

ONNS specific behaviour - Impact on tributary mode setting when *portClass* is set to EDGE

When *portClass* is set to EDGE for a port, the parameter *trbmd* shall be set to FIXED This shall be reported by an ED-OC12 notification for the parameter *trbmd*.

ONNS specific behaviour - Impact on *loca*, *locz* when setting *portClass* from EDGE to TRADITIONAL when port is involved in a 2F or 4F BLSR/MSSPRING protection group

For all tributaries of that port the *loca*, *locz* parameters shall be reset to their default values (empty string). This is reported by an ED-STS1 (*istd*=SONET for the port) or ED-VC3 (*istd*=SDH for the port) notification using a range over the port.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI and *ndetmd* is set to AUTO

When *portClass* is set to INNI and *ndetmd* is set to AUTO for a port, the parameter *pmode* shall be set to MONITORING. This shall be reported by an ED-OC12 notification for the parameter *pmode*.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI and *ndetmd* is set to MAN

When *portClass* is set to INNI and *ndetmd* is set to MAN for a port, the parameters *rstimca* and *rstimmon* are set to DISABLE. This is reported by an ED-OC12 notification for the parameters *rstimca* and *rstimmon*.

ONNS specific behaviour - Impact on tributary parameter settings when *portClass* is set to INNI

When *portClass* is set to INNI, the parameter *hptimmon* is set to DISABLE for all tributaries located on this port.. This is reported by ED-STS1 notifications for the parameter *hptimmon*.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI

When *portClass* is set to INNI, each of the following parameters shall take its default value, unless a value is specified together with the transition of *portClass* to INNI.

- *ndetmd*
- *neighborASTNNodeID*
- *neighborNodeID*
- *neighborPortID*

ONNS specific behaviour - Impact on neighbour related parameters if portClass is changed away from INNI

When *portClass* is changed away from INNI, the following parameters shall be set to their default values: *neighborASTNNodeID*, *neighborNodeID*, *neighborPortID*.

ONNS specific behaviour - Impact on port parameter settings when *ndetmd* is set to AUTO

When *ndetmd* is set to AUTO for a port, the parameters *neighborNodeID*, *neighborPortID* or *neighborASTNNodeID* keeps their current values until automatic neighbor detection delivers new valid values.

ONNS specific behaviour - Impact on port parameter settings while *portClass* is INNI

When *portClass* has the value INNI for a port, setting of the following parameters shall be inhibited:

- *exprstrc*
- *rstimca*
- *rstimmon*
- *strcfmt*
- *strcout*
- *strcwfmt*.

At the moment *portClass* is changed away from INNI the parameters are set back to their default values. This shall be reported by means of an ED-OC12 notification.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is different from INNI

When *portClass* has a value being different from INNI for a port, setting of the following parameters shall be accepted, but shall have no impact until *portClass* is changed to INNI:

- *propagationDelay*, *adminCost*, *srlgList*, *link_includeID,maxNNXCRate,minNNXCRate*.

At the moment the *portClass* is changed to INNI the current values of these parameters shall be considered as valid.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is different from INNI

When *portClass* has a value being different from INNI for a port, setting of the following parameters shall be accepted:

- *ndetmd*, *neighborASTNNodeID, neighborNodeID*, *neighborPortID*.

ONNS specific behaviour - Impact on port parameter settings while *portClass* is TRADITIONAL

When *portClass* has the value TRADITIONAL for a port, setting of the following parameters shall be accepted, but shall have no impact until *portClass* is changed away from TRADITIONAL: *portControl*.

At the moment the *portClass* is changed away from TRADITIONAL the current values of these parameters shall be considered as valid.

Example input/output

```
ED-OC12:UNITE-NE:1-1-#-#-1-1:123456:::INPUTSIG=31-33,UNEQUIPOSIG=31-33;
   UNITE-NE 00-11-28 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-OC12:1-1-#-#-1-1::inputsig=31-
     33,unequiposig=31-33:"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the ED-OC12 command.

Validation rule: ASAP profile exists

Check of the existence of the ASAP profile.

Error code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: TCA profile exists

Check of the existance of the TCA profile.

Error Code: `IDNV - Input, Data Not Valid, TCA profile does not exist`

Validation rule: *inputsig* consistent with existing cross-connections for fixed tributary mode

Check of the consistency of the structure of the input signal (*inputsig*) with existing cross-connections if the port operates in the fixed tributary mode.

Error code: `SNVS - Status, Not in Valid State, signal structure cannot be changed for connected parts of a fixed port`

Validation rule: *unequiposig* consistent with existing cross-connections for fixed tributary mode

Check of the consistency of the structure of the output signal (*unequiposig*) with existing cross-connections if the port operates in the fixed tributary mode.

Error code: `SNVS - Status, Not in Valid State, signal structure cannot be changed for connected parts of a fixed port`

Validation rule: No lower order cross-connections for *istd*, *trbmd* change

Check that istd is not changed or the trbmd is not set ADAPTIVE when lower order cross-connections exist at a tributary of the port. If lower order cross-connections exist, the following error message shall be returned:

Error code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

Validation rule: no cross-connections for *istd*, *trbmd* change

Check that istd is not changed or the *trbmd* is not set FIXED when cross-connections are still on this port.

Error code: `SNVS - Status, Not in Valid State, cross-connections are still existing`

Validation rule: no loopbacks for *istd*, *trbmd* change

Check that istd is not changed or the *trbmd* is not set FIXED when cross-connection loopback is still on this port.

Error code: `SNVS - Status, Not in Valid State, a loopback is existing`

Validation rule: no test access session for *istd*, *trbmd* change

Check that istd is not changed or the *trbmd* is not set FIXED when a tributary related to this port is used in a test access session either as tributary under test or as test access tributary.

Error Code: `SNVS - Status, Not in Valid State, a test access session exists`

Validation rule: no protection for *istd*, *trbmd* change

Check that *istd* is not changed or the *trbmd* is not set FIXED when this port is in an protection group

Error code: `SNVS - Status, Not in Valid State, a protection group is existing`

Validation rule: no ONNS for interface standard change

Check that the interface standard parameter (istd) is not changed if ONNS functionality is available.

This means:

- *portClass* must be TRADITIONAL or
- *portControl* must be LOCKOUT.

Error code: `SNVS - Status, Not in Valid State, SwiSS access possible`

Validation rule: no path protection for *trbmd* change to ADAPTIVE

Check that *trbmd* is not set to ADAPTIVE when tributaries of this port are used as input tributaries in a path protection group.

Error code: `SNVS - Status, Not in Valid State, a path protection group is existing`

Validation rule: *servcond* must be enabled when timing source

Check that the *servcond* is not disabled when the port is used as a timing source.

Error code: `SNVS - Status, Not in Valid State, Timing reference is assigned to this port`

Validation rule: *servcond* must be enabled when DCC enabled

Check that the *servcond* is not disabled when DCC channels are still existing for this port.

Error code: `SNVS - Status, Not in Valid State, DCC channels are active for this port`

Validation rule: *servcond* must be enabled when *portClass*=INNI

Check that the *servcond* is not OUTOFSERVICE when portClass=INNI.

Error code: `SNVS - Status, Not in Valid State, can not disable servcond for INNI ports`

Validation rule: servcond must be enabled for protection ports

Check that the servcond is not OUTOFSERVICE if the port is used as protection port.

Error code: `SNVS - Status, Not in Valid State, can not disable servcond for protection ports`

Validation rule: *servcond* must be disabled for facility loopback

Check that the *servcond* is not enabled when a facility loobackp is existing for this port.

Error code: `SNVS - Status, Not in Valid State, Facility Loopback is active for this port`

Validation rule: Supply of outgoing J0 trace

Check that an outgoing J0 trace value (*strc* out) is supplied, too, if the format of the outgoing J0 trace (*strcwfmt*) is changed.

Error code: `IDNC - Input, Data Not Consistent, a new trace value must also be supplied for a trace format change.`

Validation rule: transmitted path trace length

Check that the length of the outgoing J0 trace value (*strcout*) fits to the length given by outgoing J0 trace mode, i.e. write format (*strcwfmt*).

Error code: `IDNC - Input, Data, Not Consistent, strcout length must match the given outgoing J0 trace mode`.

Validation rule: 'ALL' qualifier used for wrong parameters

The AL' qualifier for the port aid is only allowed for changing the *portControl* parameter.

Error Code: `IDNC - Input, Data Not Consistent, 'ALL' qualifier for port aid not allowed`

Check CCB against *ptype* and *istd*

Check wether the CCB fits to *ptype* and *istd*.

Error Code: `ICNV - Input, Command Not Valid, Interface Standard does not match`

ONNS specific validation rule: *portClass* only settable when *xcsetup*=SWISS

Modification of the *portClass* parameter shall only be allowed when *xcsetup*=SWISS.

Error Code: `SNVS - Status, Not in Valid State, SwiSS not enabled`

ONNS specific validation rule: Not allowed to change the *portClass* directly from INNI to EDGE or EDGE to INNI

It is not be allowed to change the *portClass* of a port directly from INNI to EDGE or from EDGE to INNI.

Error Code: `SNVS - Status, Not in Valid State, Port Class must not be EDGE or INNI`

ONNS specific validation rule: Setting of *portClass* to INNI not possible for ports in protection groups

It shall not be allowed to change *portClass* of a port to INNI, if this port is member of a Line/MS protection scheme.

Error Code: `SNVS - Status, Not in Valid State, Port must not be member of a protection group`

ONNS specific validation rule: Setting of *portClass* to INNI only possible, if no cross-connection existing

It shall not be allowed to change *portClass* to INNI, if cross-connections on that port are still existing.

Error Code: `SNVS - Status, Not in Valid State, Cross-connections still existing`

ONNS specific validation rule: Setting of *portClass* to INNI only possible, if no lower order cross-connections exist

Check if lower order cross-connections exist which involve the port to be changed. If lower order cross-connections exist, the following error message shall be returned:

Error Code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

ONNS specific validation rule: Setting of *portClass* to INNI only possible, if service condition not OUTOFSERVICE

It shall not be allowed to change *portClass* to INNI, if *servcond*=OUTOFSERVICE.

Error code: `SNVS - Status, Not in Valid State, port in out of service state`

ONNS specific validation rule: Setting of *portClass* to INNI oe EDGE only possible, if no test access session active

It shall not be allowed to change *portClass* of a port to INNI or EDGE when a tributary related to this port is used in a test access session either as tributary under test or as test access tributary.

Error Code: `SNVS - Status, Not in Valid State, a test access session exists`

ONNS specific validation rule: Setting of *portClass* away from INNI only possible, if the port is not in use

For setting *portClass* from INNI to TRADITIONAL or EDGE the following must be fulfilled:

- No cross-connection may exist on any tributary of the port
- *portControl* must be LOCKOUT

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

ONNS specific validation rule: Setting of *portClass* away from INNI only possible, if the port is not in use by M:N reservation

For setting *portClass* from INNI to TRADITIONAL or EDGE the following must be fulfilled:

- No reservation related to a protecting NN connection within an M:N protected connection group may exist on any tributary of the port

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

ONNS specific validation rule: Changing of *portClass* from INNI to EDGE or TRADITIONAL only possible, if no DCC for SCN is enabled on the port

For changing the value of the parameter *portClass* no DCC of the port must be enabled for the SCN.

Error Code: `SNVS - Status, Not in Valid State, DCC on SCN may not be enabled`

ONNS specific validation rule: Setting of *portClass* from EDGE to TRADITIONAL only possible, if the tributaries on the port are not in use by ONNS:

For setting *portClass* from EDGE to TRADITIONAL the following must be fulfilled:

- No cross-connections of xconcls=NN may exist on any tributary of the port
- *portControl* must be LOCKOUT

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

ONNS specific validation rule: Setting of *portClass* from TRADITIONAL to EDGE

For setting *portClass* from TRADITIONAL to EDGE the port must not be the protection port of a 1+1 MSP group.

Error Code: `SNVS - Status, Not in Valid State, Port must not be a 1+1 protection port`

For setting portClass from TRADITIONAL to EDGE the port must not be the protection port of a 1:1 MSP group.

Error Code: SNVS - `Status, Not in Valid State, Port must not be a 1:1 protection port`

ONNS specific validation rule: Some parameters not settable for ports of *portClass* INNI

The following parameters shall not be changeable for ports with *portClass* INNI: *trbmd.*

Error Code: `SNVS - Status, Not in Valid State, portClass must not be INNI`

ONNS specific validation rule: Setting of some INNI properties only possible, if no cross-connection existing

It shall not be allowed to change one of the following parameters (provided this parameter is supported in a particular release at all) on a port with *portClass*=INNI, if cross-connections on that port are existing:

- *link_IncludeID*, *neighborNodeID*, *neighborPortID*, *propagationDelay*, *srlgList,neighborASTNNodeID*, *maxNNXCRate,minNNXCRate*

Error code: `SNVS - Status, Not in Valid State, no XCs allowed for change of iNNI parameters`

ONNS specific validation rule: Setting of some INNI properties only possible, if no reservations wrt. M:N protecting connections existing

It shall not be allowed to change one of the following parameters on a port with *portClass*=INNI, if reservations wrt. M:N protecting NN connections on that port are existing:

- *link_IncludeID, neighborNodeID, neighborPortID, propagationDelay, srlgList, neighborASTNNodeID, maxNNXCRate, minNNXCRate*

Error Code: `SNVS - Status, Not in Valid State, no XC reservations allowed for change of iNNI parameters`

ONNS specific validation rule: Setting of INNI properties only possible if port control is LOCKOUT

The system shall allow to change the following parameters only under the conditions

- if the port control is LOCKOUT while port class is INNI
- together with the transition of port control from LOCKOUT to NORMAL while port class is INNI or
- together with the transition of port class to INNI

adminCost, *link_IncludeID*, *maxNNXCRate, minNNXCRate, ndetmd, neighborASTNNodeID, neighborNodeID*, *neighborPortID*, *propagationDelay*, *srlgList.*

Error code: `SNVS - Status, Not in Valid State, only allowed for INNI port in lockout state`

ONNS specific validation rule: Some parameters not settable for ports of *portClass*=INNI

The following parameters shall not be changeable for ports with *portClass*=INNI: *exprstrc*, *rstimca*, *rstimmon*, *strcfmt*, *strcout*, *strcwfmt*.

Error code: `SNVS - Status, Not in Valid State, J0 parameters can not be set for INNI ports`

ONNS specific validation rule: Some parameters not settable for ports of *portClass* EDGE

The following parameters shall not be changeable for ports with *portClass* EDGE: *trbmd.*

Error Code: `SNVS - Status, Not in Valid State, portClass must not be EDGE`

ONNS specific validation rule: Port mode not settable for ports of *portClass*=INNI

The system shall not allow to change the parameter pmode if portClass has been set to INNI prior to this command or if portClass is set to INNI with this command. The paramer pmode shall either be omitted or specified with the only allowed value MON.

Error code: `SNVS - Status, Not in Valid State, port mode change not allowed for INNI ports`

ONNS specific validation rule: Some parameters not settable for ports of *ndetmd* AUTO

The following parameters shall not be changeable for ports with *ndetmd* AUTO: *neighborNodeID*, *neighborPortID, neighborASTNNodeID.*

Error Code: `SNVS - Status, Not in Valid State, ndetmd must not be AUTO`

ONNS specific validation rule: Additional parameters required when setting *ndetmd* to MAN

Values for the following parameters must be given, if *ndetmd* is changed to MAN: *neighborNodeID*, *neighborPortID, neighborASTNNodeID.*

Error Code: `IDNV - Input, Data Not Valid, additional parameter required`

ONNS specific validation rule: No setting of duplicate *neighborASTNNodeID* and *neighborPortID* parameter combination

Setting of the parameters *neighborASTNNodeID* and *neighborPortID* is only possible, if the same combination of values does not already exists for a different INNI port in the system.

Error Code: IDNV - `Input, Data Not Valid, duplicate neighbor port information`

ONNS specific validation rule: No setting of *neighborASTNNodeID* or *neighborNodeID* to corresponding IDs of local node

It shall not be allowed to configure parameters *neighborASTNNodeID* or neighbor NodeID to corresponding values of the local node itself, i.e. it shall not be possible to configure a node to be its own ONNS neighbor.

Error Code: IDNV - `Input, Data Not Valid, node itself is not a valid neighbor`

ONNS specific validation rule: Setting of neighbor information to UNKNOWN

In order to set neighbor information to UNKNOWN, zero values must be set for all parameters *neighborASTNNodeID*, *neighborNodeID* and *neighborPortID* consistently. It shall not be possible to set zero value for only one or two of them.

Error Code: `IDNV - Input, Data Not Valid, zero values can only be set for all neighbor information consistently`

ONNS specific validation rule: No setting of *minNNXCRate* to values larger than value of *maxNNXCRate* and vice versa

It shall not be allowed to configure parameters *maxNNXCRate* and *minNNXCRate* in a way, that the value of *minNNXCRate* is larger than the value of *maxNNXCRate*

Error Code: IDNV - `Input, Data Not Valid, Min. and max. NN XC rates incompatible`

Related TL1 messages

"RTRV-OC12: Retrieve OC12 port" (p. 4-1881)

References

GR-199-CORE (ED-*rr*)

ED-OC12 autonomous notifications

LOS for transmission port OC12 clears

If LOS is cleared and current port mode is AUTO, then portmode is updated (new value: MON). This update is reported via ED-OC12 notification with parameter pmode.

Change of the constituent rates status list

If *trbmd*=ADAPTIVE a change of the attribute *crstat* is notified by the related ED-OC12 notification.

Change of neighbor node and neighbor port information

If *ndetmd*=AUTO a change of the attributes *neighborNodeID*, *neighborPortID* or *neighborASTNNodeID* is notified by the related ED-OC12 notification.

□

ED-OC12 notification

Output format

The ED-OC12 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ED-OC12`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Access Identifier of an OC12 port.
   Type: AID.
   Range: SPortAID of OC12 port.
   The keyword `all` is allowed up to shelf level.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....65535
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.

Type: Hexadecimal digits
Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
Default: 89hex followed by 15 bytes 00hex

5. felpm – Far-end Line PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
6. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU
7. inputsig – Tributary Input Signal Rate List
   This parameter is a list of STSn rates across the port's bandwidth.
   If *trbmd* is FIXED, then *inputsig* constrains the cross-connection rates that can be entered for the port. If *trbmd* is ADAPTIVE, then *inputsig* is setable and retrievable as in fixed mode but does not influence the port behavior.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 1, 3 or 12 representing STS1, STS3C, STS12C.
   Default: 121.
   Example: An OC12 signal might be represented by 31-33 which implies 3 STS1's, 3 STS3C's.
8. istd – Interface Standard
   Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter istddflt.
   Type: alphanumeric value set.
   Range: SONET, SDH.
   Default: As specified via istddflton system level, see definition in RTRV-EQPT (system).
9. maxNNXCRate – Maximum NN Cross Connect Rate
   This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
   Type: alphanumeric value set.
   Range: STS12 (default), STS3, STS1.

10. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    Type: alphanumeric value set.
    Range: STS1 (default), STS3, STS12.
11. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
12. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
13. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″
14. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.

Type: Four dash separated numeric string.
Range: Each numeric string: 0...255.
Default: 0-0-0-0.
Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.

15. nelpm – Near-End Line PM Enable
    Enable or disable near-end line performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
16. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-4/OC-12: 1 – 768000.

    Default: The default values differ for SDH and SONET:
    - STM4: 115200
    - OC12: 615.
17. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-4/OC-12: 1 – 768000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM4: 115200
    - OC3: 615.
18. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set

Range:

- AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
- MON indicates that alarm monitoring is taking place on the port.
- NMON means that alarm monitoring is not occurring on the port.

19. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000.
    Default: The default values differ for SDH and SONET and the different rates:
    - STM4: 2400
    - OC12: 616.
20. portClass – Port Class
    This identifies the port class of the AID.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.
21. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.
22. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    Type: Numeric string
    Range: 0(default) ...255. The unit of this value is ″milliseconds″.
23. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable consequent action for TIM
    - DISABLE (default): disable consequent action for TIM.

24. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
25. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST
    - POISSON (default).
26. sdthr – Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
27. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
28. sfthr – Signal Failure Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –3; –4; –5.
    Default: –3.
29. sltca – Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.

30. sonet – SONET ASAP
    SONET Alarm Severity Assignment Profile. This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH ASAP for SDH ports of corresponding line rate (see "RTRV-STM4: Retrieve STM4 port" (p. 4-2086), output parameter *sdhpn*) to be compatible with current generation applications.
    Type: alphanumeric string.
    Range: String with a maximum of 24 characters. A hyphen (-) is additionally allowed in the name.
    Default: DEFAULT.
31. spm – Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
32. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0-0-0-0-0-0-0-0.
33. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc).
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
34. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    Type: Hexadecimal digits.

Range:

- 1 byte string
- 16 bytes string
- 64 bytes string dependent on the *strcwfmt* parameter.

Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
Default: 01Hex

35. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout).
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
36. unequiposig – Unequipped Output Signal List
    This parameter is a list of STSn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need to have the identical setting. Mixed rates for tx and rx side of the port are allowed. If *trbmd* is ADAPTIVE, then *unequiposig* is settable and retrievable as in fixed mode but does not influence the port behavior.
    Type: numeric value set.
    Range: NX-NX-NX-...
    N is the number of Xs. X can be 1, 3 or 12 representing STS1, STS3C or STS12C.
    Default: 121 = all STS1 (fixed).
37. z0outmode – Mode of outgoing Z0 byte insertion
    The Z0 insertion is configurable to support interworking with old SONET equipment for STS-M interfaces (M=3, 12, 48).
    Type: alphanumeric value set.
    Range:
    - FIXEDCC (default): for inserting the fixed value CChex
    - STSID: for inserting the STS-Id of the current frame.

Example output

```
ED-OC12:UNITE-NE:1-1-#-#-1-1:123456:::INPUTSIG=31-33,UNEQUIPOSIG=31-33;
   UNITE-NE 00-11-28 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
```

```
   "TIME=08-00-12,DATE=00-11-28:ED-OC12:1-1-#-#-1-1::inputsig=31-
     33,unequiposig=31-33:"
;
```

□

ED-OC48: Edit OC48 port

The ED-OC48 command is used to provision all parameters related to optical OC48 port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: no

Input format

Command Syntax: `ED-OC48`:*tid:aid:ctag:::spec_block*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   Access Identifier of an OC-48 port.
   Type: AID.
   Range: OC-48 port AID
   For changing the *portControl* parameter the AL' qualifier for the port aid shall be allowed.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....65535
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
5. felpm – Far-end Line PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
6. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.

Range:

- ENABLE , set a forced DUS/DNU
- DISABLE (default), clear a forced DUS/DNU

7. inputsig – Tributary Input Signal Rate List
   This parameter is a list of STSn rates across the port's bandwidth.
   If *trbmd* is FIXED, then *inputsig* constrains the cross-connection rates that can be entered for the port. If *trbmd* is ADAPTIVE, then *inputsig* is settable and retrievable as in fixed mode but does not influence the port behavior.
   Type: numeric value set.
   Range: NX-NX-NX-...
   N is the number of Xs. X can be 1, 3, 12 or 48 representing STS1, STS3C, STS12C or STS48C.
   Default: 481.
   Example: An OC-48 signal might be represented by 91-13-112-241 which implies 9 STS1's, 1 STS3C, 1 STS12C, 24 STS1's.
8. istd – Interface Standard
   Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter istddflt.
   Type: alphanumeric value set.
   Range: SDH.
   Default: SDH
9. maxNNXCRate – Maximum NN Cross Connect Rate
   This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
   maxNNXCRate is introduced specifically for use by ONNS application.
   Type: alphanumeric value set.
   Range: STS48 (default), STS12, STS3, STS1.
10. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS1 (default), STS3, STS12, STS48.

11. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
12. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of *portClass*=INNI to be used for ONNS application. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if *ndetmd*=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
13. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN. If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″
14. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.

neighborPortID is introduced specifically for use by NN application.
Type: Four dash separated numeric string.
Range: Each numeric string: 0...255.
Default: 0-0-0-0.
Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.

15. nelpm – Near-End Line PM Enable
    Enable or disable near-end line performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
16. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.
17. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.

Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

- STM-16/OC-48: 1 – 3072000
- STM-64/OC-192: 1 – 12288000
- STM-256/OC-768: 1 – 49152000.

Default: The default values differ for SDH and SONET and the different rates:

- STM16: 460800
- STM64: 1843200
- STM256: 7372800
- SONET OC48: 2459
- SONET OC192: 9835
- SONET OC768: 39340.

18. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
19. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000
    Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392
    - SONET OC192: 8554
    - SONET OC768: 22776.
20. portClass – Port Class
    This identifies the port class of the AID.
    portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.

21. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
    portControl is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.
22. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(default) ...255.
23. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable consequent action for TIM
    - DISABLE (default): disable consequent action for TIM.
24. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
25. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST
    - POISSON (default).

26. sdthr – Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
27. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
28. sfthr – Signal Failure Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –3; –4; –5.
    Default: –3.
29. sltca – Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
30. sonet – SONET ASAP
    This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH Alarm Severity Assignment Profile for SDH ports (see "RTRV-STM16: Retrieve STM16 port" (p. 4-2099), output parameter *sdhpn*) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
31. spm – Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).

32. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0-0-0-0-0-0-0-0.
33. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
34. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
35. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string

Range:

- 1: for specific repeating byte (SONET)
- 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
- 16: for 16 byte specific string (ITU/ETSI mode 1).
- 64: for 64 byte string (SONET).

36. unequiposig – Unequipped Output Signal List
    This parameter is a list of STSn rates across the port's bandwidth. It determines the rate(s) of the *unequipped* signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need to have the identical setting. Mixed rates for *tx* and *rx* side of the port are allowed. If *trbmd* is ADAPTIVE, then *unequiposig* is settable and retrievable as in fixed mode but does not influence the port behavior.
    Type: numeric value set.
    Range: NX-NX-NX-...
    N is the number of Xs. X can be 1, 3, 12 or 48 representing STS1, STS3C, STS12C or STS48C.
    Default: 481 = all STS1 (fixed).
37. z0outmode – Mode of outgoing Z0 byte insertion
    The Z0 insertion is configurable to support interworking with old SONET equipment for STS-M interfaces (M=3, 12, 48).
    Type: alphanumeric value set.
    Range:
    - FIXEDCC (default): for inserting the fixed value CChex
    - STSID: for inserting the STS-Id of the current frame.

Output format

If the ED-OC48 command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The command modifies the attributes (listed in the *spec_block* parameters part of this command) of the addressed port entity according to the parameters given with this command.

The modification is reported by means of an ED-OC48 notification for port (except for parameter *istd;* see below).

Switching of interface standard – Ignore other parameters

If additional parameters beside *istd* are specified with the *ED-rr* command they will be ignored by the NE.

This simple approach has the advantage that all ambiguous situations are avoided and it is not necessary to implement an order or follow a certain sequence when evaluating the parameters.

Switching of interface standard – FM impact

The change of the interface standard of a port from SONET to SDH has the following impact related to Fault Management:

- all SONET alarms related to that port are cleared
- the corresponding SDH alarms are raised.

Switching of tributary mode

When changing the parameter *trbmd* – tributary mode from FIXED to ADAPTIVE the parameter *crstat* may change its value, too, depending on the current input signal structure. This change is notified using the related ED-OC48 notification.

When changing the parameter *trbmd* – tributary mode from ADAPTIVE to FIXED the parameter *crstat* may change its value, too, depending on the current setting of parameter *inputsig*. This change is notified using the related ED-OC48 notification.

Supply outgoing J0 trace value and format together

When changing the format of the outgoing J0 trace *strcwfmt*, the parameter *strcout* specifying the outgoing J0 trace is always supplied within the same TL1-command to always have a consistent set of trace format and value.

When the format of the outgoing J0 trace *strcwfmt* is set to 2 (non-specific repeating byte) then the outgoing J0 trace (mandatory parameter strcout) specified in the command shall be ignored.

Supply outgoing J0 trace value according to format of outgoing J0

When changing the outgoing J0 trace value, the format must be according to the format parameter *strcwfmt* for the outgoing J0 trace.

Change of J0 expected format - FM impact

When the expected J0 format (strcfmt) is changed to 16 (16 byte specific string) while the TI Mismatch detection is enabled, then the TI Mismatch alarm shall be updated according to the provisioned ecpected J0 (expstrc) and the currently received J0 (strc).

When the expected J0 format is changed away from 16, while the TI Mismatch alarm is active, then the TI Mismatch alarm shall be cleared.

Switching of interface standard – Impact on port parameters

The switching of *istd* should not result in an deletion and recreation of the port. NE internally there are no differences between SDH and SONET.

Switching of interface standard I:

In detail the following attributes are influenced by switching of the *istd* from SONET to SDH (see also the related RTRV-STM*n* command for SDH parameter description):

- *brstintvl* is set to the default value
- *brstthr* is set to the default value
- *crstat* may change according to its semantics (see description of *crstat*)
- *degthr* is set to the default value for an SDH port
- *dexcthr* is set to the default value for an SDH port
- *felpm* is mapped to *femspm* (no changes)
- *inputsig* is set to the default value
- *istd* is set to SDH
- *nelpm* is mapped to *nemspm* (no changes)
- *rstimca* is set to the default value for a SDH port
- *rstimmon* is set to the default value for a SDH port
- *sdsfmode* is set to the default value for an SDH port
- *spm* is mapped to *rspm* (no changes)
- *sonet* is mapped to *sdhpn* (no changes)
- *trbmd* is set to the default value for an SDH port
- *unequiposig* is set to its default value.

All other port parameters remain unchanged.

Switching of interface standard II:

In addition to the list of attributes above the following attributes are influenced by switching of the *istd* from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- *rsmstca* is set to the default value for an SDH port
- *tcamd* is set to the default value for a SDH port.

Switching of interface standard III:

In addition to the list of attributes above the following attributes are influenced by switching of the *istd* from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- *pmmsfeses* is set to the default value for a SDH port
- *pmmsneses* is set to the default value for a SDH port
- *pmrsneses* is set to the default value for a SDH port.

Switching of interface standard IV:

In addition to the list of attributes above the following attributes are influenced by switching of the istd from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- minNNXCrate is set to the default value for a SDH port
- maxNNXCrate is set to the default value for a SDH port

Switching of interface standard – Side effects on tributaries

The switching of *istd* should not result in an deletion and recreation of the tributaries of a port. NE internally there are no differences between SDH and SONET.

In detail the following side-effects apply to the related tributary attributes when switching the *istd* from SONET to SDH (see also the related RTRV-STM*n* command for SDH parameter description):

- *brstintvl* is set to the default value for a SDH tributary
- *brstthr* is set to the default value for a SDH tributary
- *pse* (PDI-P parameter) shall be set to the default value for a SDH tributary
- *sdsfmode* is set to the default value for a SDH tributary.

All other tributary parameters remain unchanged.

Switching of interface standard – Side effects on tributaries II

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- *degthr* is set to the default value for an SDH tributary
- *dexcthr* is set to the default value for an SDH tributary
- *ptca* shall be set to the default value for a SDH tributary
- *tcamd* is set to the default value for a SDH tributary.

Switching of interface standard – Side effects on tributaries III

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- *pmhpneses* is set to the default value for an SDH tributary
- *pmhpfeses* is set to the default value for an SDH tributary.

Switching of interface standard – notification behavior for port attributes

When changing the interface standard *istd* using the ED-OCn command all resulting parameter changes are reported by ED-STMn notifications of the related port rate. This is valid for the parameter istd itself as well as for all other parameters which might change as a consequence of changing the interface standard.

Switching of interface standard – notification behavior for tributary attributes

When changing the interface standard *istd* using the ED-OCn command all resulting tributary parameter changes are reported by ED-VC3 notifications.

For efficiency reasons the ED-VC3 notifications is sent out as a single notification using a range over the aid which depends on the port rate of the associated port, i. e. the Simple_STS1NumAID field in the STS1NumAID is set to

- 1 - 3 in case of an STS1/OC3 port
- 1 - 12 in case of an STS4/OC12 port
- 1 - 48 in case of an STS16/OC48 port
- 1 - 192 in case of an STS64/OC192 port
- 1 - 768 in case of an STS256/OC768 port.

Switching of interface standard – PM impact

The change of interface standard has the following impacts w.r.t. existing PM registers:

1. all current bins related to the port will be reset
2. all history bins related to the port remain unchanged
3. all current bins related to tributaries being a member of the port will be reset
4. all history bins related to tributaries being a member of the port remain unchanged.

Retrieving the bins after switching the interface standard may result in a strange reporting behavior:

- When switching the interface standard to SONET the periods before the switch contain SDH-related parameters and values even though the port is addressed as a SONET port.
- When switching the interface standard to SDH the periods before the switch contain SONET-related parameters and values even though the port is addressed as a SDH port.

Disabling of PM monitor

The disabling of a PM monitor shall have the following impacts w.r.t. existing PM registers:

1. stop PM counting
2. all current bins related to the PM monitor shall be deleted
3. all history bins related to the PM monitor shall be deleted

The term PM monitor has the same semantics as the term PM package as used in SRD_PerformanceMonitoring. The number of PM monitors is determined by means of the number of *pm enable attributes*.

PM monitors can be disabled explicitly by means of the *pm enable* attribute or are implicitly disabled as part of a port/tributary deletion.

Additional to the above listed impacts (ID 52924) the disabling of a PM monitor shall have the following impacts: the system has to clear all active TCA events of the deleted PM monitor if TCA mode TR-RTR was selected.

ONNS specific behaviour - Impact on *portControl* when changing *portClass*

When *portClass* is changed to TRADITIONAL, *portControl* shall be set to NORMAL, if not set differently within the same command.

Such a change shall be reported by an ED-OC48 notification for the parameter *portControl*.

ONNS specific behaviour - Impact on tributary mode setting when *portClass* is set to INNI

When *portClass* is set to INNI for a port, the parameter *trbmd* shall be set to ADAPTIVE This shall be reported by an ED-OC48 notification for the parameter *trbmd*.

ONNS specific behaviour - Impact on tributary mode setting when *portClass* is set to EDGE

When *portClass* is set to EDGE for a port, the parameter *trbmd* shall be set to FIXED. This shall be reported by an ED-OC48 notification for the parameter *trbmd*.

ONNS specific behaviour - Impact on *loca*, *locz* when setting *portClass* from EDGE to TRADITIONAL when port is involved in a 2F or 4F BLSR/MSSPRING protection group

For all tributaries of that port the *loca*, *locz* parameters shall be reset to their default values (empty string). This is reported by an ED-STS1 (istd=SONET for the port) or ED-VC3 (istd=SDH for the port) notification using a range over the port.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI and *ndetmd* is set to AUTO

When *portClass* is set to INNI and *ndetmd* is set to AUTO for a port, the parameter *pmode* shall be set to MONITORING. This shall be reported by an ED-OC48 notification for the parameter *pmode*.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI and *ndetmd* is set to MAN

When *portClass* is set to INNI and *ndetmd* is set to MAN for a port, the parameters *rstimca* and *rstimmon* are set to DISABLE. This is reported by an ED-OC12 notification for the parameters *rstimca* and *rstimmon*.

ONNS specific behaviour - Impact on tributary parameter settings when *portClass* is set to INNI

When *portClass* is set to INNI, the parameter *hptimmon* is set to DISABLE for all tributaries located on this port.. This is reported by ED-STS1 notifications for the parameter *hptimmon*.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI

When *portClass* is set to INNI, each of the following parameters shall take its default value, unless a value is specified together with the transition of portClass to INNI:

- *ndetmd*
- *neighborASTNNodeID*
- *neighborNodeID*
- *neighborPortID*

ONNS specific behaviour - Impact on beighbour related parameters if *portClass* is changed away from INNI

When *portClass* is changed away from INNI, the following parameters shall be set to their default values: *neighborASTNNodeID*, *neighborNodeID*, *neighborPortID*.

ONNS specific behaviour - Impact on port parameter settings when *ndetmd* is set to AUTO

When *ndetmd* is set to AUTO for a port, the parameters *neighborNodeID*, *neighborPortID* or *neighborASTNNodeID* shall keep their current values until automatic neighbor detection delivers new valid values.

ONNS specific behaviour - Impact on port parameter settings while *portClass* is INNI

When *portClass* has the value INNI for a port, setting of the following parameters will be accepted, but will have no impact until *portClass* is changed away from INNI:

- *exprstrc*
- *rstimca*

- *rstimmon*
- *strcfmt*
- *strcout*
- *strcwfmt.*

At the moment *portClass* is changed away from INNI the parameters are set back to their default values. This shall be reported by means of an ED-OC48 notification.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is different from INNI

When *portClass* has a value being different from INNI for a port, setting of the following parameters shall be accepted, but shall have no impact until *portClass* is changed to INNI:

- *propagationDelay*, *adminCost*, *srlgList*, *link_includeID,maxNNXCRate,minNNXCRate*.

At the moment the *portClass* is changed to INNI the current values of these parameters shall be considered as valid.

See the spec block parameters section for support of a dedicated parameter in a specific release.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is different from INNI

When *portClass* has a value being different from INNI for a port, setting of the following parameters shall be accepted:

- *ndetmd*, *neighborNodeID*, *neighborPortID*, *neighborASTNNodeID*.

ONNS specific behaviour - Impact on port parameter settings while *portClass* is TRADITIONAL

When *portClass* has the value TRADITIONAL for a port, setting of the following parameters will be accepted, but will have no impact until *portClass* is changed away from TRADITIONAL: *portControl*.

At the moment the *portClass* is changed away from TRADITIONAL the current values of these parameters shall be considered as valid.

Example input/output

```
ED-OC48:UNITE-NE:1-1-#-#-1-1:123456:::INPUTSIG=74-33-84,UNEQUIPOSIG=74-
    33-84;
   UNITE-NE 00-11-28 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-OC48:1-1-#-#-1-1::inputsig=74-33-
    84,unequiposig=74-33-84:"
```

;

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the ED-OC48 command.

Validation rule: Enough bandwidth reserved for 2F protection group

Check of the tributary rate (*inputsig/uneqiposig*) if the port is member of a 2f protection group. Then the assigned bandwidth is max. half of the port's bandwidth.

Error code: `IDNV - Input, Data Not Valid, Assigned bandwidth exceeds half port's bandwidth`

Validation rule: ASAP profile exists

Check of the existence of the ASAP profile.

Error code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: TCA profile exists

Check of the existance of the TCA profile.

Error Code: `IDNV - Input, Data Not Valid, TCA profile does not exist`

Validation rule: inputsig consistent with existing cross-connections for fixed tributary mode

Check of the consistency of the structure of the input signal (*inputsig*) with existing cross-connections if the port operates in the fixed tributary mode.

Error code: `SNVS - Status, Not in Valid State, signal structure cannot be changed for connected parts of a fixed port`

Validation rule: unequiposig consistent with existing cross-connections for fixed tributary mode

Check of the consistency of the structure of the output signal (*unequiposig*) with existing cross-connections if the port operates in the fixed tributary mode.

Error code: `SNVS - Status, Not in Valid State, signal structure cannot be changed for connected parts of a fixed port`

Validation rule: No lower order cross-connections for *istd*, *trbmd* change

Check that istd is not changed or the trbmd is not set ADAPTIVE when lower order cross-connections exist at a tributary of the port. If lower order cross-connections exist, the following error message shall be returned:

Error code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

Validation rule: no cross-connections for *istd*, *trbmd* change

Check that istd is not changed or the *trbmd* is not set FIXED when cross-connections are still on this port.

Error code: `SNVS - Status, Not in Valid State, cross-connections are still existing`

Validation rule: no loopbacks for *istd*, *trbmd* change

Check that istd is not changed or the *trbmd* is not set FIXED when cross-connection loopback is still on this port.

Error code: `SNVS - Status, Not in Valid State, a loopback is existing`

Validation rule: no test access session for *istd*, *trbmd* change

Check that istd is not changed or the *trbmd* is not set FIXED when a tributary related to this port is used in a test access session either as tributary under test or as test access tributary.

Error Code: `SNVS - Status, Not in Valid State, a test access session exists`

Validation rule: no protection for *istd*, *trbmd* change

Check that *istd* is not changed or the *trbmd* is not set FIXED when this port is in an protection group.

Error code: `SNVS - Status, Not in Valid State, a protection group is existing`

Validation rule: no ONNS for interface standard change

Check that the interface standard parameter (istd) is not changed if ONNS functionality is available.

This means:

- *portClass* must be TRADITIONAL or
- *portControl* must be LOCKOUT.

Error code: `SNVS - Status, Not in Valid State, SwiSS access possible`

Validation rule: no path protection for *trbmd* change to ADAPTIVE

Check that *trbmd* is not set to ADAPTIVE when tributaries of this port are used as input tributaries in a path protection group.

Error code: `SNVS - Status, Not in Valid State, a path protection group is existing`

Validation rule: *servcond* must be enabled when timing source

Check that the *servcond* is not disabled when the port is used as a timing source.

Error code: `SNVS - Status, Not in Valid State, Timing reference is assigned to this port`

Validation rule: *servcond* must be enabled when DCC enabled

Check that the *servcond* is not disabled when DCC channels are still existing for this port.

Error code: `SNVS - Status, Not in Valid State, DCC channels are active for this port`

Validation rule: *servcond* must be enabled when portClass=INNI

Check that the *servcond* is not OUTOFSERVICE when portClass=INNI.

Error code: `SNVS - Status, Not in Valid State, can not disable servcond for INNI ports`

Validation rule: servcond must be enabled for protection ports

Check that the servcond is not OUTOFSERVICE if the port is used as protection port.

Error code: `SNVS - Status, Not in Valid State, can not disable servcond for protection ports`

Validation rule: *servcond* must be disabled for facility loopback

Check that the *servcond* is not enabled when a facility loopback is existing for this port.

Error code: `SNVS - Status, Not in Valid State, Facility Loopback is active for this port`

Validation rule: Supply of outgoing J0 trace

Check that an outgoing J0 trace value (*strc* out) is supplied, too, if the format of the outgoing J0 trace (*strcwfmt*) is changed.

Error code: `IDNC - Input, Data Not Consistent, a new trace value must also be supplied for a trace format change.`

Validation rule: transmitted path trace length

Check that the length of the outgoing J0 trace value (*strcout*) fits to the length given by outgoing J0 trace mode, i.e. write format (*strcwfmt*).

Error code: `IDNC - Input, Data, Not Consistent, strcout length must match the given outgoing J0 trace mode.`

Validation rule: 'ALL' qualifier used for wrong parameters

The AL' qualifier for the port aid is only allowed for changing the *portControl* parameter.

Error Code: `IDNC - Input, Data Not Consistent, 'ALL' qualifier for port aid not allowed`

Check CCB against *ptype* and *istd*

Check wether the CCB fits to ptype and istd.

Error Code: `ICNV - Input, Command Not Valid, Interface Standard does not match`

ONNS specific validation rule: *portClass* only settable when *xcsetup*=SWISS

Modification of the *portClass* parameter shall only be allowed when *xcsetup*=SWISS.

Error Code: `SNVS - Status, Not in Valid State, SwiSS not enabled`

ONNS specific validation rule: Not allowed to change the *portClass* directly from INNI to EDGE or EDGE to INNI

It is not be allowed to change the *portClass* of a port directly from INNI to EDGE or from EDGE to INNI.

Error Code: `SNVS - Status, Not in Valid State, Port Class must not be EDGE or INNI`

ONNS specific validation rule: Setting of *portClass* to INNI not possible for ports in protection groups

It shall not be allowed to change *portClass* of a port to INNI, if this port is member of a Line/MS protection scheme.

Error Code: `SNVS - Status, Not in Valid State, Port must not be member of a protection group`

ONNS specific validation rule: Setting of *portClass* to INNI only possible, if no cross-connection existing

It shall not be allowed to change *portClass* to INNI, if cross-connections on that port are still existing.

Error Code: `SNVS - Status, Not in Valid State, Cross-connections still existing`

ONNS specific validation rule: Setting of *portClass* to INNI only possible, if no lower order cross-connections exist

Check if lower order cross-connections exist which involve the port to be changed. If lower order cross-connections exist, the following error message shall be returned:

Error Code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

ONNS specific validation rule: Setting of *portClass* to INNI only possible, if service condition not OUTOFSERVICE

It shall not be allowed to change *portClass* to INNI, if *servcond*=OUTOFSERVICE.

Error code: `SNVS - Status, Not in Valid State, port in out of service state`

ONNS specific validation rule: Setting of *portClass* to INNI or EDGE only possible, if no test access session active

It shall not be allowed to change *portClass* of a port to INNI or EDGE when a tributary related to this port is used in a test access session either as tributary under test or as test access tributary.

Error Code: `SNVS - Status, Not in Valid State, a test access session exists`

ONNS specific validation rule: Setting of *portClass* away from INNI only possible, if the port is not in use

For setting *portClass* from INNI to TRADITIONAL or EDGE the following must be fulfilled:

- No cross-connection may exist on any tributary of the port
- *portControl* must be LOCKOUT

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

ONNS specific validation rule: Setting of *portClass* away from INNI only possible, if the port is not in use by M:N reservation

For setting *portClass* from INNI to TRADITIONAL or EDGE the following must be fulfilled:

- No reservation related to a protecting NN connection within an M:N protected connection group may exist on any tributary of the port

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

ONNS specific validation rule: Changing of *portClass* from INNI to EDGE or TRADITIONAL only possible, if no DCC for SCN is enabled on the port

For changing the value of the parameter *portClass* no DCC of the port must be enabled for the SCN.

Error Code: `SNVS - Status, Not in Valid State, DCC on SCN may not be enabled`

ONNS specific validation rule: Setting of *portClass* from EDGE to TRADITIONAL only possible, if the tributaries on the port are not in use by ONNS

For setting *portClass* from EDGE to TRADITIONAL the following must be fulfilled:

- No cross-connections of xconcls=NN may exist on any tributary of the port
- *portControl* must be LOCKOUT.

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

ONNS specific validation rule: Setting of *portClass* from TRADITIONAL to EDGE

For setting *portClass* from TRADITIONAL to EDGE the port must not be the protection port of a 1+1 MSP group.

Error Code: `SNVS - Status, Not in Valid State, Port must not be a 1+1 protection port`

For setting portClass from TRADITIONAL to EDGE the port must not be the protection port of a 1:1 MSP group.

Error Code: SNVS - `Status, Not in Valid State, Port must not be a 1:1 protection port`

For setting portClass from TRADITIONAL to EDGE the port must not be the protection port of a 4f-BLSR group.

Error Code: `SNVS - Status, Not in Valid State, Port must not be a 4f-BLSR protection port`

ONNS specific validation rule: Some parameters not settable for ports of *portClass* INNI

The following parameters shall not be changeable for ports with *portClass* INNI: *trbmd.*

Error Code: `SNVS - Status, Not in Valid State, portClass must not be INNI`

ONNS specific validation rule: Setting of some INNI properties only possible, if no cross-connection existing

It shall not be allowed to change one of the following parameters (provided this parameter is supported in a particular release at all) on a port with *portClass*=INNI, if cross-connections on that port are existing:

- *link_IncludeID*, *neighborNodeID*, *neighborPortID*, *propagationDelay*, *srlgList*, *neighborASTNNodeID,maxNNXCRate,minNNXCRate*

Error code: `SNVS - Status, Not in Valid State, no XCs allowed for change of iNNI parameters`

ONNS specific validation rule: Setting of some INNI properties only possible, if no reservations wrt. M:N protecting connections existing

It shall not be allowed to change one of the following parameters on a port with *portClass*=INNI, if reservations wrt. M:N protecting NN connections on that port are existing:

- *link_IncludeID, neighborNodeID, neighborPortID, propagationDelay, srlgList, neighborASTNNodeID, maxNNXCRate, minNNXCRate*

Error Code: `SNVS - Status, Not in Valid State, no XC reservations allowed for change of iNNI parameters`

ONNS specific validation rule: Setting of INNI properties only possible if port control is LOCKOUT

The system shall allow to change the following parameters only under the conditions

- if the port control is LOCKOUT while port class is INNI
- together with the transition of port control from LOCKOUT to NORMAL while port class is INNI or
- together with the transition of port class to INNI

adminCost, link_IncludeID, *maxNNXCRate, minNNXCRate, neighborNodeID*, *ndetmd, neighborASTNNodeID, neighborNodeID*, *neighborPortID*, *propagationDelay*, *srlgList.*

Error code: `SNVS - Status, Not in Valid State, only allowed for INNI port in lockout state`

ONNS specific validation rule: Some parameters not settable for ports of *portClass*=INNI

The following parameters shall not be changeable for ports with *portClass*=INNI: *exprstrc*, *rstimca*, *rstimmon*, *strcfmt*, *strcout*, *strcwfmt*.

Error code: `SNVS - Status, Not in Valid State, J0 parameters can not be set for INNI ports`

ONNS specific validation rule: Some parameters not settable for ports of *portClass* EDGE

The following parameters shall not be changeable for ports with *portClass* EDGE: *trbmd.*

Error Code: `SNVS - Status, Not in Valid State, portClass must not be EDGE`

ONNS specific validation rule: Port mode not settable for ports of *portClass*=INNI

The system shall not allow to change the parameter pmode if portClass has been set to INNI prior to this command or if portClass is set to INNI with this command. The paramer pmode shall either be omitted or specified with the only allowed value MON.

Error code: `SNVS - Status, Not in Valid State, port mode change not allowed for INNI ports`

ONNS specific validation rule: Some parameters not settable for ports of *ndetmd* AUTO

The following parameters shall not be changeable for ports with *ndetmd* AUTO: *neighborNodeID*, *neighborPortID, neighborASTNNodeID.*

Error Code: `SNVS - Status, Not in Valid State, ndetmd must not be AUTO`

ONNS specific validation rule: Additional parameters required when setting *ndetmd* to MAN

Values for the following parameters must be given, if *ndetmd* is changed to MAN: *neighborNodeID*, *neighborPortID, neighborASTNNodeID.*

Error Code: `IDNV - Input, Data Not Valid, additional parameter required`

ONNS specific validation rule: No setting of duplicate *neighborASTNNodeID* and *neighborPortID* parameter combination

Setting of the parameters *neighborASTNNodeID* and *neighborPortID* is only possible, if the same combination of values does not already exists for a different INNI port in the system.

Error Code: IDNV - `Input, Data Not Valid, duplicate neighbor port information`

ONNS specific validation rule: No setting of *neighborASTNNodeID* or *neighborNodeID* to corresponding IDs of local node

It shall not be allowed to configure parameters neighborASTNNodeID or neighbor NodeID to corresponding values of the local node itself, i.e. it shall not be possible to configure a node to be its own ONNS neighbor.

Error Code: IDNV - `Input, Data Not Valid, node itself is not a valid neighbor`

ONNS specific validation rule: Setting of neighbor information to UNKNOWN

In order to set neighbor information to UNKNOWN, zero values must be set for all parameters *neighborASTNNodeID*, neighbor NodeID and *neighborPortID* consistently. It shall not be possible to set zero value for only one or two of them.

Error Code: `IDNV - Input, Data Not Valid, zero values can only be set for all neighbor information consistently`

ONNS specific validation rule: No setting of *minNNXCRate* to values larger than value of *maxNNXCRate* and vice versa

It shall not be allowed to configure parameters *maxNNXCRate* and *minNNXCRate* in a way, that the value of *minNNXCRate* is larger than the value of *maxNNXCRate*

Error Code: IDNV - `Input, Data Not Valid, Min. and max. NN XC rates incompatible`

Related TL1 messages

"RTRV-OC48: Retrieve OC48 port" (p. 4-1894)

References

GR-199-CORE (ED-*rr*)

□

ED-OC48 autonomous notifications

LOS for transmission port OC48 clears

If LOS is cleared and current port mode is AUTO, then portmode is updated (new value: MON). This update is reported via ED-OC48 notification with parameter *pmode*.

Change of the constituent rates status list

If *trbmd*=ADAPTIVE a change of the attribute *crstat* is notified by the related ED-OC48 notification.

Change of neighbor node and neighbor port information

If *ndetmd*=AUTO a change of the attributes *neighborNodeID*, *neighborPortID* or *neighborASTNNodeID* is notified by the related ED-OC48 notification.

□

ED-OC48 notification

Output format

The ED-OC48 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ED-OC48`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Access Identifier of an OC192 port.
   Type: AID.
   Range: SPortAID of OC192 port.
   The keyword `all` is allowed up to shelf level.

Spec block parameters

1. adminCost - Administrative Cost
   This identifies the provisioned administrative link cost setting for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
   Type: Numeric string
   Range: 1(default) ...65535.
2. brstintvl – Bursty Interval
   Bursty Interval. Measurement period for determining bursty errors. This parameter applys when sdsfmode=BURST.
   Type: numeric value set
   Range: 2 to 10.
   Default: 7
3. brstthr – Bursty Error Threshold
   Description Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set (as percentage) 5, 10, ... 50
   Default: 30
4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. It is the pointer processor setup if adaptive mode (*trbmd* = ADAPTIVE) is selected.
   When switching *trbmd* from FIXED to ADAPTIVE or when creating a port newly *crstat* inherits the current value of *inputsig* until the system delivers an up-to-date value from the pointer processor. If no value is available from the pointer processor the latest known value is retained.
   For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter

inputsig showing the Tributary Input Rate Signal List.
Type: numeric value set.
Range: NX-NX-NX-...
N is the number of Xs. X can be 1, 3, 12, 48 representing STS1, STS3C, STS12C, STS48C.

5. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier. The parameter expstrc specifying the expected path trace is only relevant for the section trace supervision when the related trace read format strcfmt is set to 16 (16-byte-specific-string mode).
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte shall be expressed as two hexadecimal digits (example value: 6D). The first byte value shall be in the range from 80 to FF. The other byte values shall be in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
6. felpm – Far-end Line PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set
   Range: ENABLE, DISABLE (default)
7. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message “do not use” will be transmitted from that optical interface.
   Type: alphanumeric value set
   Range: ENABLE: set a forced DUS/DNU, DISABLE (default): clear a forced DUS/DNU.
8. fsflpbkstat – Far Side Facililiy Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output *aid.*
   A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
   Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).
9. inputsig – Tributary Input Signal Rate List
   This parameter shall be a list of STSn rates across the port’s bandwidth. If *trbmd* is FIXED, then inputsig constrains the cross-connection rates that can be entered for the port. If *trbmd* is ADAPTIVE, then inputsig is settable and retrievable as in fixed mode but does not influence the port behaviour.
   Type: numeric value set

Range: NX-NX-NX-... N is the number of Xs. X can be 1, 3, 12 or 48 representing STS1, STS3C, STS12C or STS48C.
Default: 481
Example: An OC-48 signal might be represented by 91-13-112-241 which implies 9 STS1's, 1 STS3C, 1 STS12C, 24 STS1's.

10. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET.
    Type: alphanumeric value set
    Range: SONET, SDH
    Default: As specified via istddflton system level, see definition in RTRV-EQPT (system)

11. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).

12. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS48 (default), STS12, STS3, STS1.

13. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS1 (default), STS3, STS12, STS48.

14. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    Type: alphanumeric value set
    Range: AUTO (default), MAN
15. neighborASTNNodeID - Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of *portClass*=INNI to be used for ONNS application. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if *ndetmd*=MAN.
    Type: Four dot separated numeric string
    Range: Each numeric string: 0...255
    Default: 0.0.0.0. If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″.
16. neighborNodeID – Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if *ndetmd*=MAN.
    Type: Four dot separated numeric string
    Range: Each numeric string: 0...255
    Default: 0.0.0.0 If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″.
17. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if *ndetmd*=MAN.
    Type: Four dash separated numeric string
    Range: Each numeric string: 0...255
    Default: 0-0-0-0. Interpretation For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.
18. nelpm – Near-End Line PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set
    Range: ENABLE, DISABLE (default)

19. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severly errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.

    Type: numeric value set (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

    - STM-16/OC-48: 1 - 3072000
    - STM-64/OC-192: 1 - 12288000
    - STM-256/OC-768: 1 - 49152000

    Default: The default values differ for SDH and SONET and the different rates:

    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340
20. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severly errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.

    Type: numeric value set (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

    - STM-16/OC-48: 1 - 3072000
    - STM-64/OC-192: 1 - 12288000
    - STM-256/OC-768: 1 - 49152000

    Default: The default values differ for SDH and SONET and the different rates:

    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.

21. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Typ:e alphanumeric value set
    Range:
    - AUTO: indicates that, when a signal is detected at the port, then alarm monitoring will start (default).
    - MON: indicates that alarm monitoring is taking place on the port.
    - NMON: means that alarm monitoring is not occurring on the port.
22. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severly errored. The default value depends on the interface standard and may differ between SDH and SONET.
    Type: numeric value set (superset of allowed ranges for SDH and SONET): 1 - 64000
    Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392
    - SONET OC192: 8854
    - SONET OC768:22776
23. portClass – Port Class
    This identifies the port class of the AID.
    Type: alphanumeric value set
    Range: TRADITIONAL (default), INN, EDGE
24. portControl – Port Control
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Type: alphanumeric value set
    Range: NORMAL (default), LOCKOUT
25. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    Type Numeric string
    Range 0 (default) ...255

26. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0). This parameter is relevant only if the related trace read format strcfmt is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set
    Range: ENABLE: enable consequent action for TIM, DISABLE (default): disable consequent action for TIM
27. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0). This parameter is relevant only if the related trace read format strcfmt is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set
    Range: ENABLE: enable TIM Monitor, DISABLE (default): disable TIM Monitor.
28. sdsfmode – Signal Degrade/Signal Fail Mode
    he degraded state shall be detected in Burst or Poisson mode.
    Type alphanumeric value set
    Range: BURST, POISSON (default)
29. sdthr – Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applys when sdsfmode=POISSON.
    Type: numeric value set (as exponents of 10): -5, -6 (default), -7, -8, -9
30. servcond – Service Condition
    This parameter shall indicate its status concerning service involvement.
    Type alphanumeric value set
    Range: INSERVICE (default): Provisioning values for service shall be accepted, OUTOFSERVICE: Provisioning values for service shall not be accepted.
31. sfthr – Signal Failure Threshold
    Retrieving of the excessive degrade/signal failure threshold in exponent of 10. This parameter is available when sdsfmode=POISSON
    Type: numeric value set (as exponent of 10): -3 (default), -4, -5
32. sltca – Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string
    Range: String with maximum of 24 characters
    Default: DEFAULT0

33. sonet – SONET ASAP
    SONET Alarm Severity Assignment Profile. This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH Alarm Severity Assignment Profile for SDH ports (see RTRV-STM16, output parameter sdhpn) to be compatible with current generation applications.
    Type: alphanumeric string A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT
34. spm – Section PM Enable
    Description Enable or disable regenerator section (section) performance monitoring.
    Type; alphanumeric value set
    Range: ENABLE, DISABLE (default)
    srlgList – Shared Risk Link Group Identity List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    Type: Ten numeric strings separated by dashes.
    Range: Each numeric string: 0...65535
    Default: 0-0-0-0-0-0-0-0-0-0
35. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc).
    Type: numeric string
    Default: 2
36. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the strcwfmt parameter.
    Type: Hexadecimal digits
    Range: 1 byte string; 16 bytes string; 64 bytes string dependent on the *strcwfmt* parameter. Each byte shall be expressed as two hexadecimal digits (example value: 6D).
    Value constraint for 16 byte format: The first byte value shall be in the range from 80 to FF. The other byte values shall be in the range from 00 to 7F.
    Default: 01Hex
37. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout).
    Type: numeric string
    Default: 2

38. unequiposig – Unequipped Output Signal List
    Tributary Unequipped Output Signal Rate List. This parameter is a list of STSn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross connection. unequiposig and inputsig do not need to have the identical setting. Mixed rates for tx and rx side of the port shall be allowed. If trbmd is ADAPTIVE, then unequiposig is settable and retrievable as in fixed mode but does not influence the port behaviour.
    Type: numeric value set. NX-NX-NX-... N is the number of Xs. X can be 1, 3, 12 or 48 representing STS1, STS3C, STS12C or STS48C.
    Default: 481 = all STS1 (fixed)
39. z0outmode – Mode of outgoing Z0 byte insertion
    The Z0 insertion shall be configurable to support interworking with old SONET equipment for STS-M interfaces (M=3,12,48).
    Type: alphanumeric value set
    Range: FIXEDCC (default). for inserting the fixed value CChex, STSID: for inserting the STS-Id of the current frame Default FIXEDCC

Example output

```
ED-OC48:UNITE-NE:1-1-#-#-u1-1:123456:::INPUTSIG=74-33-84,UNEQUIPOSIG=74-
    33-84;
   UNITE-NE 00-11-28 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-OC48:1-1-#-#-1-1::inputsig=74-33-
    84,unequiposig=74-33-84:"
;
```

□

ED-OC48T: Edit OC48 transparent port

The ED-OC48T command is used to provision all parameters related to optical OC48 transport port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: no

Input format

Command Syntax: `ED-OC48T`:*tid:aid:ctag:::spec_block*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   Type: AID.
   Range: OC-48T port AID.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.

Type: Hexadecimal digits
Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
Default: 89hex followed by 15 bytes 00hex

2. exprstrcout - Value of Expected J0 in outgoing direction
   Expected regenerator section trace identifier in outgoing (egress) direction.
   The parameter expstrcout specifying the expected path trace is only relevant for the section trace supervision in outgoing direction when the related trace read format strcfmtout is set to 16 (16-byte-specific-string mode).
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte shall be expressed as two hexadecimal digits (example value: 6D). The first byte value shall be in the range from 80 to FF. The other byte values shall be in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
3. istd – Interface Standard
   Each synchronous optical interface can be set to SDH or SONET.
   Type: alphanumeric value set.
   Range: SONET.
4. pmode – Port Mode
   This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
   Type: alphanumeric value set
   Range:
   - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
   - MON indicates that alarm monitoring is taking place on the port.
   - NMON means that alarm monitoring is not occurring on the port.
5. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
   This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET.
   Type: numeric value set.
   Range (superset of allowed ranges for SDH and SONET):1 – 64000
   Default: The default values differ for SDH and SONET and the different rates:
   - SDH (all rates): 2400
   - SONET OC48: 2392
   - SONET OC192: 8554
   - SONET OC768: 22776.

6. pmrsnesesout - Performance Monitoring Section/RS Near-End SES Threshold in Outgoing Direction
   This parameter describes the Section/RS Near-End SES threshold value for the outgoing (egress) direction. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severly errored. The default value depends on the interface standard and may differ between SDH and SONET.
   Type: numeric value set
   Range (superset of allowed ranges for SDH and SONET): 1 - 64000
   Default:
   The default values differ for SDH and SONET and the different rates:
   - SDH (all rates): 2400
   - SONET OC48: 2392
7. rstimmon – RS TIM Monitor Enable
   Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
   This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
   Type: alphanumeric value set.
   Range:
   - ENABLE: enable TIM Monitor
   - DISABLE (default): disable TIM Monitor
8. rstimmonout - RS TIM Monitor Enable in Outgoing direction
   Regenerator Section Trace Identifier Mismatch Monitor enable (J0) in outgoing (egress) direction. This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set
   Range: ENABLE - enable TIM Monitor, DISABLE (default) - disable TIM Monitor
9. servcond – Service Condition
   This parameter indicates its status concerning service involvement.
   Type: alphanumeric value set.
   Range:
   - INSERVICE (default): Provisioning values for service are accepted
   - OUTOFSERVICE: Provisioning values for service are not accepted.
10. sltca – Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.

11. sonet – SONET ASAP
    This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH Alarm Severity Assignment Profile for SDH ports (see "RTRV-STM16: Retrieve STM16 port" (p. 4-2099), output parameter *sdhpn*) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
12. spm – Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).

    For ED-OC48T this parameter refers to the incoming (ingress) direction.
13. spmout - Section PM Enable in Outgoing Direction
    Enable or disable regenerator section (section) performance monitoring for the outgoing (egress) direction.
    Type: alphanumeric value set.
    Range: ENABLE, DISABLE (default).
14. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).

    For ED-OC48T this parameter refers to the incoming (ingress) direction.
15. strcfmtout - Format of outgoing J0
    The read format of J0 in outgoing (egress) direction, the outgoing section trace (strcout) and the expected section trace (exprstrcout).
    Type: numeric string
    Range:
    - 1, for specific repeating byte (SONET)
    - 2 (default), for non-specific repeating byte (ITU/ETSI mode 2)

- 16, for 16 byte specific string (ITU/ETSI mode 1)
- 64, for 64 byte string (SONET).

Output format

If the ED-OC48T command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The command modifies the attributes (listed in the *spec_block* parameters part of this command) of the addressed port entity according to the parameters given with this command.

The modification is reported by means of an ED-OC48T notification for port (except for parameter *istd;* see below).

Change of J0 expected format - FM impact

When the expected J0 format (strcfmt/strcfmtout) is changed to 16 (16 byte specific string) while the TI Mismatch detection is enabled, then the TI Mismatch alarm shall be updated according to the provisioned ecpected J0 (expstrc/expstrcout) and the currently received J0 (strc/strcout).

When the expected J0 format is changed away from 16, while the TI Mismatch alarm is active, then the TI Mismatch alarm shall be cleared.

Switching of interface standard – Ignore other parameters

If additional parameters beside *istd* are specified with the *ED-rr* command they will be ignored by the NE.

This simple approach has the advantage that all ambiguous situations are avoided and it is not necessary to implement an order or follow a certain sequence when evaluating the parameters.

Switching of interface standard – FM impact

The change of the interface standard of a port from SONET to SDH has the following impact related to Fault Management:

- all SONET alarms related to that port are cleared
- the corresponding SDH alarms are raised.

Switching of interface standard – Impact on port parameters

The switching of *istd* should not result in an deletion and recreation of the port. NE internally there are no differences between SDH and SONET.

Switching of interface standard :

In detail the following attributes are influenced by switching of the *istd* from SONET to SDH (see also the related RTRV-STM*n* command for SDH parameter description):

- *istd* is set to SDH
- *rstimmon* is set to the default value for a SDH port
- *rstimmonout* is set to the default value for a SDH port
- *spm* is mapped to *rspm* (no changes)
- *spmout* is mapped to rspmout (no changes)
- *sonet* is mapped to *sdhpn* (no changes)
- *rsmstca* is set to the default value for an SDH port
- *tcamd* is set to the default value for a SDH port
- *pmrsneses* is set to the default value for a SDH port
- *pmrsnesesout* is set to the default value for a SDH port.

All other port parameters remain unchanged.

Switching of interface standard – notification behavior for port attributes

When changing the interface standard *istd* using the ED-OCn command all resulting parameter changes are reported by ED-STMn notifications of the related port rate. This is valid for the parameter istd itself as well as for all other parameters which might change as a consequence of changing the interface standard.

Switching of interface standard – PM impact

The change of interface standard has the following impacts w.r.t. existing PM registers:

1. all current bins related to the port will be reset
2. all history bins related to the port remain unchanged
3. all current bins related to tributaries being a member of the port will be reset
4. all history bins related to tributaries being a member of the port remain unchanged.

Retrieving the bins after switching the interface standard may result in a strange reporting behavior:

- When switching the interface standard to SONET the periods before the switch contain SDH-related parameters and values even though the port is addressed as a SONET port.
- When switching the interface standard to SDH the periods before the switch contain SONET-related parameters and values even though the port is addressed as a SDH port.

Disabling of PM monitor

The disabling of a PM monitor shall have the following impacts w.r.t. existing PM registers:

1. stop PM counting
2. all current bins related to the PM monitor shall be deleted
3. all history bins related to the PM monitor shall be deleted

The term PM monitor has the same semantics as the term PM package as used in SRD_PerformanceMonitoring. The number of PM monitors is determined by means of the number of *pm enable attributes*.

PM monitors can be disabled explicitly by means of the *pm enable* attribute or are implicitly disabled as part of a port/tributary deletion.

Additional to the above listed impacts (ID 52924) the disabling of a PM monitor shall have the following impacts: the system has to clear all active TCA events of the deleted PM monitor if TCA mode TR-RTR was selected.

Example input/output

```
ED-OC48T:UNITE-NE:1-1-#-#-1-1:123456:::SPM=ENABLE,
SPMOUT=ENABLE;
   UNITE-NE 00-11-28 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-OC48T:1-1-#-#-1-1::
   spm=enable,spmout=ENABLE:"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the ED-OC48 command.

Validation rule: ASAP profile exists

Check of the existence of the ASAP profile.

Error code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: TCA profile exists

Check of the existance of the TCA profile.

Error Code: `IDNV - Input, Data Not Valid, TCA profile does not exist.`

Validation rule: *servcond* must be disabled for facility loopback

Check that the *servcond* is not enabled when a facility loopback is existing for this port.

Error code: `SNVS - Status, Not in Valid State, Facility Loopback is active for this port`

Check CCB against *ptype* and *istd*

Check wether the CCB fits to ptype and istd.

Error Code: `ICNV - Input, Command Not Valid, Interface Standard does not match`

Related TL1 messages

"RTRV-OC48T: Retrieve OC48T port" (p. 4-1908)

References

GR-199-CORE (ED-*rr*)

□

ED-OC48T autonomous notifications

LOS for OC48 Transparent transmission port clears

If LOS is cleared and current port mode is AUTO, then *portmode* is updated (new value: MON). This update is reported via ED-OC48T notification with parameter *pmode*.

□

ED-OC48T notifications

Output format

The ED-OC48T notification shall use the general format of a REPT DBCHG Report Database Change notification.

Syntax

`ED-OC48T`*:aid::spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID.
   Range: OC-48 port AID.

Spec block parameters

1. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
2. exprstrcout - Value of Expected J0 in outgoing direction
   Expected regenerator section trace identifier in outgoing (egress) direction.
   The parameter expstrcout specifying the expected path trace is only relevant for the section trace supervision in outgoing direction when the related trace read format strcfmtout is set to 16 (16-byte-specific-string mode).
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte shall be expressed as two hexadecimal digits (example value: 6D). The first byte value shall be in the range from 80 to FF. The other byte values shall be in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex

3. fsflpbkstat - Far Side Facility Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output *aid.*
   A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
   Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).
4. istd – Interface Standard
   Each synchronous optical interface can be set to SDH or SONET.
   Type: alphanumeric value set.
   Range: SONET.
   Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
5. lpbk - Loopback
   This parameter specifies the current near-side loopback status of the considered output *aid*.
   A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).
6. pmode – Port Mode
   This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
   Type: alphanumeric value set
   Range:
   - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
   - MON indicates that alarm monitoring is taking place on the port.
   - NMON means that alarm monitoring is not occurring on the port.

7. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
   This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET.
   Type: numeric value set.
   Range (superset of allowed ranges for SDH and SONET):1 – 64000
   Default: The default values differ for SDH and SONET and the different rates:
   - SDH (all rates): 2400
   - SONET OC48: 2392
   - SONET OC192: 8554
   - SONET OC768: 22776.

   For ED-OC48T Notification this parameter refers to the incoming (ingress) direction.
8. pmrsnesesout - Performance Monitoring Section/RS Near-End SES Threshold in Outgoing Direction
   This parameter describes the Section/RS Near-End SES threshold value for the outgoing (egress) direction. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severly errored. The default value depends on the interface standard and may differ between SDH and SONET.
   Type: numeric value set
   Range (superset of allowed ranges for SDH and SONET): 1 - 64000
   Default:
   The default values differ for SDH and SONET and the different rates:
   - SDH (all rates): 2400
   - SONET OC48: 2392
9. rstimmon – RS TIM Monitor Enable
   Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
   This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
   Type: alphanumeric value set.
   Range:
   - ENABLE: enable TIM Monitor
   - DISABLE (default): disable TIM Monitor

   For ENT-OC48T Notification this parameter refers to the incoming (ingress) direction.

10. rstimmonout - RS TIM Monitor Enable in Outgoing direction
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0) in outgoing (egress) direction. This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set
    Range: ENABLE - enable TIM Monitor, DISABLE (default) - disable TIM Monitor
11. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
12. sltca – Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
13. sonet – SONET ASAP
    This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH Alarm Severity Assignment Profile for SDH ports (see "RTRV-STM16: Retrieve STM16 port" (p. 4-2099), output parameter *sdhpn*) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
14. spm – Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).

    For ED-OC48T this parameter refers to the incoming (ingress) direction.
15. spmout - Section PM Enable in Outgoing Direction
    Enable or disable regenerator section (section) performance monitoring for the outgoing (egress) direction.
    Type: alphanumeric value set.
    Range: ENABLE, DISABLE (default).

16. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).

    For ED-OC48T this parameter refers to the incoming (ingress) direction.
17. strcfmtout - Format of outgoing J0
    The read format of J0 in outgoing (egress) direction, the outgoing section trace (strcout) and the expected section trace (exprstrcout).
    Type: numeric string
    Range:
    - 1, for specific repeating byte (SONET)
    - 2 (default), for non-specific repeating byte (ITU/ETSI mode 2)
    - 16, for 16 byte specific string (ITU/ETSI mode 1)
    - 64, for 64 byte string (SONET).

Example input/output

```
ED-OC48T:UNITE-NE:1-1-#-#-1-1:123456:::SPM=ENABLE,
SPMOUT=ENABLE;
   UNITE-NE 00-11-28 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-OC48T:1-1-#-#-1-1::
   spm=ENABLE,spmout=ENABLE:"
;
```

□

ED-OC192: Edit OC192 port

The ED-OC192 command is used to provision all parameters related to an optical OC192 port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: no

Input format

Command Syntax: `ED-OC192`:*tid:aid:ctag:::spec_block*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   Access Identifier of an OC192 port.
   Type: AID.
   Range: SPortAID of OC192 port.
   The keyword `all` is allowed up to shelf level.
   For changing the *portControl* parameter the ALL qualifier for the port aid shall be allowed.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....65535
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, ... 50.
   Default: 30.
4. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
5. fec – FEC Enable
   Forward Error Correction Enable. Enable to include the FEC information in the outgoing signal.
   Type: alphanumeric value set.
   Range:

   DISABLE (only) for:

   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics

- OC192 / STM64 low cost intra office 1310nm optics
- OC768/STM256 basis low cost intra office 1.3m optics.

ENABLE / DISABLE for:

- OC192 / STM64 OLS800G compatible 80 colour optics
- OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G
- OC768 / STM256 Long Reach / Long Haul 1.5æ optics with strong FEC (80km)
- OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

Default:

DISABLE for:

- OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
- OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
- OC192 / STM64 Long Reach / Long Haul 1550 nm optics
- OC192 / STM64 low cost intra office 1310nm optics
- OC192 / STM64 low cost intra office 1310nm optics
- OC768/STM256 basis low cost intra office 1.3m optics

ENABLE for:

- OC192 / STM64 OLS800G compatible 80 colour optics
- OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G
- OC768 / STM256 Long Reach / Long Haul 1.5æ optics with strong FEC (80km)
- OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

6. felpm – Far-end Line PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
7. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU

8. inputsig – Tributary Input Signal Rate List
   This parameter is a list of STSn rates across the port's bandwidth.
   If *trbmd* is FIXED, then *inputsig* constrains the cross-connection rates that can be entered for the port. If *trbmd* is ADAPTIVE, then *inputsig* is settable and retrievable as in fixed mode but does not influence the port behavior.
   Type: numeric value set.
   Range: NX-NX-NX-...
   N is the number of Xs. X can be 1, 3, 12, 48, 192 representing STS1, STS3C, STS12C, STS48C or STS192C.
   Default: 1921.
9. istd – Interface Standard
   Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter istddflt.
   Type: alphanumeric value set.
   Range: SDH.
   Default: SDH
10. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS192 (default), STS48, STS12, STS3, STS1.
11. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS1 (default), STS3, STS12, STS48, STS192.
12. msrei – MS-REI mode
    Definition: An special extended MS REI mode is standardized for STM64/OC192 interfaces. To support the interworking with older STM64/OC192 interfaces the single byte mode (non-extended) should also be supported.
    Type: alphanumeric value set.
    Range:
    - SINGLE
    - EXTENDED (default).

13. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
14. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
15. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN. If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″
16. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.

neighborPortID is introduced specifically for use by NN application.
Type: Four dash separated numeric string.
Range: Each numeric string: 0...255.
Default: 0-0-0-0.
Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.

17. nelpm – Near-End Line PM Enable
    Enable or disable near-end line performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
18. och – optical channel enable
    Enable or disable of the optical channel. If the optical channel is disabled the further optical channel parameters don't have any impact on transmission.
    Type: alphanumeric value set.
    Range:
    - for OP10 packs, which support to enable or disable OCH: ENABLE: enable optical channel; DISABLE: disable optical channel
    - for OP10 and OP40 packs, which cannot support OCH: DISABLE: disable optical channel
    - for OP10 and OP40 packs, which only support OCH: ENABLE: enable optical channel.

    Default:
    - for OP10 and Op40 packs, which cannot support OCH: DISABLE
    - for OP10 packs, which cannot support OCH: ENABLE
    - for OP10 and OP40 packs, which only support OCH: ENABLE.
19. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

Default: The default values differ for SDH and SONET and the different rates:

- STM16: 460800
- STM64: 1843200
- STM256: 7372800
- SONET OC48: 2459
- SONET OC192: 9835
- SONET OC768: 39340.

20. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.

    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:

    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.

21. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set

    Range:

    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.

22. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000
    Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392
    - SONET OC192: 8554
    - SONET OC768: 22776.
23. polynomial - Optical Channel Scrambling Polynomial
    This parameter is used by the Wavewrapper scrambler on the optical channel. This parameter is relevant only if the optical channel is enabled (och == ENABLE).
    Type: numeric value set.
    Range: 1x7 + x + 1; 2x16 + x12 + x3 + x + 1.
    Default: 2.
24. portClass – Port Class
    This identifies the port class of the AID.
    portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.
25. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
    portControl is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.
26. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(default) ...255.

27. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable consequent action for TIM
    - DISABLE (default): disable consequent action for TIM.
28. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
29. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST
    - POISSON (default).
30. sdthr – Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
31. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.

32. sfthr – Signal Failure Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –3; –4; –5.
    Default: –3.
33. sltca – Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
34. sonet – SONET ASAP
    This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH Alarm Severity Assignment Profile for SDH ports (see "RTRV-STM64: Retrieve STM64 port" (p. 4-2122), output parameter *sdhpn*) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
35. spm – Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
36. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0-0-0-0-0-0-0-0.
37. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string

Range:

- 1: for specific repeating byte (SONET)
- 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
- 16: for 16 byte specific string (ITU/ETSI mode 1).
- 64: for 64 byte string (SONET).

38. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
39. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
40. unequiposig – Unequipped Output Signal List
    This parameter is a list of STSn rates across the port's bandwidth. It determines the rate(s) of the *unequipped* signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need to have the identical setting. Mixed rates for *tx* and *rx* side of the port are allowed. If *trbmd* is ADAPTIVE, then *unequiposig* is settable and retrievable as in fixed mode but does not influence the port behavior.

Type: numeric value set.
Range: NX-NX-NX-...
N is the number of Xs. X can be 1, 3, 12, 48 or 192 representing STS1, STS3C, STS12C, STS48C or STS192C.
Default: 1921 = all STS1 (fixed)

Output format

If the ED-OC192 command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The command modifies the attributes (listed in the *spec_block* parameters part of this command) of the addressed port entity according to the parameters given with this command.

The modification is reported by means of an ED-OC192 notification for port (except for parameter *istd;* see below).

Switching of interface standard – Ignore other parameters

If additional parameters beside *istd* are specified with the *ED-rr* command they will be ignored by the NE.

This simple approach has the advantage that all ambiguous situations are avoided and it is not necessary to implement an order or follow a certain sequence when evaluating the parameters.

Switching of interface standard – FM impact

The change of the interface standard of a port from SONET to SDH has the following impact related to Fault Management:

- all SONET alarms related to that port are cleared
- the corresponding SDH alarms are raised.

Switching of tributary mode

When changing the parameter *trbmd* – tributary mode from FIXED to ADAPTIVE the parameter *crstat* may change its value, too, depending on the current input signal structure. This change is notified using the related ED-OC192 notification.

When changing the parameter *trbmd* – tributary mode from ADAPTIVE to FIXED the parameter *crstat* may change its value, too, depending on the current setting of parameter *inputsig*. This change is notified using the related ED-OC192 notification.

Supply outgoing J0 trace value and format together

When changing the format of the outgoing J0 trace *strcwfmt*, the parameter *strcout* specifying the outgoing J0 trace is always supplied within the same TL1-command to always have a consistent set of trace format and value.

When the format of the outgoing J0 trace *strcwfmt* is set to 2 (non-specific repeating byte) then the outgoing J0 trace (mandatory parameter strcout) specified in the command shall be ignored.

Supply outgoing J0 trace value according to format of outgoing J0

When changing the outgoing J0 trace value, the format must be according to the format parameter *strcwfmt* for the outgoing J0 trace.

Change of J0 expected format - FM impact

When the expected J0 format (strcfmt) is changed to 16 (16 byte specific string) while the TI Mismatch detection is enabled, then the TI Mismatch alarm shall be updated according to the provisioned ecpected J0 (expstrc) and the currently received J0 (strc).

When the expected J0 format is changed away from 16, while the TI Mismatch alarm is active, then the TI Mismatch alarm shall be cleared.

Switching of interface standard – Impact on port parameters

The switching of *istd* should not result in an deletion and recreation of the port. NE internally there are no differences between SDH and SONET.

Switching of interface standard I:

In detail the following attributes are influenced by switching of the *istd* from SONET to SDH (see also the related RTRV-STM*n* command for SDH parameter description):

- *brstintvl* is set to the default value
- *brstthr* is set to the default value
- *crstat* may change according to its semantics (see description of *crstat*)
- *degthr* is set to the default value for an SDH port
- *dexcthr* is set to the default value for an SDH port
- *felpm* is mapped to *femspm* (no changes)
- *inputsig* is set to the default value
- *istd* is set to SDH
- *nelpm* is mapped to *nemspm* (no changes)
- *rstimca* is set to the default value for a SDH port
- *rstimmon* is set to the default value for a SDH port

- *sdsfmode* is set to the default value for an SDH port
- *spm* is mapped to *rspm* (no changes)
- *sonet* is mapped to *sdhpn* (no changes)
- *trbmd* is set to the default value for an SDH port
- *unequiposig* is set to its default value.

All other port parameters remain unchanged.

Switching of interface standard II:

In addition to the list of attributes above the following attributes are influenced by switching of the *istd* from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- *rsmstca* is set to the default value for an SDH port
- *tcamd* is set to the default value for a SDH port.

Switching of interface standard III:

In addition to the list of attributes above the following attributes are influenced by switching of the *istd* from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- *pmmsfeses* is set to the default value for a SDH port
- *pmmsneses* is set to the default value for a SDH port
- *pmrsneses* is set to the default value for a SDH port.

Switching of interface standard IV:

In addition to the list of attributes above the following attributes are influenced by switching of the istd from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- minNNXCrate is set to the default value for a SDH port
- maxNNXCrate is set to the default value for a SDH port

Switching of interface standard – Side effects on tributaries

The switching of *istd* should not result in an deletion and recreation of the tributaries of a port. NE internally there are no differences between SDH and SONET.

In detail the following side-effects apply to the related tributary attributes when switching the *istd* from SONET to SDH (see also the related RTRV-STM*n* command for SDH parameter description):

- *brstintvl* is set to the default value for a SDH tributary
- *brstthr* is set to the default value for a SDH tributary
- *pse* (PDI-P parameter) shall be set to the default value for a SDH tributary
- *sdsfmode* is set to the default value for a SDH tributary.

Switching of interface standard – Side effects on tributaries II

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- *degthr* is set to the default value for an SDH tributary
- *dexcthr* is set to the default value for an SDH tributary
- *ptca* shall be set to the default value for a SDH tributary
- *tcamd* is set to the default value for a SDH tributary.

Switching of interface standard – Side effects on tributaries III

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- *pmhpneses* is set to the default value for an SDH tributary
- *pmhpfeses* is set to the default value for an SDH tributary.

Switching of interface standard – notification behavior for port attributes

When changing the interface standard *istd* using the ED-OCn command all resulting parameter changes are reported by ED-STMn notifications of the related port rate. This is valid for the parameter istd itself as well as for all other parameters which might change as a consequence of changing the interface standard.

Switching of interface standard – notification behavior for tributary attributes

When changing the interface standard *istd* using the ED-OCn command all resulting tributary parameter changes are reported by ED-VC3 notifications.

Switching of interface standard – PM impact

The change of interface standard has the following impacts w.r.t. existing PM registers:

1. all current bins related to the port will be reset
2. all history bins related to the port remain unchanged
3. all current bins related to tributaries being a member of the port will be reset
4. all history bins related to tributaries being a member of the port remain unchanged.

Retrieving the bins after switching the interface standard may result in a strange reporting behavior:

- When switching the interface standard to SONET the periods before the switch contain SDH-related parameters and values even though the port is addressed as a SONET port.
- When switching the interface standard to SDH the periods before the switch contain SONET-related parameters and values even though the port is addressed as a SDH port.

Disabling of PM monitor

The disabling of a PM monitor shall have the following impacts w.r.t. existing PM registers:

1. stop PM counting
2. all current bins related to the PM monitor shall be deleted
3. all history bins related to the PM monitor shall be deleted

The term PM monitor has the same semantics as the term PM package as used in SRD_PerformanceMonitoring. The number of PM monitors is determined by means of the number of *pm enable attributes*.

PM monitors can be disabled explicitly by means of the *pm enable* attribute or are implicitly disabled as part of a port/tributary deletion.

Additional to the above listed impacts (ID 52924) the disabling of a PM monitor shall have the following impacts: the system has to clear all active TCA events of the deleted PM monitor if TCA mode TR-RTR was selected.

ONNS specific behaviour - Impact on portControl changing *portClass*

When portClass is changed to TRADITIONAL, *portControl* shall be set to NORMAL, if not set differently within the same command.

Such a change shall be reported by an ED-OC192 notification for the parameter *portControl*.

ONNS specific behaviour - Impact on tributary mode setting when *portClass* is set to INNI

When *portClass* is set to INNI for a port, the parameter *trbmd* shall be set to ADAPTIVE. This shall be reported by an ED-OC192 notification for the parameter *trbmd*.

ONNS specific behaviour - Impact on tributary mode setting when *portClass* is set to EDGE

When *portClass* is set to EDGE for a port, the parameter *trbmd* shall be set to FIXED. This shall be reported by an ED-OC192 notification for the parameter *trbmd*.

ONNS specific behaviour - Impact on *loca*, *locz* when setting *portClass* from EDGE to TRADITIONAL when port is involved in a 2F or 4F BLSR/MSSPRING protection group

For all tributaries of that port the *loca*, *locz* parameters shall be reset to their default values (empty string). This is reported by an ED-STS1 (istd=SONET for the port) or ED-VC3 (istd=SDH for the port) notification using a range over the port.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI and *ndetmd* is set to AUTO

When *portClass* is set to INNI and *ndetmd* is set to AUTO for a port, the parameter *pmode* shall be set to MONITORING. This shall be reported by an ED-OC192 notification for the parameter *pmode*.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI and *ndetmd* is set to MAN

When *portClass* is set to INNI and *ndetmd* is set to MAN for a port, the parameters *rstimca* and *rstimmon* are set to DISABLE. This is reported by an ED-OC12 notification for the parameters *rstimca* and *rstimmon*.

ONNS specific behaviour - Impact on tributary parameter settings when *portClass* is set to INNI

When *portClass* is set to INNI, the parameter *hptimmon* is set to DISABLE for all tributaries located on this port.. This is reported by ED-STS1 notifications for the parameter *hptimmon*.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI

When *portClass* is set to INNI, each of the following parameters shall take its default value, unless a value is specified together with the transition of portClass to INNI.

- *ndetmd*
- *neighborASTNNodeID*
- *neighborNodeID*
- *neighborPortID*

ONNS specific behaviour - Impact on neighbour related parameters if *portClass* is changed away from INNI

When *portClass* is changed away from INNI, the following parameters shall be set to their default values: *neighborASTNNodeID*, *neighborNodeID*, *neighborPortID*.

ONNS specific behaviour - Impact on port parameter settings when *ndetmd* is set to AUTO

When *ndetmd* is set to AUTO for a port, the parameters *neighborNodeID*, *neighborPortID* or *neighborASTNNodeID* shall keep their current values until automatic neighbor detection delivers new valid values.

ONNS specific behaviour - Impact on port parameter settings while *portClass* is INNI

When *portClass* has the value INNI for a port, setting of the following parameters shall be inhibited:

- *exprstrc*
- *rstimca*

- *rstimmon*
- *strcfmt*
- *strcout*
- *strcwfmt.*

At the moment *portClass* is changed away from INNI the parameters are set back to their default values. This shall be reported by means of an ED-OC192 notification.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is different from INNI

When *portClass* has a value being different from INNI for a port, setting of the following parameters shall be accepted, but shall have no impact until *portClass* is changed to INNI:

- *propagationDelay*, *adminCost*, *srlgList*, *link_includeID,maxNNXCRate*, *maxNNXCRate*.

At the moment the *portClass* is changed to INNI the current values of these parameters shall be considered as valid.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is different from INNI

When *portClass* has a value being different from INNI for a port, setting of the following parameters shall be accepted:

- *ndetmd*, *neighborASTNNodeID*, *neighborNodeID*, neighborPortID.

ONNS specific behaviour - Impact on port parameter settings while *portClass* is TRADITIONAL

When *portClass* has the value TRADITIONAL for a port, setting of the following parameters will be accepted, but will have no impact until *portClass* is changed away from TRADITIONAL: *portControl*.

At the moment the *portClass* is changed away from TRADITIONAL the current values of these parameters shall be considered as valid.

Example input/output

```
ED-OC192:UNITE-NE:1-1-#-#-1-1:123456:::INPUTSIG=74-33-84,UNEQUIPOSIG=74-
     33-84;
   UNITE-NE 00-11-28 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-OC192:1-1-#-#-1-1::inputsig=74-33-
     84,unequiposig=74-33-84:"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the ED-OC192 command.

Validation rule: Enough bandwidth reserved for 2F protection group

Check of the tributary rate (*inputsig/uneqiposig*) if the port is member of a 2f protection group. Then the assigned bandwidth is max. half of the port's bandwidth.

Error code: `IDNV - Input, Data Not Valid, Assigned bandwidth exceeds half port's bandwidth`

Validation rule: ASAP profile exists

Check of the existence of the ASAP profile.

Error code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: TCA profile exists

heck of the existance of the TCA profile.

Error Code: `IDNV - Input, Data Not Valid, TCA profile does not exist`

Validation rule: *inputsig* consistent with existing cross-connections for fixed tributary mode

Check of the consistency of the structure of the input signal (*inputsig*) with existing cross-connections if the port operates in the fixed tributary mode.

Error code: `SNVS - Status, Not in Valid State, signal structure cannot be changed for connected parts of a fixed port`

Validation rule: *unequiposig* consistent with existing cross-connections for fixed tributary mode

Check of the consistency of the structure of the output signal (*unequiposig*) with existing cross-connections if the port operates in the fixed tributary mode.

Error code: `SNVS - Status, Not in Valid State, signal structure cannot be changed for connected parts of a fixed port`

Validation rule: No lower order cross-connections for *istd*, *trbmd* change

Check that istd is not changed or the trbmd is not set ADAPTIVE when lower order cross-connections exist at a tributary of the port. If lower order cross-connections exist, the following error message shall be returned:

Error code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

Validation rule: no cross-connections for *istd*, *trbmd* change

Check that istd is not changed or the *trbmd* is not set FIXED when cross-connections are still on this port.

Error code: `SNVS - Status, Not in Valid State, cross-connections are still existing`

Validation rule: no loopbacks for *istd*, *trbmd* change

Check that istd is not changed or the *trbmd* is not set FIXED when cross-connection loopback is still on this port.

Error code: `SNVS - Status, Not in Valid State, a loopback is existing`

Validation rule: no test access session for *istd*, *trbmd* change

Check that istd is not changed or the trbmd is not set FIXED when a tributary related to this port is used in a test access session either as tributary under test or as test access tributary.

Error Code: `SNVS - Status, Not in Valid State, a test access session exists`

Validation rule: no protection for *istd*, *trbmd* change

Check that *istd* is not changed or the *trbmd* is not set FIXED when this port is in an protection group

Error code: `SNVS - Status, Not in Valid State, a protection group is existing`

Validation rule: No ONNS for interface standard change

Check that the interface standard parameter (istd) is not changed if ONNS functionality is available.

This means:

- *portClass* must be TRADITIONAL or
- *portControl* must be LOCKOUT.

Error code: `SNVS - Status, Not in Valid State, SwiSS access possible`

Validation rule: no path protection for *trbmd* change to ADAPTIVE

Check that *trbmd* is not set to ADAPTIVE when tributaries of this port are used as input tributaries in a path protection group.

Error code: `SNVS - Status, Not in Valid State, a path protection group is existing`

Validation rule: *servcond* must be enabled when timing source

Check that the *servcond* is not disabled when the port is used as a timing source.

Error code: `SNVS - Status, Not in Valid State, Timing reference is assigned to this port`

Validation rule: *servcond* must be enabled when DCC enabled

Check that the *servcond* is not disabled when DCC channels are still existing for this port.

Error code: `SNVS - Status, Not in Valid State, DCC channels are active for this port`

Validation rule: *servcond* must be enabled when *portClass*=INNI

Check that the servcond is not OUTOFSERVICE when portClass=INNI.

Error code: `SNVS - Status, Not in Valid State, can not disable servcond for INNI ports`

Validation rulr: *servcond* must be enabled for protection ports

Check that the servcond is not OUTOFSERVICE if the port is used as protection port.

Error code: `SNVS - Status, Not in Valid State, can not disable servcond for protection ports`

Validation rule: *servcond* must be disabled for facility loopback

Check that the *servcond* is not enabled when a facility loopback is existing for this port.

Error code: `SNVS - Status, Not in Valid State, Facility Loopback is active for this port`

Validation rule: Supply of outgoing J0 trace

Check that an outgoing J0 trace value (*strc* out) is supplied, too, if the format of the outgoing J0 trace (*strcwfmt*) is changed.

Error code: `IDNC - Input, Data Not Consistent, a new trace value must also be supplied for a trace format change.`

Validation rule: transmitted path trace length

Check that the length of the outgoing J0 trace value (*strcout*) fits to the length given by outgoing J0 trace mode, i.e. write format (*strcwfmt*).

Error code: `IDNC - Input, Data, Not Consistent, strcout length must match the given outgoing J0 trace mode.`

Validation rule: Change of FEC parameters only if supported by the current circuit pack

When changing one of the FEC-related parameters *fec, feccor* and *fectype* it will be checked, whether the currently provisioned circuit pack supports this. If it is not supported the following error code is used:

Error code: `IDNV - Input, Data Not Valid, Parameter not supported`

Validation rule: Enabling of optical channel only if supported by the current circuit pack

When enabling the optical channel via parameter *och* it will be checked, whether the currently provisioned circuit pack supports this. If it is not supported the following error code is used:

Error code: `IDNV - Input, Data Not Valid, Parameter not supported`

Validation rule: Enabling of FEC only while optical channel is enabled

The command is denied if FEC is enabled (*fec* = *ENABLE*) while the optical channel is disabled or if the optical channel is disabled enabled (*och* = *DISABLE*) while FEC is enabled. It shall be allowed to enable or disable FEC and the optical channel together in one command.

Error code: `SNVS - Status, Not in Valid State, Optical Channel must be enabled`

Validation rule: 'ALL' qualifier used for wrong parameters

The AL' qualifier for the port aid is only allowed for changing the *portControl* parameter.

Error Code: `IDNC - Input, Data Not Consistent, 'ALL' qualifier for port aid not allowed`

Check CCB against *ptype* and *istd*

Check wether the CCB fits to ptype and istd.

Error Code: `ICNV - Input, Command Not Valid, Interface Standard does not match`

ONNS specific validation rule: *portClass* only settable when *xcsetup*=SWISS

Modification of the *portClass* parameter shall only be allowed when *xcsetup*=SWISS.

Error Code: `SNVS - Status, Not in Valid State, SwiSS not enabled`

ONNS specific validation rule: Not allowed to change the *portClass* directly from INNI to EDGE or EDGE to INNI

It is not be allowed to change the *portClass* of a port directly from INNI to EDGE or from EDGE to INNI.

Error Code: `SNVS - Status, Not in Valid State, Port Class must not be EDGE or INNI`

ONNS specific validation rule: Setting of *portClass* to INNI not possible for ports in protection groups

It shall not be allowed to change *portClass* of a port to INNI, if this port is member of a Line/MS protection scheme.

Error Code: `SNVS - Status, Not in Valid State, Port must not be member of a protection group`

ONNS specific validation rule: Setting of *portClass* to INNI only possible, if no cross-connection existing

It shall not be allowed to change *portClass* to INNI, if cross-connections on that port are still existing.

Error Code: `SNVS - Status, Not in Valid State, Cross-connections still existing`

ONNS specific validation rule: Setting of *portClass* to INNI only possible, if no lower order cross-connections exist

Check if lower order cross-connections exist which involve the port to be changed. If lower order cross-connections exist, the following error message shall be returned:

Error Code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

ONNS specific validation rule: Setting of *portClass* to INNI only possible, if service condition not OUTOFSERVICE

It shall not be allowed to change *portClass* to INNI, if *servcond*=OUTOFSERVICE.

Error code: `SNVS - Status, Not in Valid State, port in out of service state`

ONNS specific validation rule: Setting of *portClass* to INNI or EDGE only possible, if no test access session active

It shall not be allowed to change *portClass* of a port to INNI or EDGE when a tributary related to this port is used in a test access session either as tributary under test or as test access tributary.

Error Code: `SNVS - Status, Not in Valid State, a test access session exists`

ONNS specific validation rule: Setting of *portClass* away from INNI only possible, if the port is not in use

For setting *portClass* from INNI to TRADITIONAL or EDGE the following must be fulfilled:

- No cross-connection may exist on any tributary of the port
- *portControl* must be LOCKOUT

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

ONNS specific validation rule: Setting of *portClass* away from INNI only possible, if the port is not in use by M:N reservation

For setting *portClass* from INNI to TRADITIONAL or EDGE the following must be fulfilled:

- No reservation related to a protecting NN connection within an M:N protected connection group may exist on any tributary of the port

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

ONNS specific validation rule: Changing of *portClass* from INNI to EDGE or TRADITIONAL only possible, if no DCC for SCN is enabled on the port

For changing the value of the parameter portClass no DCC of the port must be enabled for the SCN.

Error Code: `SNVS - Status, Not in Valid State, DCC on SCN may not be enabled`

ONNS specific validation rule: Setting of *portClass* from EDGE to TRADITIONAL only possible, if the tributaries on the port are not in use by ONNS

For setting *portClass* from EDGE to TRADITIONAL the following must be fulfilled:

- No cross-connections of xconcls=NN may exist on any tributary of the port
- *portControl* must be LOCKOUT

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

ONNS specific validation rule: Setting of *portClass* from TRADITIONAL to EDGE

For setting *portClass* from TRADITIONAL to EDGE the port must not be the protection port of a 1+1 MSP group.

Error Code: `SNVS - Status, Not in Valid State, Port must not be a 1+1 protection port`

For setting *portClass* from TRADITIONAL to EDGE the port must not be the protection port of a 1:1 MSP group.

Error Code: SNVS - `Status, Not in Valid State, Port must not be a 1:1 protection port`

For setting *portClass* from TRADITIONAL to EDGE the port must not be the protection port of a 4f-BLSR group.

Error Code: `SNVS - Status, Not in Valid State, Port must not be a 4f-BLSR protection port`

ONNS specific validation rule: Some parameters not settable for ports of *portClass* INNI

The following parameters shall not be changeable for ports with *portClass* INNI: *trbmd.*

Error Code: SNVS - Status, Not in Valid State, portClass must not be INNI

ONNS specific validation rule: Setting of some INNI properties only possible, if no cross-connection existing

It shall not be allowed to change one of the following parameters (provided this parameter is supported in a particular release at all) on a port with *portClass*=INNI, if cross-connections on that port are existing:

- *link_IncludeID*, *neighborNodeID*, *neighborPortID*, *propagationDelay*, *srlgList*, *neighborASTNNodeID*, *maxNNXCRate,minNNXCRate*

Error code: SNVS - Status, Not in Valid State, no XCs allowed for change of iNNI parameters

ONNS specific validation rule: Setting of some INNI properties only possible, if no reservations wrt. M:N protecting connections existing

It shall not be allowed to change one of the following parameters on a port with *portClass*=INNI, if reservations wrt. M:N protecting NN connections on that port are existing:

- *link_IncludeID, neighborNodeID, neighborPortID, propagationDelay, srlgList, neighborASTNNodeID, maxNNXCRate, minNNXCRate*

Error Code: SNVS - Status, Not in Valid State, no XC reservations allowed for change of iNNI parameters

ONNS specific validation rule: Setting of INNI properties only possible if port control is LOCKOUT

The system shall allow to change the following parameters only under the conditions

- if the port control is LOCKOUT while port class is INNI
- together with the transition of port control from LOCKOUT to NORMAL while port class is INNI or
- together with the transition of port class to INNI

adminCost, *link_IncludeID*, *maxNNXCRate, minNNXCRate, ndetmd, neighborASTNNodeID, neighborNodeID*, *neighborPortID*, *propagationDelay*, *srlgList.*

Error code: SNVS - Status, Not in Valid State, only allowed for INNI port in lockout state

ONNS specific validation rule: Some parameters not settable for ports of *portClass*=INNI

The following parameters shall not be changeable for ports with *portClass*=INNI: *exprstrc*, *rstimca*, *rstimmon*, *strcfmt*, *strcout*, *strcwfmt*.

Error code: SNVS - Status, Not in Valid State, J0 parameters can not be set for INNI ports

ONNS specific validation rule: Some parameters not settable for ports of *portClass* EDGE

The following parameters shall not be changeable for ports with *portClass* EDGE: *trbmd.*

Error Code: `SNVS - Status, Not in Valid State, portClass must not be EDGE`

ONNS specific validation rule: Port mode not settable for ports of *portClass*=INNI

The system shall not allow to change the parameter pmode if portClass has been set to INNI prior to this command or if portClass is set to INNI with this command. The paramer pmode shall either be omitted or specified with the only allowed value MON.

Error code: `SNVS - Status, Not in Valid State, port mode change not allowed for INNI ports`

ONNS specific validation rule: Some parameters not settable for ports of *ndetmd* AUTO

The following parameters shall not be changeable for ports with ndetmd AUTO: *neighborNodeID*, *neighborPortID, neighborASTNNodeID.*

Error Code: `SNVS - Status, Not in Valid State, ndetmd must not be AUTO`

ONNS specific validation rule: Additional parameters required when setting *ndetmd* to MAN

Values for the following parameters must be given, if *ndetmd* is changed to MAN: *neighborNodeID*, *neighborPortID, neighborASTNNodeID*.

Error Code: `IDNV - Input, Data Not Valid, additional parameter required`

ONNS specific validation rule: No setting of duplicate *neighborASTNNodeID* and *neighborPortID* parameter combination

Setting of the parameters *neighborASTNNodeID* and *neighborPortID* is only possible, if the same combination of values does not already exists for a different INNI port in the system.

Error Code: IDNV - `Input, Data Not Valid, duplicate neighbor port information`

ONNS specific validation rule: No setting of *neighborASTNNodeID* or *neighborNodeID* to corresponding IDs of local node

It shall not be allowed to configure parameters *neighborASTNNodeID* or neighbor NodeID to corresponding values of the local node itself, i.e. it shall not be possible to configure a node to be its own ONNS neighbor.

Error Code: IDNV - `Input, Data Not Valid, node itself is not a valid neighbor`

ONNS specific validation rule: Setting of neighbor information to UNKNOWN

In order to set neighbor information to UNKNOWN, zero values must be set for all parameters *neighborASTNNodeID*, neighbor NodeID and *neighborPortID* consistently. It shall not be possible to set zero value for only one or two of them.

Error Code: `IDNV - Input, Data Not Valid, zero values can only be set for all neighbor information consistently`

ONNS specific validation rule: No setting of *minNNXCRate* to values larger than value of *maxNNXCRate* and vice versa

It shall not be allowed to configure parameters *maxNNXCRate* and *minNNXCRate* in a way, that the value of *minNNXCRate* is larger than the value of *maxNNXCRate*.

Error Code: IDNV - `Input, Data Not Valid, Min. and max. NN XC rates incompatible`

Related TL1 messages

"RTRV-OC192: Retrieve OC192 port" (p. 4-1916)

References

GR-199-CORE (ED-*rr*)

□

ED-OC192 autonomous notifications

LOS for transmission port OC192 clears

If LOS is cleared and current port mode is AUTO, then portmode is updated (new value: MON). This update is reported via ED-OC192 notification with parameter *pmode*.

Change of the constituent rates status list

If *trbmd*=ADAPTIVE a change of the attribute *crstat* is notified by the related ED-OC192 notification.

Change of neighbor node and neighbor port information

If *ndetmd*=AUTO a change of the attributes *neighborNodeID*, *neighborPortID* or *neighborASTNNodeID* is notified by the related ED-OC192 notification.

□

ED-OC192 notification

Output format

The ED-OC192 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ED-OC192`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Access Identifier of an OC192 port.
   Type: AID.
   Range: SPortAID of OC192 port.
   The keyword `all` is allowed up to shelf level.

Spec block parameters

1. adminCost - Administrative Cost
   This identifies the provisioned administrative link cost setting for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
   Type: Numeric string
   Range: 1(default)...65535
2. brstintvl – Bursty Interval
   Bursty Interval. Measurement period for determining bursty errors. This parameter applys when sdsfmode=BURST.
   Type: numeric value set
   Range: 2 to 10
   Default: 7
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applys when sdsfmode=BURST.
   Type: numeric value set (as percentage) 5, 10, ... 50
   Default: 30
4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. It is the pointer processor setup if adaptive mode (*trbmd* = ADAPTIVE) is selected.
   When switching *trbmd* from FIXED to ADAPTIVE or when creating a port newly *crstat* inherits the current value of *inputsig* until the system delivers an up-to-date value from the pointer processor. If no value is available from the pointer processor the latest known value is retained.
   For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter

inputsig showing the tributary input rate signal list.
Type: numeric value set.
Range: NX-NX-NX-…
N is the number of Xs. X can be 1, 3, 12, 48, 192 representing STS1, STS3C, STS12C, STS48C, STS192C.

5. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier. The parameter expstrc specifying the expected path trace is only relevant for the section trace supervision when the related trace read format strcfmt is set to 16 (16-byte-specific-string mode).
   Type Hexadecimal digits
   Range: 16 byte string. Each byte shall be expressed as two hexadecimal digits (example value: 6D). The first byte value shall be in the range from 80 to FF. The other byte values shall be in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex

6. fec – FEC Enable
   Forward Error Correction Enable. Enable to include the FEC information in the outgoing signal.
   Type: alphanumeric value set.
   Range:
   DISABLE (only) for:
   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics
   - OC192 / STM64 low cost intra office 1310nm optics
   - OC768/STM256 basis low cost intra office 1.3m optics.

   ENABLE / DISABLE for:
   - OC192 / STM64 OLS800G compatible 80 colour optics
   - OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G
   - OC768 / STM256 Long Reach / Long Haul 1.5æ optics with strong FEC (80km)
   - OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

   Default:
   DISABLE for:
   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics
   - OC192 / STM64 low cost intra office 1310nm optics
   - OC768/STM256 basis low cost intra office 1.3m optics

ENABLE for:

- OC192 / STM64 OLS800G compatible 80 colour optics
- OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G
- OC768 / STM256 Long Reach / Long Haul 1.5æ optics with strong FEC (80km)
- OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

7. felpm – Far-end Line PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set
   Range: ENABLE, DISABLE (default)
8. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message "do not use" will be transmitted from that optical interface.
   Type: alphanumeric value set
   Range: ENABLE (default): set a forced DUS/DNU), DISABLE: clear a forced DUS/DNU.
9. fsflpbkstat – Far Side Facililiy Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output *aid.*
   A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
   Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).
10. inputsig – Tributary Input Signal Rate List
    This parameter shall be a list of STSn rates across the port's bandwidth. If *trbmd* is FIXED, then inputsig constrains the cross-connection rates that can be entered for the port. If trbmd is ADAPTIVE, then inputsig is settable and retrievable as in fixed mode but does not influence the port behaviour.
    Type numeric value set
    Range: NX-NX-NX-... N is the number of Xs. X can be 1, 3, 12, 48, 192 representing STS1, STS3C, STS12C,STS48C or STS192C
    Default: 1921

11. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET.
    Type: alphanumeric value set
    Range: SONET, SDH
    Default: As specified via istddflton system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720)
12. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
13. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    Type: alphanumeric value set.
    Range: STS192 (default), STS48, STS12, STS3, STS1.
14. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    Type: alphanumeric value set.
    Range: STS1 (default), STS3, STS12, STS48, STS192.
15. msrei – MS-REI mode
    An special extended MS REI mode is standardized for STM64/OC192 interfaces. To support the interworking with older STM64/OC192 interfaces the single byte mode (non-extended) should also be supported.
    Type: alphanumeric value set
    Range: SINGLE, EXTENDED (default)
16. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    Type: alphanumeric value set
    Range: AUTO (default), MAN

17. neighborASTNNodeID - Neighbor ASTN Node Id
    Description This identifies the unique node identifier of the neighbor node of ports of *portClass*=INNI to be used for ONNS application. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if *ndetmd*=MAN.
    Type: Four dot separated numeric string
    Range: Each numeric string: 0...255
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
18. neighborNodeID – Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if *ndetmd*=MAN.
    Type: Four dot separated numeric string
    Range: Each numeric string: 0...255
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
19. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    Type: Four dash separated numeric string
    Range: Each numeric string: 0...255
    Default: 0-0-0-0
    Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.
20. nelpm – Near-End Line PM Enable
    Description Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set
    Range: ENABLE, DISABLE (default)
21. och – Optical Channel enable
    Enable or disable of the optical channel. If the optical channel is disabled the further optical channel parameters don’t have any impact on transmission.
    Type: alphanumeric value set

Range:

- for OP10 packs, which support to enable or disable OCH: ENABLE: enable optical channel; DISABLE: disable optical channel
- for OP10 and OP40 packs, which cannot support OCH: DISABLE disable optical channel
- for OP10 and OP40 packs, which only support OCH: ENABLE enable optical channel

Default:

- for OP10 and OP40 packs, which cannot support OCH: DISABLE
- for OP10 packs, which can support OCH: ENABLE
- for OP10 and OP40 packs, which only support OCH: ENABLE

22. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
Type: numeric value set.

    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:

    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.

23. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
Type: numeric value set.

Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

- STM-16/OC-48: 1 – 3072000
- STM-64/OC-192: 1 – 12288000
- STM-256/OC-768: 1 – 49152000.

Default: The default values differ for SDH and SONET and the different rates:

- STM16: 460800
- STM64: 1843200
- STM256: 7372800
- SONET OC48: 2459
- SONET OC192: 9835
- SONET OC768: 39340.

24. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
25. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severly errored. The default value depends on the interface standard and may differ between SDH and SONET.
    Type: numeric value set (superset of allowed ranges for SDH and SONET): 1 - 64000 ·
    Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392
    - SONET OC192: 8854
    - SONET OC768:22776
26. polynomial - Optical Channel Scrambling Polynomial
    The polynomial used by the Wavewrapper scrambler on the optical channel. This parameter is relevant only if the optical channel is enabled (och == ENABLE)
    Type: numeric value set
    Range: 1x7 + x + 1, 2x16 + x12 + x3 + x + 1
    Default: 2

27. portClass – Port Class
    This identifies the port class of the AID.
    Type alphanumeric value set
    Range: TRADITIONAL (default), INNI, EDGE
28. portControl – Port Control
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is different from TRADITIONAL.
    Type: alphanumeric value set
    Range: NORMAL (default), LOCKOUT
29. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    Type: Numeric string
    Range: 0 (default)...255
30. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0). This parameter is relevant only if the related trace read format strcfmt is set to 16 (16-byte-specific-string mode).
    Type alphanumeric value set
    Range: ENABLE: enable consequent action for TIM, DISABLE (default): disable consequent action for TIM.
31. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
32. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST
    - POISSON (default).

33. sdthr – Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
34. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
35. sfthr – Signal Failure Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –3; –4; –5.
    Default: –3.
36. sltca – Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
37. sonet – SONET ASAP
    This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH Alarm Severity Assignment Profile for SDH ports (see "RTRV-STM64: Retrieve STM64 port" (p. 4-2122), output parameter *sdhpn*) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
38. spm – Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).

39. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0-0-0-0-0-0-0-0.
40. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc).
    Type: numeric string
    Default: 2
41. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string dependent on the strcwfmt parameter..

    Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
42. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Default: 2
43. unequiposig – Unequipped Output Signal List
    This parameter is a list of STSn rates across the port's bandwidth. It determines the rate(s) of the *unequipped* signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need to have the identical setting. Mixed rates for *tx* and *rx* side of the port are allowed. If *trbmd* is ADAPTIVE, then *unequiposig* is settable and retrievable as in fixed mode but does not influence the port behavior.

Type: numeric value set.
Range: NX-NX-NX-...
N is the number of Xs. X can be 1, 3, 12, 48 or 192 representing STS1, STS3C, STS12C, STS48C or STS192C.
Default: 1921 = all STS1 (fixed)

Example output

```
ED-OC192:UNITE-NE:1-1-#-#-1-1:123456:::INPUTSIG=74-33-84,UNEQUIPOSIG=74-
    33-84;
   UNITE-NE 00-11-28 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-OC192:1-1-#-#-1-1::inputsig=74-33-
    84,unequiposig=74-33-84:"
;
```

□

ED-OC768: Edit OC768 port

The ED-OC768 command is used to provision all parameters related to an optical OC768 port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: no

Input format

Command Syntax: `ED-OC768`:*tid:aid:ctag:::spec_block*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   Description: Access Identifier of an OC768 port.
   Type: AID.
   Range: SPortAID of OC768 port.
   The keyword `all` is allowed up to shelf level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
2. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.

3. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
4. fec – FEC Enable
   Forward Error Correction Enable. Enable to include the FEC information in the outgoing signal.
   Type: alphanumeric value set.
   Range:
   DISABLE (only) for:
   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics
   - OC192 / STM64 low cost intra office 1310nm optics
   - OC768/STM256 basis low cost intra office 1.3m optics.

   ENABLE / DISABLE for:
   - OC192 / STM64 OLS800G compatible 80 colour optics
   - OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G
   - OC768 / STM256 Long Reach / Long Haul 1.5æ optics with strong FEC (80km)
   - OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

   Default:
   DISABLE for:
   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics
   - OC192 / STM64 low cost intra office 1310nm optics
   - OC768/STM256 basis low cost intra office 1.3m optics.

ENABLE for:

- OC192 / STM64 OLS800G compatible 80 colour optics
- OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G
- OC768 / STM256 Long Reach / Long Haul 1.5æ optics with strong FEC (80km)
- OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

5. felpm – Far-end Line PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
6. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU
7. inputsig – Tributary Input Signal Rate List
   This parameter is a list of STSn rates across the port's bandwidth.
   If *trbmd* is FIXED, then *inputsig* constrains the cross-connection rates that can be entered for the port. If *trbmd* is ADAPTIVE, then *inputsig* is settable and retrievable as in fixed mode but does not influence the port behavior.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 1, 3, 12, 48, 192 representing STS1, STS3C, STS12C, STS48C or STS192C.
   Default: 1921.
8. istd – Interface Standard
   Each synchronous optical interface can be set to SDH or SONET.
   Type: alphanumeric value set.
   Range: SONET, SDH.
   As specified via istddflton system level, see definition in RTRV-EQPT (system)
9. nelpm – Near-End Line PM Enable
   Enable or disable near-end line performance monitoring.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).

10. och – optical channel enable
    Enable or disable of the optical channel. If the optical channel is disabled the further optical channel parameters don't have any impact on transmission.
    Type: alphanumeric value set.
    Range:
    - for OP10 packs, which support to enable or disable OCH: ENABLE: enable optical channel; DISABLE: disable optical channel
    - for OP10 and OP40 packs, which cannot support OCH: DISABLE: disable optical channel
    - for OP10 and OP40 packs, which only support OCH: ENABLE: enable optical channel.

    Default:
    - for OP10 and OP40 packs, which cannot support OCH: DISABLE
    - for OP10 packs, which cannot support OCH: ENABLE
    - for OP10 and OP40 packs, which only support OCH: ENABLE.
11. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.

12. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.
13. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
14. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000
    Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392

- SONET OC192: 8554
- SONET OC768: 22776.

15. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable consequent action for TIM
    - DISABLE (default): disable consequent action for TIM.
16. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
17. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST
    - POISSON (default).
18. sdthr – Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
19. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.

20. sfthr – Signal Failure Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –3; –4; –5.
    Default: –3.
21. sltca – Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
22. sonet – SONET ASAP
    This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH ASAP for SDH ports (see "RTRV-STM256: Retrieve STM256 port" (p. 4-2137), output parameter *sdhpn*) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
23. spm – Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
24. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).

25. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
26. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
27. unequiposig – Unequipped Output Signal List
    This parameter is a list of STSn rates across the port's bandwidth. It determines the rate(s) of the *unequipped* signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need to have the identical setting. Mixed rates for *tx* and *rx* side of the port is allowed. If *trbmd* is ADAPTIVE, then *unequiposig* is settable and retrievable as in fixed mode but does not influence the port behavior.
    Type: numeric value set.
    Range: NX-NX-NX-...
    N is the number of Xs. X can be 1, 3, 12, 48 or 192 representing STS1, STS3C, STS12C, STS48C or STS192C.
    Default: 7681 = all STS1 (fixed).

Output format

If the ED-OC768 command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The command modifies the attributes (listed in the *spec_block* parameters part of this command) of the addressed port entity according to the parameters given with this command.

The modification is reported by means of an ED-OC768 notification for port (except for parameter *istd;* see below).

Switching of interface standard – Ignore other parameters

If additional parameters beside *istd* are specified with the *ED-rr* command they will be ignored by the NE.

This simple approach has the advantage that all ambiguous situations are avoided and it is not necessary to implement an order or follow a certain sequence when evaluating the parameters.

Switching of interface standard – FM impact

The change of the interface standard of a port from SONET to SDH has the following impact related to Fault Management:

- all SONET alarms related to that port are cleared
- the corresponding SDH alarms are raised.

Switching of tributary mode

When changing the parameter *trbmd* – tributary mode from FIXED to ADAPTIVE the parameter *crstat* may change its value, too, depending on the current input signal structure. This change is notified using the related ED-OC768 notification.

When changing the parameter *trbmd* – tributary mode from ADAPTIVE to FIXED the parameter *crstat* may change its value, too, depending on the current setting of parameter *inputsig*. This change is notified using the related ED-OC768 notification.

Supply outgoing J0 trace value and format together

When changing the format of the outgoing J0 trace *strcwfmt*, the parameter *strcout* specifying the outgoing J0 trace is always supplied within the same TL1-command to always have a consistent set of trace format and value.

When the format of the outgoing J0 trace strcwfmt is set to 2 (non-specific repeating byte) then the outgoing J0 trace (mandatory parameter strcout) specified in the command shall be ignored.

Supply outgoing J0 trace value according to format of outgoing J0

When changing the outgoing J0 trace value, the format must be according to the format parameter *strcwfmt* for the outgoing J0 trace.

Change of J0 expected format - FM impact

When the expected J0 format (*strcfmt*) is changed to 16 (16 byte specific string) while the TI Mismatch detection is enabled, then the TI Mismatch alarm shall be updated according to the provisioned ecpected J0 (*expstrc*) and the currently received J0 (*strc*).

When the expected J0 format is changed away from 16, while the TI Mismatch alarm is active, then the TI Mismatch alarm shall be cleared.

Switching of interface standard – Impact on port parameters

The switching of *istd* should not result in an deletion and recreation of the port. NE internally there are no differences between SDH and SONET.

Switching of interface standard I:

In detail the following attributes are influenced by switching of the *istd* from SONET to SDH (see also the related RTRV-STM*n* command for SDH parameter description):

- *brstintvl* is set to the default value
- *brstthr* is set to the default value
- *crstat* may change according to its semantics (see description of *crstat*)
- *degthr* is set to the default value for an SDH port
- *dexcthr* is set to the default value for an SDH port
- *felpm* is mapped to *femspm* (no changes)
- *inputsig* is set to the default value
- *istd* is set to SDH
- *nelpm* is mapped to *nemspm* (no changes)
- *rstimca* is set to the default value for a SDH port
- *rstimmon* is set to the default value for a SDH port
- *sdsfmode* is set to the default value for an SDH port
- *spm* is mapped to *rspm* (no changes)
- *sonet* is mapped to *sdhpn* (no changes)

- *trbmd* is set to the default value for an SDH port
- *unequiposig* is set to its default value.

All other port parameters remain unchanged.

Switching of interface standard II:

In addition to the list of attributes above the following attributes are influenced by switching of the *istd* from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- *rsmstca* is set to the default value for an SDH port
- *tcamd* is set to the default value for a SDH port.

Switching of interface standard III:

In addition to the list of attributes above the following attributes are influenced by switching of the *istd* from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- *pmmsfeses* is set to the default value for a SDH port
- *pmmsneses* is set to the default value for a SDH port
- *pmrsneses* is set to the default value for a SDH port.

Switching of interface standard IV:

In addition to the list of attributes above the following attributes are influenced by switching of the istd from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- minNNXCrate is set to the default value for a SDH port
- maxNNXCrate is set to the default value for a SDH port

Switching of interface standard – Side effects on tributaries

The switching of *istd* should not result in an deletion and recreation of the tributaries of a port. NE internally there are no differences between SDH and SONET.

In detail the following side-effects apply to the related tributary attributes when switching the *istd* from SONET to SDH (see also the related RTRV-STM*n* command for SDH parameter description):

- *brstintvl* is set to the default value for a SDH tributary
- *brstthr* is set to the default value for a SDH tributary
- *pse* (PDI-P parameter) shall be set to the default value for a SDH tributary
- *sdsfmode* is set to the default value for a SDH tributary.

Switching of interface standard – Side effects on tributaries II

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- *degthr* is set to the default value for an SDH tributary
- *dexcthr* is set to the default value for an SDH tributary
- *ptca* shall be set to the default value for a SDH tributary
- *tcamd* is set to the default value for a SDH tributary.

Switching of interface standard – Side effects on tributaries III

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SONET to SDH (see also the related RTRV-STMn command for SDH parameter description):

- *pmhpneses* is set to the default value for an SDH tributary
- *pmhpfeses* is set to the default value for an SDH tributary.

Switching of interface standard – notification behavior for port attributes

When changing the interface standard *istd* using the ED-OCn command all resulting parameter changes are reported by ED-STMn notifications of the related port rate. This is valid for the parameter istd itself as well as for all other parameters which might change as a consequence of changing the interface standard.

Switching of interface standard – notification behavior for tributary attributes

When changing the interface standard *istd* using the ED-OCn command all resulting tributary parameter changes are reported by ED-VC3 notifications.

Switching of interface standard – PM impact

The change of interface standard has the following impacts w.r.t. existing PM registers:

1. all current bins related to the port will be reset
2. all history bins related to the port remain unchanged
3. all current bins related to tributaries being a member of the port will be reset
4. all history bins related to tributaries being a member of the port remain unchanged.

Retrieving the bins after switching the interface standard may result in a strange reporting behavior:

- When switching the interface standard to SONET the periods before the switch contain SDH-related parameters and values even though the port is addressed as a SONET port.
- When switching the interface standard to SDH the periods before the switch contain SONET-related parameters and values even though the port is addressed as a SDH port.

Disabling of PM monitor

The disabling of a PM monitor shall have the following impacts w.r.t. existing PM registers:

1. stop PM counting
2. all current bins related to the PM monitor shall be deleted
3. all history bins related to the PM monitor shall be deleted

The term PM monitor has the same semantics as the term PM package as used in SRD_PerformanceMonitoring. The number of PM monitors is determined by means of the number of *pm enable attributes*.

PM monitors can be disabled explicitly by means of the *pm enable* attribute or are implicitly disabled as part of a port/tributary deletion.

Additional to the above listed impacts (ID 52924) the disabling of a PM monitor shall have the following impacts: the system has to clear all active TCA events of the deleted PM monitor if TCA mode TR-RTR was selected.

Example input/output

```
ED-OC768:UNITE-NE:1-1-#-#-1-1:123456:::INPUTSIG=74-33-84,UNEQUIPOSIG=74-
     33-84;
   UNITE-NE 00-11-28 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-OC768:1-1-#-#-1-1::inputsig=74-33-
     84,unequiposig=74-33-84:"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the ED-OC768 command.

Validation rule: Enough bandwidth reserved for 2F protection group

Check of the tributary rate (*inputsig/uneqiposig*) if the port is member of a 2f protection group. Then the assigned bandwidth is max. half of the port's bandwidth.

Error code: `IDNV - Input, Data Not Valid, Assigned bandwidth exceeds half port's bandwidth`

Validation rule: ASAP profile exists

Check of the existence of the ASAP profile.

Error code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: TCA profile exists

Check of the existance of the TCA profile.

Error Code: `IDNV - Input, Data Not Valid, TCA profile does not exist`

Validation rule: inputsig consistent with existing cross-connections for fixed tributary mode

Check of the consistency of the structure of the input signal (*inputsig*) with existing cross-connections if the port operates in the fixed tributary mode.

Error code: `SNVS - Status, Not in Valid State, signal structure cannot be changed for connected parts of a fixed port`

Validation rule: unequiposig consistent with existing cross-connections for fixed tributary mode

Check of the consistency of the structure of the output signal (*unequiposig*) with existing cross-connections if the port operates in the fixed tributary mode.

Error code: `SNVS - Status, Not in Valid State, signal structure cannot be changed for connected parts of a fixed port`

Validation rule: No lower order cross-connections for *istd*, *trbmd* change

Check that istd is not changed or the trbmd is not set ADAPTIVE when lower order cross-connections exist at a tributary of the port. If lower order cross-connections exist, the following error message shall be returned:

Error code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

Validation rule: no cross-connections for *istd*, *trbmd* change

Check that *istd* is not changed or the *trbmd* is not set FIXED when cross-connections are still on this port.

Error code: `SNVS - Status, Not in Valid State, cross-connections are still existing`

Validation rule: no loopbacks for *istd*, *trbmd* change

Check that *istd* is not changed or the *trbmd* is not set FIXED when loopback is still on this port.

Error code: `SNVS - Status, Not in Valid State, a loopback is existing`

Validation rule: no test access session for *istd*, *trbmd* change

Check that *istd* is not changed or the trbmd is not set FIXED when a tributary related to this port is used in a test access session either as tributary under test or as test access tributary.

Error Code: `SNVS - Status, Not in Valid State, a test access session exists`

Validation rule: no protection for *istd*, *trbmd* change

Check that *istd* is not changed or the *trbmd* is not set FIXED when this port is in an protection group.

Error code: `SNVS - Status, Not in Valid State, a protection group is existing`

Validation rule: no ONNS for interface standard change

Check that the interface standard parameter (istd) is not changed if ONNS functionality is available.

This means:

- *portClass* must be TRADITIONAL or
- *portControl* must be LOCKOUT.

Error code: `SNVS - Status, Not in Valid State, SwiSS access possible`

Validation rule: no path protection for trbmd change to ADAPTIVE

Check that *trbmd* is not set to ADAPTIVE when tributaries of this port are used as input tributaries in a path protection group.

Error code: `SNVS - Status, Not in Valid State, a path protection group is existing`

Validation rule: *servcond* must be enabled when timing source

Check that the *servcond* is not disabled when the port is used as a timing source.

Error code: `SNVS - Status, Not in Valid State, Timing reference is assigned to this port`

Validation rule: *servcond* must be enabled when DCC enabled

Check that the *servcond* is not disabled when DCC channels are still existing for this port.

Error code: `SNVS - Status, Not in Valid State, DCC channels are active for this port`

Validation rule: *servcond* must be enabled when *portClass*=INNI

Check that the *servcond* is not OUTOFSERVICE when *portClass*=INNI.

Error Code: `SNVS - Status, Not in Valid State, can not disable servcond for INNI ports`

Validation rule: *servcond* must be disabled for facility loopback

Check that the *servcond* is not enabled when a facility loopback is existing for this port.

Error code: `SNVS - Status, Not in Valid State, Facility Loopback is active for this port`

Validation rule: Supply of outgoing J0 trace

Check that an outgoing J0 trace value (*strc* out) is supplied, too, if the format of the outgoing J0 trace (*strcwfmt*) is changed.

Error code: `IDNC - Input, Data Not Consistent, a new trace value must also be supplied for a trace format change.`

Validation rule: transmitted path trace length

Check that the length of the outgoing J0 trace value (*strcout*) fits to the length given by outgoing J0 trace mode, i.e. write format (*strcwfmt*).

Error code: `IDNC - Input, Data, Not Consistent, strcout length must match the given outgoing J0 trace mode.`

Validation rule: Change of FEC parameters only if supported by the current circuit pack

When changing one of the FEC-related parameters *fec, feccor* and *fectype* it will be checked, whether the currently provisioned circuit pack supports this. If it is not supported the following error code is used:

Error code: `IDNV - Input, Data Not Valid, Parameter not supported`

Validation rule: Enabling of optical channel only if supported by the current circuit pack

When enabling the optical channel via parameter *och* it shall be checked, whether the currently provisioned circuit pack supports this. If it is not supported the following error code shall be used:

Error code: `Input, Data Not Valid, Parameter not supported`

Check CCB against *ptype* and *istd*

Check wether the CCB fits to ptype and istd.

Error Code: `ICNV - Input, Command Not Valid, Interface Standard does not match`

Related TL1 messages

"RTRV-OC768: Retrieve OC768 port" (p. 4-1931)

References

GR-199-CORE (ED-*rr*)

□

ED-OC768 autonomous notifications

LOS for transmission port OC768 clears

If LOS is cleared and currently port mode is AUTO, then portmode is updated (new value: MON). This update is reported via ED-OC768 notification with parameter *pmode*.

Change of the constituent rates status list

If *trbmd*=ADAPTIVE a change of the attribute *crstat* is notified by the related ED-OC768 notification.

□

ED-OC768 notification

Output format

The ED-OC768 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ED-OC768`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Description: Access Identifier of an OC768 port.
   Type: AID.
   Range: SPortAID of OC768 port.
   The keyword `all` is allowed up to shelf level.

Spec block parameters

1. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
2. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
3. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. It is the pointer processor setup if adaptive mode (*trbmd* = ADAPTIVE) is selected.
   When switching *trbmd* from FIXED to ADAPTIVE or when creating a port newly *crstat* inherits the current value of *inputsig* until the system delivers an up-to-date value from the pointer processor. If no value is available from the pointer processor the latest known value is retained.
   For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the tributary input rate signal list.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 1, 3, 12, 48, 192 representing STS1, STS3C, STS12C, STS48C, STS192C.

4. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
5. fec – FEC Enable
   Forward Error Correction Enable. Enable to include the FEC information in the outgoing signal.
   Type: alphanumeric value set.
   Range:

   DISABLE (only) for:

   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics
   - OC192 / STM64 low cost intra office 1310nm optics
   - OC768/STM256 basis low cost intra office 1.3m optics

   ENABLE / DISABLE for:

   - OC192 / STM64 OLS800G compatible 80 colour optics
   - OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G
   - OC768 / STM256 Long Reach / Long Haul 1.5æ optics with strong FEC (80km)
   - OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

   Default:

   DISABLE for:

   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics
   - OC192 / STM64 low cost intra office 1310nm optics
   - OC768/STM256 basis low cost intra office 1.3m optics.

   ENABLE for:

   - OC192 / STM64 OLS800G compatible 80 colour optics
   - OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G

- OC768 / STM256 Long Reach / Long Haul 1.5æ optics with strong FEC (80km)
- OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

6. felpm – Far-end Line PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
7. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU
8. fsflpbkstat – Far Side Facililiy Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output *aid*.
   A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
   Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).
9. inputsig – Tributary Input Signal Rate List
   This parameter is a list of STSn rates across the port's bandwidth.
   If *trbmd* is FIXED, then *inputsig* constrains the cross-connection rates that can be entered for the port. If *trbmd* is ADAPTIVE, then *inputsig* is settable and retrievable as in fixed mode but does not influence the port behavior.
   Type: numeric value set.
   Range: NX-NX-NX-...
   N is the number of Xs. X can be 1, 3, 12, 48, 192 representing STS1, STS3C, STS12C, STS48C or STS192C.
   Default: 7681.

10. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET.
    Type: alphanumeric value set.
    Range: SONET, SDH.
    As specified via istddflton system level, see definition in RTRV-EQPT (system)
11. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
12. nelpm – Near-End Line PM Enable
    Enable or disable near-end line performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
13. och – optical channel enable
    Enable or disable of the optical channel. If the optical channel is disabled the further optical channel parameters don't have any impact on transmission.
    Type: alphanumeric value set.
    Range:
    - for OP10 packs, which support to enable or disable OCH: ENABLE: enable optical channel; DISABLE: disable optical channel
    - for OP10 and OP40 packs, which cannot support OCH: DISABLE: disable optical channel
    - for OP10 and OP40 packs, which only support OCH: ENABLE enable optical channel

    Default:
    - for OP10 and OP40 packs, which cannot support OCH: DISABLE
    - for OP10 packs, which cannot support OCH: ENABLE
    - for OP10 and OP40 packs,, which only support OCH: ENABLE.

14. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.
15. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.

16. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
17. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000
    Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392
    - SONET OC192: 8554
    - SONET OC768: 22776.
18. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable consequent action for TIM
    - DISABLE (default): disable consequent action for TIM.
19. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
20. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.

Range:

- BURST
- POISSON (default).

21. sdthr – Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
22. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
23. sfthr – Signal Failure Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –3; –4; –5.
    Default: –3.
24. sltca – Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
25. sonet – SONET ASAP
    This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH ASAP for SDH ports (see "RTRV-STM256: Retrieve STM256 port" (p. 4-2137), output parameter *sdhpn*) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
26. spm – Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).

27. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc).
    Type: numeric string
    Default: 2
28. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string dependent on the strcwfmt parameter. .

    Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
29. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout).
    Type: numeric string
    Default: 2
30. unequiposig – Unequipped Output Signal List
    This parameter is a list of STSn rates across the port's bandwidth. It determines the rate(s) of the *unequipped* signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need to have the identical setting. Mixed rates for *tx* and *rx* side of the port is allowed. If *trbmd* is ADAPTIVE, then *unequiposig* is settable and retrievable as in fixed mode but does not influence the port behavior.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 1, 3, 12, 48 or 192 representing STS1, STS3C, STS12C, STS48C or STS192C.
    Default: 7681 = all STS1 (fixed).

Example output

```
ED-OC768:UNITE-NE:1-1-#-#-1-1:123456:::INPUTSIG=74-33-84,UNEQUIPOSIG=74-
    33-84;
   UNITE-NE 00-11-28 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-OC768:1-1-#-#-1-1::inputsig=74-33-
    84,unequiposig=74-33-84:"
```

;

□

ED-PATH: Modify alias of ONNS connection

Overview

The ED-PATH-mod command is used to modify properties or configuration of one or more transmission connection(s) between two NEs in the network.

The modifier of the ED-PATH-mod command and the reqType field indicates what type of operation shall be performed with the established path(s) to be modified. Note that the bandwidth of the connection is determined by the original connection setup request and cannot be changed by ED-PATH-mod.

Three versions of the command are:

- ED-PATH-PROT
- ED-PATH-ROLL.

ED-PATH-PROT to change a connection parameter

The ED-PATH-PROT command is used to change a connection parameter or modify the *protectionClass* of a connection.

With *reqType*=setParam the command can be used to change the *rstrPriority* of the connection identified by the *connID* field. The new *rstrPriority* is specified as a spec block parameter.

With *reqType* = *setParam* the command can be used to change the *wtr* (wait to restore timer) of the connection identified by the *connID* field. The new *wtr* is specified as a spec block parameter for a 1+1 connection.

With *reqType* = *setParam* the command can be used to change the *htmr* (hold off timer) of the connection identified by the *connID* field. The new *htmr* is specified as a spec block parameter for a 1+1 connection.

With *reqType*=setProt the command can be used to change the protection class of the connection identified in the *connID* field. The new *protectionClass* is specified as the spec block parameter *connMode*. A new *rstrPriority* can be specified at the same time.

With *reqType*=setProt the command can be used to change the reversion mode of the connection identified in the *connID* field to a 1+1 connection. The new reversion mode is specified as the spec block parameter *connMode*. A new *wtr*, *htmr* can be specified at the same time.

When the *reqType* = *setProt* is used with the ED-PATH-PROT command, it is not possible to specify new constraint for the connection, and so ONNS uses the existing constraints.

The *reqType* = *setProt* function allows the user to change the conn mode from

- UNPROT to auto reroute NONREVERTIVE
- UNPROT to auto reroute REVERTIVE

- UNPROT to N1PLUS1NR
- UNPROT to N1PLUS1RV
- auto reroute NONREVERTIVE to UNPROT
- auto reroute NONREVERTIVE to auto reroute REVERTIVE
- auto reroute REVERTIVE to UNPROT
- auto reroute REVERTIVE to auto reroute NONREVERTIVE
- N1PLUS1NR to UNPROT
- N1PLUS1NR to N1PLUS1NR
- N1PLUS1NR to N1PLUS1RV
- N1PLUS1RV to UNPROT
- N1PLUS1RV to N1PLUS1NR
- N1PLUS1RV to N1PLUS1RV

ONNS chooses the active path and deletes the failed or inactive path in all cases where the new protection type is UNPROT. The modification of the conn mode from N1PLUS1NR to 1PLUS1NR and N1PLUS1RV to N1PLUS1RV because ONNS has no knowledge about the used reversion mode of the according path protection group.

ED-PATH-PROT is used to modify an existing connection

The ED-PATH-PROT command modifies the existing connection service based on its *connectionID* by changing an existing connection (or path) configuration or the connection constraints. The *reqType* parameter specifies what type of path operation(s) occurs on the connection.

The ED-PATH-PROT command shall not be applicable to NN connections of protectionClass MBYNWRK or MBYNPRT.

ED-PATH-ROLL is used to modify a path location

The ED-PATH-ROLL command shall be used tp modify the existing connection service based on its *connID* by rolling an existing path or connection to a new path. The *reqType* parameter specifies what type of path operation(s) occurs on the connection in the context of a roll command.

With *reqType* = *rollPath* it is possible to modify a connection in a way to construct a new path bridged from the source port to the destination port that is setup using new constraints that are included in the delay, *srlgExcludeList*, *linkIncludeID*, and *nodeList* fields. If no new constraints are given, ONNS uses no user constraints and sets up the path using the least cost criteria. When the new path is stable, the old path is removed to complete the ONNS roll process. A new *rstrPriority* can be specified at the same time.

Roll of a 1+1 connection is not supported directly, the connection must be converted to an unprotected connection and then rolled. Then the connection can be modified back to a network 1+1 connection.

The ED-PATH-ROLL command shall not be applicable to NN connections of protectionClass MBYNWRK or MBYNPRT.

User defined connection alias used as an alternate key

Instead of the connID, the user may optionally use the connAlias as an alternate key. This applies to modifiers such as ED-PATH-PROT and ED-PATH-ROLL. The ED-PATH command could have either or both specified. If both are specified by the user, then *ConnID* id used as the key.

Either the *connID* or the *connAlias* must be present in a command. The *connAlias* is returned as an output parameter. If it is not defined, a NULL is returned.

ED-PATH is used to modify the user defined connection alias

The command ED-PATH can be used to edit or replace the user defined connection alias itself. In this case the spec parameter *connAlias* identifies the old string and the spec parameter *newconnAlias* specifies the new string. The following combinations of *connID*, *connAlias*, *newConnAlias* are possible:

connID	***connAlias***	***newConnAlias***	**meaning**
present	present	present	*connAlias* replaced by *newConnAlias*, *connID* used for identification
present	not present	present	*connAlias* set to *newConnAlias*, *connID* used for identification
not present	present	present	*connAlias* replaced by *newConnAlias*, *connAlias* used for identification
not present	not present	present	DENY, inconsistent input
(not) present	(not) present	not present	DENY, inconsistent input

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Abortable: No

Input format

Command Syntax: `ED-PATH-PROT`:*srcTid:srcAid:ctag::[srvID]:reqType, [connID],::[nodeListUsage1, nodeList1]: [srlgExcludeList],[linkIncludeID][:specBlock];*

Command Syntax: `ED-PATH-ROLL`:*srcTid:srcAid:ctag::[srvID]:reqType, [connID],:[maxDelay]:[nodeListUsage1,nodeList1]: [srlgExcludeList],[linkIncludeID][:specBlock];*

Command Syntax: `ED-PATH`:*srcTid:srcAid:ctag::[srvID]:[connID]: [connAlias=connAlias,]newconnAlias=newconnAlias;*

Input parameters

he `ED-PATH-mod` command does not affect the bandwidth of the connection that was determined when the original connection was set up.

Command parameters

1. mod - (modifier of ED-PATH)
   Command modifier that specifies the type of light path operation that will be preformed. The input parameters may change with each variation of the command to suit the requirements of that command. Not all fields apply to all commands.
   PROT: Change some of the parameters of a Path and changing protection class or Add a new path to the existing connection by bridging.
   ROLL: Path connection shall be rolled to a new path and pathID.
   (empty): Used to change/set the *connAlias*.
2. srcTid
   Target identifier of the source node is the logical name of the Host NE. ONNS uses the same unique Tid used by Host NE. See also the definition of tid in "RTRV-HDR: Retrieve header" (p. 4-1736).
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed
   Range: The srcTid parameter is a case insensitive ASCII character string of up to 20 characters with the allowed character set as described above.
3. srcAid
   Source node ONNS application access identifier srcAid of the ONNS controller OS command interface port.
   Type: AID
   Range: Source node Access IDentifier parameter of the source node controller ONNS command interface entity has the allowed values shown here: snn

4. ctag
   This is included in the command by the TL1 user and is repeated by the network element in the response to allow the TL1 user to associate the command and response messages. See also the definition of ctag in "RTRV-HDR: Retrieve header" (p. 4-1736).
   Type alphanumeric string
   Range: The ctag parameter is a character strings of up to 6 ASCII characters.The allowed ASCII character string is comprised of alphanumeric characters beginning with a letter, or decimal numerals (a decimal numeral is a string of decimal digits with an optional non-trailing ″.″). It should be a unique value for each new command.
5. srvID
   The service identifier (srvID) is a logical tag for the group of connections associated with a service defined by the Service Manager system (or other management entity).
   Type Integer
   Range: 1.. 20,000,000
6. reqType – Request Type
   This parameter indicates the operation that is to be performed on the connection specified. Only allowed when *mod* = PROT or *mod* = ROLL.
   Range:
   - SETPARAM (default): modifies the value of *rstrPriority*, *wtr* or *htmr* of the connection to the value specified in the spec block, can be used when mod=PROT.
   - SETPROT: converts the connection specified by its connID to a new protection type specified by the *connMode* parameter in the spec block, can be used when mod=PROT.
   - ROLLPATH: used to add a bridged/merge path to an existing connection and then roll to the new path, can be used when mod=ROLL.
7. connID – Connection ID for an existing ONNS optical path connection service
   This parameter reports only the connections originating at the specified source node. *connID* is formed from the *SrcNodeIP* and IngressPort# and an index # where LambdaUNITE uses bay = 1 = shelf.
   Type: Character string of length up to 35.
   Range: ALL - special value to retrieve all connection records | nodeID&Tributary AID&Index - to retrieve a specific entry, with
   - nodeID: four dot separated numeric strings: each string 0..255
   - Tributary AID: five dash seperated numeric strings representing Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # with:
     Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).
   - Index: Numeric string

nodeID&Tributary AID range - if port # specifies a VCG to retrieve a connection group, with:

- nodeID: four dot separated numeric strings: each string 0..255
- Tributary AID: five dash seperated numeric strings with:
  Bay/Frame #(1), Shelf #(1), Slot/Pack #(1..39), Port #(1..4), Tributary #ALL - special value to retrieve all connection records associated with the port ID.

group, with:

- nodeID: four dot separated numeric strings: each string 0..255;
- defaultTributary AID: five dash seperated numeric strings with:
  Bay/Frame #(1), Shelf #(1), Slot/Pack ##, Port ##, Tributary ##
- Index: Numeric string
- nodeID: four dot separated numeric strings: each string 0..255;
- groupIndex: integer value specifying a connection group within nodeID.

8. maxDelay - Maximum transport delay
   Maximum transport delay through all nodes in the path. Total path delay must not exceed this value.
   Range: 0 (default), is used to select no delay limit; 1 - 32767, maximum transport delay in milliseconds.

9. nodeList Usage - Node List Usage
   For connection setup NN used/uses the list of nodes included in the nodeList1 array block in a manner specified by the nodeListUsage1 variable.
   Both, nodeListUsage1 and nodeList1, fields belong together and shall be reported when supplied as input to the ENT-PATH command.
   An EXCLUDE list usage applies to all paths created (as in a N1PLUS1NR or N1PLUS1RV). A non-existent nodeID will be ignored in EXCLUDE nodeList1 during path setup. A non-existent nodeID will cause setup failure in EXPLICIT nodeList1 during path setup..
   Type: value set
   Range: EXPLICIT: *nodeList1* contains the intermediate NE nodes of the path in the explicit order they are to be used. (An empty list will force a direct path from source to destination.); EXCLUDE: nodes in the *nodeList1* must all be excluded from the path created. In the case when the protectionClass is either YCONN, N1PLUS1NR or N1PLUS1RV the nodes in the nodeList1 below also apply to the second or restoration path.
   Only allowed when mod=PROT or mod=ROLL. For mod=PROT parameter can be used for a explicit node list (like nodeListUsage2 of ENT-PATH) for the new second path by modifying a protection type to a 1+1 connection. For mod=ROLL both values (exclude, explicit) to roll a path are allowed.

10. nodeList - Node List
    When *nodeListUsage1*=EXPLICIT: List of intermediate nodes that specify the path in the exact node order specified in the input. Source and destination nodes are assumed to be included implicitly. The nodeID values are shown in the form: nid1([&nid2& ...&nidX])
    When nodeListUsage1=EXCLUDE: List of nodes that must all be excluded from both paths. The nodeID values are shown in the from: nid1([&nid2& ...&nidX])
    If the preceding required nodeListUsage1 field is not supplied, this field must not be present. If user specifies empty EXCLUDE nodeList1, the connection should use indirect path from source node to destination node (i.e., at least one intermediate node is needed). If user specifies empty EXPLICIT nodeList1, the connection should use a direct path from source to destination node (i.e., no intermediate node is allowed).
    Type: &-seperated list of nodeIDs A nodeID is represented as four dot seperated numeric string with each numeric string between 0..255
    Range nid1([&nisX])* or empty list; where X <= 25, when nodeListUsage1=EXPLICIT; where X <= 25, when nodeListUsage1=EXCLUSIVE
    Only allowed when *mod* = PROT or *mod* = ROLL. Parameter applies to new path only when the *reqType* requires to set up a new path such as in modifying a protection type to a Network 1+1 connection, or in rolling to new path.
11. srlgExcludeList - SRLG Exclude List
    List of Shared Risk Link Group identifiers that are to be used to exclude links from the connection path(s) being created.
    Type: &-seperated list of numeric strings | empty | 0
    Range: up to 10 numeric strings, each in the range 1...65535. The value 0 or an empty field indicates no constraint are applied.
    Only allowed when *mod* = PROT or *mod* = ROLL. Parameter applies to new path only when the *reqType* requires to set up a new path such as in modifying a protection type to a Network 1+1 connection, or in rolling to new path.
12. linkIncludeID - VPN Identifier
    A connection constraint link property such as linkIncludeID that must be valid to include the link in the connection path(s) to be created. linkIncludeID is a link connection property that can be used to group and classify links. VPNID is a special case of this associative property.
    Type Integer
    Range: 1 ... 65535 0 or an empty field indicates no VPN constraint is applied.
    Only allowed when *mod* = PROT or *mod* = ROLL. Parameter applies to new path only when the *reqType* requires to set up a new path such as in modifying a protection type to a Network 1+1 connection, or in rolling to new path.

Spec block parameters

1. rstrPriority - Restoration Priority
   rstrPriority describes the restoration priority of the connection.
   Type Integer
   Range: 0 ... 7 (lower values represent higher priority)
   Only allowed when *mod* = PROT or *mod* = ROLL. Parameter applies to new path only when the *reqType* requires to set up a new path such as in modifying a protection type to a autoreroute connection, or in rolling to new path.
2. connMode - Connection Mode
   This parameter determines the new connection mode. Only allowed when *mod* = PROT.
   Range:
   - UNPROT: converts to an unprotected connection
   - N1PLUS1NR: converts to a network 1+1 protected non-revertive connection
   - N1PLUS1RV: converts to a network 1+1 protected revertive connection
   - NONREVERTIVE: converts to an auto-reroute non-revertive connection
   - REVERTIVE: converts to an auto-reroute revertive connection.

   Note: The modes related to Y connections are not allowed with the ED-PATH command.
3. connAlias - connection alias
   connAlias specifies a user defined string as an alternate name for the connection instead of connID.
   Type: Character string up to length 83
   Range: The string consists of printable ASCII characters+NULL. The following characters cannot be used in the string: colon, semi-colon, comma, double quotes, equal, ampersand, greater than. Additionally the string shall start with a letter.
4. newconnAlias - New connection alias
   This parameter is the replacement of the existing *connAlias* or the new *connAlias* (in case no one was defined so far). Is is used as an alternate name for the connection instead of connID. Only allowed when *mod* is empty.
   Type: Character string up to length 83
   Range: The string consists of printable ASCII characters+NULL. The following characters cannot be used in the string: colon, semi-colon, comma, double quotes.
5. disjointness
   The disjointness determines the path calculation logic Type alphanumeric value set.

Range:

- COMPLETE fully node and SRLG disjoint path
- FULLYSRLG maximal node and fully SRLG disjoint path
- MAXIMAL maximal node disjoint path.

Impact on disjointness parameter values when *protClass* is set to N1PLUS1 or YCONN. When *protClass* is set to N1PLUS1 or YCONN, only the disjointness parameter values COMPLETE and FULLYSRLG shall be allowed.
Default: COMPLETE: for protectionClass N1PLUS1 and YCONN; MAXIMAL: for *protectionClass* AUTONR and AUTORV
Only allowed when mod=PROT. Parameter applies to new path only when the reqType requires to set up a new path such as in modifying a protection type from unprotected to a auto-reroute or Network 1+1 connection.

6. wtr - Wait to Restore Timer
   This parameter specifies the value of the wait-to-restore time for 1+1 protection switching.
   For details please refer to the parameter wtr in RTRV-PROTN-GRP. The path protection groups at the A and Z nodes of the connection are created with default values, if the parameter is not present in the spec_block. Only allowed when mod=PROT. Parameter applies to a 1+1 connection only . The path protection groups at the A and Z nodes of the connection are using the already provisioned values, if the parameter is not present in the spec_block.
7. htmr - Hold Off Timer
   This parameter specifies the value of the hold-off timer for 1+1 protection switching.
   For details please refer to parameter htmr in RTRV-PROTN-GRP. The path protection groups at the A and Z nodes of the connection are created with default values, if the parameter is not present in the spec_block. Only allowed when mod=PROT. Parameter applies to a 1+1 connection only. The path protection groups at the A and Z nodes of the connection are using the already provisioned values, if the parameter is not present in the spec_block.

Output format

Normal system response to ED-PATH-PROT when changing *protectionClass*:

```
   srcTid date time
M  ctag COMPLD
   "ConnID=connID,ConnStatus=connStatus,pdir,
   protectionClass,bandwidth,ConnAlias=connAlias,
   MaxDelay=dd,[SrvID=srvID],[nodeListUsage1=
   nodeList1],,[SrlgExclude=srlgExcludeList],
   IncludeID=0,rstrPriority=3,
   SrcNID=srcNID,srcPortID,DestNID=destNID,destPortID:
   PathID=pathID1,State=pst1&sst1&tst1,
   NodeList=pNodeList1:
   PathID=pathID2,State=pst2&sst2&tst2,
```

```
   NodeList=pNodeList2"
;
```

Normal ED-PATH-PROT system response when setting restoration priority:

```
   srcTid date time
M  ctag COMPLD
   "ConnID=connID,ConnStatus=connStatus,pdir,
   protectionClass,bandwidth,ConnAlias=connAlias,
   MaxDelay=dd,[SrvID=srvID],[nodeListUsage1=
   nodeList1],,[SrlgExclude=srlgExcludeList],
   IncludeID=linkIncludeID,rstrPriority=3,
   SrcNID=srcNID,srcPortID,DestNID=destNID,destPortID:
   PathID=pathID1,State=pst1&sst1&tst1,
   NodeList=pNodeList1:
   [PathID=pathID2,State=pst2&sst2&tst2,
   NodeList=pNodeList2]"
;
```

Partial ED-PATH-PROT system response when setting path protection group parameters.

```
   srcTid date time
M  ctag COMPLD
   "ConnID=connID,ConnStatus=connStatus,pdir,
   protectionClass,bandwidth,ConnAlias=connAlias,
   MaxDelay=dd,[SrvID=srvID],[nodeListUsage1=
   nodeList1],,[SrlgExclude=srlgExcludeList],
   IncludeID=linkIncludeID,
   SrcNID=srcNID,srcPortID,DestNID=destNID,destPortID:
   PathID=pathID1,State=pst1&sst1&tst1,
   NodeList=pNodeList1:
   [PathID=pathID2,State=pst2&sst2&tst2,
   NodeList=pNodeList2]"
   "E150::\"Status, Path Protection Group parameters
   Not Provisioned\","
;
```

Normal system response to ED-PATH when replacing the user defined connection alias:

```
   srcTid date time
M  ctag COMPLD
   "ConnID=connID,ConnStatus=connStatus,pdir,
   protectionClass,bandwidth,ConnAlias=connAlias,
   MaxDelay=dd,[SrvID=srvID],[nodeListUsage1=nodeList1],,
   [SrlgExclude=srlgExcludeList],[IncludeID=
   linkIncludeID],,SrcNID=srcNID,srcPortID,DestNID=
   destNID,destPortID:
   PathID=pathID1,State=pst1&sst1&tst1,NodeList=
```

```
   pNodeList1:
   [PathID=pathID2,State=pst2&sst2&tst2,NodeList=
   pNodeList2]"
```

Normal system response to ED-PATH-ROLL:

```
   srcTid date time
M  ctag COMPLD
   "ConnID=connID,ConnAlias=connAlias,ConnStatus=
   connStatus,pdir,protectionClass,bandwidth,ConnAlias=
   connAlias,MaxDelay=dd,[SrvID=srvID],[nodeListUsage1=
   nodeList1],,[SrlgExclude=srlgExcludeList],IncludeID=
   linkIncludeID,rstrPriority=3,,SrcNID=srcNID,
   srcPortID,DestNID=destNID,destPortID:
   PathID=pathID1,State=pst1&sst1&tst1,NodeList=pNodeList1:
   PathID=pathID2,State=pst2&sst2&tst2,NodeList=pNodeList2"
;
```

Output parameters

The details of the output parameters *srcTid*, *ctag*, reqType, *nodeListUsage1*, *nodeList1* and their syntax and allowed values are included in the Input parameters section of the ED-PATH command.

1. srcTid
   Target Identifier of the source node is the logical name of the Host NE. ONNS uses the same *tid* used by Host NE.
   Type: identifier, in addition the special character underscore ("_") and the password characters are allowed.
   Range: The *srcTid* parameter is a case insensitive ASCII character string of up to 20 characters with the allowed character set as described above.
2. date
   This parameter is set to the date when the output message is generate: YYYY-MM-DD where YYYY=2000-2099, MM=01-12, DD=01-31.
3. time
   This parameter is set to the time when the output message is generated: HH:MM:SS where HH=00-23,MM=00-59, SS=00-59.
4. ctag – Correlation Tag
   The *ctag* parameter is a character strings of up to 6 ASCII characters. The allowed ASCII character string is comprised of alphanumeric characters beginning with a letter, or decimal numerals (a decimal numeral is a string of decimal digits with an optional non-trailing ".").
5. completionCode

Standard TL1 completion code result:

- COMPLD: for success (default)
- PRTL: for partial success / failure, see section ERROR RESPONSES for details
- DENY: in case of errors, see section ERROR RESPONSES for details

6. connID - Connection ID
   This parameter reports only the connections originating at the specified source node. *connID* is formed from the *SrcNodeIP* and IngressPort# and an index # where LambdaUNITE uses bay = 1 = shelf.
   Type: Character string of length up to 35.
   Range: nodeID&Tributary AID range - if port # specifies a VCG to retrieve a connection group, with
   - nodeID: four dot separated numeric strings: each string 0..255
   - Tributary AID: five dash seperated numeric strings representing Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # with:
     Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 4), ALL - special value to retrieve all connection records associated with the port ID.

   Example: 135.13.196.203&1-5-13-4-ALL The port AID 1-5-13-4 must denote a VCG.
7. connAlias - connection Alias
   This parameter specifies a user defined string as an alternate name for the connection instead of *connID*.
   Type: Character string up to length 83.
   Range: The string consists of printable ASCII characters+NULL. The following characters cannot be used in the string: colon, semi-colon, comma, double quotes.
   This shall be an optional output parameter in the ED-PATH command reply.
8. connStatus - Connection Status
   ConnStatus = pst&sst(&tst) Connection status is the overall status of the connection connID which may be different than the status of an individual *pathID* in that connection.
   connStatus is composed out of
   - pst (PrimaryState)
   - sst (SecondaryState)
   - tst (TertiaryState, optional).

   Type: up to three &-seperated value sets.
   Range *pst* values:
   - CON: Connected
   - DLT: Deleted
   - NOCON: Not Connected
   - MAINT: Maintenence Mode
   - UNKNOWN: Conn state unknown.

Range *sst* & *tst* values

- OK: Conn good
- FAILED: Conn failed
- SETUP: Conn SetUp occurring
- TRDOWN: Conn teardown occurring
- NO-IN: Conn failed, signal in bad
- RSTOR: path restore occurring
- RSTRD: Conn restored
- RSTRFL: Conn restore failed
- DLT-FL: Delete operation Failed
- UNKNOWN: Conn state unknown
- WTORSTR: Waiting to restore path
- PREMPT: Path pre-empted
- SETUPFL: Connection SetUp Failed
- FL-NVM: Not saved in NVM
- WTORV: Waiting to revert path
- EPRTFLEDGE: Port Failed
- BAD-IN Conn failed, Bad signal in
- BRDGD Path bridged

Note: Some states listed in this list will only occur within a DLT-PATH command response or within a REPT PTHCHG or REPT PTHEVT notification message.

9. pdir – Path Direction Topology
   Uni-direction A-Z (1WAY) or Bi-direction - (2WAY).
   Range: 1WAY (default), 2WAY
10. protectionClass - Path Protection Class
    This parameter defines the type of restoration protection assigned to the path connection during path setup or after path modification.
    Range:
    - UNPROT (path from source to destination is un-protected)
    - AUTONR (path from source to destination is a non-revertive auto-reroute path connection)
    - N1PLUS1 (paths from source to destination is set up as a network 1+1 connection)
    - AUTORV (path from source to destination is a revertive auto-reroute path connection)
    - YCONN (paths from the same source to two different destinations are set up as a bridged connection)

- MBYNWRK (working connection in an M:N connection group)
- MBYNPRT (protecting connection in an M:N connection group).

This shall be an optional output parameter in the ED-PATH command reply.

11. bandwidth - Requested bandwidth/signalRate
    Link *signalRate* is equal to or greater than the minimum cross-connect rate *minXCrate* of the port_type.
    Values: STS1, STS3, STS12 STS48, STS192.
12. maxDelay - Maximum transport delay
    Maximum transport delay through all nodes in the path. Total path delay must not exceed this value.
    Range: 0 (default), is used to select no delay limit; >0, maximum transport delay in milliseconds.
    This shall be an optional output parameter in the ED-PATH command reply.
13. srvID - Service Identifier
    This parameter is a logical tag for the group of connections associated with a service defined by the Service Manager system (or other management entity).
    The *srvID* parameter is an integer value range = 1 - 20,000,000. Only one *srvID* is accepted. ALL is not supported.
14. nodeList Usage1 - Node List Usage 1
    For connection setup NN used/uses the list of nodes included in the *nodeList1* array block in a manner specified by the *nodeListUsage1* variable. Both, *nodeListUsage1* and *nodeList1*, fields belong together and shall be reported when supplied as input to the ENT-PATH command. An EXCLUDE list usage applies to all paths created (as in a N1PLUS1NR or N1PLUS1RV). A non-existent *nodeID* will be ignored in EXCLUDE *nodeList1* during path setup. A non-existent *nodeID* will cause setup failure in EXPLICIT *nodeList1* during path setup.
    Range:
    - EXPLICIT, *nodeList1* contains the intermediate NE nodes of the path in the explicit order they are to be used. (An empty list will force a direct path from source to destination.)
    - EXCLUDE, nodes in the *nodeList1* must all be excluded from the path created. In the case when the *protectionClass* is either YCONN, N1PLUS1NR or N1PLUS1RV the nodes in the *nodeList1* below also apply to the second or restoration path.

    This shall be an optional output parameter in the ED-PATH command reply.
15. nodeList1 - Node List 1
    When *nodeListUsage1* = EXPLICIT: List of intermediate nodes that specify the path in the exact node order specified in the input. Source and destination nodes are assumed to be included implicitly. The *nodeID* values are shown in the form: nid1([&nid2& ...&nidx]).
    When *nodeListUsage1* = EXCLUDE: List of nodes that must all be excluded from both paths. The *nodeID* values are shown in the from: nid1([&nid2& ...&nidx]).
    If the preceding required *nodeListUsage1* field is not supplied, this field must not

be present. If user specifies empty EXCLUDE *nodeList1*, the connection should use indirect path from source node to destination node (i.e., at least one intermediate node is needed). If user specifies empty EXPLICIT *nodeList1*, the connection should use a direct path from source to destination node (i.e., no intermediate node is allowed).
Type: &-seperated list of nodeIDs. A *nodeID* is represented as four dot seperated numeric string with each numeric string between 0 - 255.
Example: 135.13.196.203&135.13.42.23&135.213.242.133&135.13.196.123
Range: nid1([&nidx])* or empty list (where X <= 8 when *nodeListUsage1* = EXPLICIT) (where X <= 15 when *nodeListUsage1* = EXCLUSIVE)
This shall be an optional output parameter in the ED-PATH command reply.

16. nodeListUsage2
For connection setup NN used/uses the list of nodes included in the *nodeList2* array block in a manner specified by the *nodeListUsage2* variable. Both, *nodeListUsage2* and *nodeList2*, fields belong together and shall be reported when supplied as input to the ENT-PATH command. A non-existent *nodeID* will cause setup failure in EXPLICIT *nodeList1* during path setup. This parameter is only be used when *protectionClass* is N1PLUS1 or YCONN.
Range: EXPLICIT, *nodeList2* contains the intermediate NE nodes of the path in the explicit order they are to be used. (an empty list will force a direct path from source to destination.)
This shall be an optional output parameter in the ED-PATH command reply.

17. nodeList2 - Node List 2
When nodeListUsage2=EXPLICIT: List of intermediate nodes that specify the path in the exact node order specified in the input. Source and destination nodes are assumed to be included implicitly. The nodeID values are shown in the form: nid1([[&nid2& ...&nidx]]).
If the preceding required *nodeListUsage2* field is not supplied, this field must not be present. If user specifies empty EXPLICIT *nodeList2*, the connection should use a direct path from source to destination node (i.e., no intermediate node is allowed). This parameter is only be used when *protectionClass* is N1PLUS1 or YCONN.
Type: &-seperated list of *nodeIDs*. A *nodeID* is represented as four dot seperated numeric string with each numeric string between 0 - 255.
Example: 135.13.196.203&135.13.42.23&135.213.242.133&135.13.196.123
Range: nid1([&nidX])* or empty list where X <= 8 when *nodeListUsage1* = EXPLICIT.
This shall be an optional output parameter in the ED-PATH command reply.

18. srlgExcludeList - SRLG Exclude List
    List of Shared Risk Link Group identifiers that are to be used to exclude links from the connection path(s) being created.
    Type: &-seperated list of numeric strings | empty | 0
    Example: 33&49&64
    Range: up to 10 numeric strings, each in the range 1 - 65535. The value 0 (default) or an empty field indicates no constraint are applied.
    This shall be an optional output parameter in the ED-PATH command reply.
19. linkIncludeID - VPN Identifier
    A connection constraint link property such as *linkIncludeID* that must be valid to include the link in the connection path(s) to be created. *linkIncludeID* is a link connection property that can be used to group and classify links. VPNID is a special case of this associative property.
    Range: 1 - 65535. 0 (default) or an empty field indicates no VPN constraint is applied.
    Note: Since the corresponding value is not supported as Host port parameter any input different from 0 will lead to DENY of the command.
    This shall be an optional output parameter in the ED-PATH command reply.
20. srcNID - Source nodeID
    ONNS source nodeID. Together with the following srcPortID field defines the associated Ingress connPoint that connects the source node to the edge/gateway switch or client router.
    Range: Four dot seperated numeric strings. 0 - 255 for each numeric string.
21. srcPortID - Source PortID
    ONNS source node ingress portID. The portID consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # of the *srcNID* ingress *connPoint*. ONNS assumes a bidirectional port pair.
    Value: dash-seperated list of 5 numeric strings
    Example: 1-1-3-1-4
    Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).
22. destNID - Destination nodeID
    ONNS destination nodeID. Together with the following *destPortID* field defines the associated Engress *connPoint* that connects the destination node to the edge/gateway switch or client router.
    Type: Four dot seperated numeric strings. 0 - 255 for each numeric string.
23. destPortID - Destination PortID
    ONNS destination node egress portID. The portID consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # of the destNID egress *connPoint*.
    Value: dash-seperated list of 5 numeric strings
    Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).

24. brDestNID - Bridged Destination NodeID
    ONNS bridged destination nodeID. Together with the following brDestPortID field defines the second associated Egress connPoint that connects the destination node to the edge/gateway switch or client router in case of protectionClass YCONN.
    Type: Four dot seperated numeric strings. 0 - 255 for each numeric string.
25. brDestPortID - Bridged Destination PortID
    ONNS bridged destination node egress *portID* in case *protectionClass* = YCONN. The *portID* consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # of the brDestNID egress connPoint. 4.1; 5; 6
    Value: dash-seperated list of 5 numeric strings
    Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).
26. pathID1 - Path ID 1
    The PathID of the 1st path that was created.
    Type: character string of length up to 20.
    Range: nodeID-Index (nodeID: four dot separated numeric strings: each string 0 - 255) (Index: Numeric string).
    Example: 135.13.196.203-432165
27. pathState1 - Path State 1
    Path State1 = *pst*& *sst*[*&tst*]. pathState1 represents the status of the first path of the connection which may be different than the status of the overall connection in *connStatus*.
    PathState1 is composed out of *pst* (PrimaryState), *sst* (SecondaryState) and *tst* (TertiaryState, optional) Up to two of the allowed values are simultaneously permitted as a sst/tst parameter.The two values must be separated by an ampersand (″&″). Individual status values are 7 characters or less.
    Type: up to three &-seperated value sets.
    Range *pst* values:
    - CON: Connected
    - NOCON: Not Connected
    - DLT: Deleted
    - MAINT: Maintenance mode.

    Range *sst* & *tst* values
    - OK: Conn good
    - FAILED-PATH: failed
    - SETUP: Conn SetUp occurring
    - TRDOWN: Conn teardown occurring
    - NO-IN: Conn failed, signal in bad
    - RSTOR: path restore occurring
    - RSTRD: Conn restored
    - RSTRFL: Conn restore failed

- DLT-FL: Delete operation Failed
- UNKNOWN: Conn state unknown
- WTORSTR: Waiting to restore path
- SETUPFL: Connection SetUp Failed
- RVRTFL: Conn revert failed
- PREMPTD: Preempted
- WTORV: Waiting to revert path
- BRDGD: Path bridged
- EPRTFLEDGE: Port Failed
- BAD-IN: path failed, Bad signal in
- FLT: Fault.

Note: Some states listed in this list will only occur within a DLT-PATH command response or in a REPT-PTHCHG / PTHEVT notification.

28. pNodeList1 Path Node List 1
    The path node list contains the list of nodes that the 1st path (*pathID1*) traverses in A-Z order from the source node.
    Type: &-seperated list of nodeIDs. A nodeID is represented as four dot seperated numeric string with each numeric string between 0 - 255.
    Range: nid1([&nidX])*
    Example: 135.13.196.203&135.13.42.23&135.213.242.133&135.13.196.123
    This shall be an optional output parameter in the ED-PATH command reply.
29. pathID2 - Path ID 2
    The PathID of the 2nd path (if existing) that was created.
    Type: character string of length up to 20.
    Range: nodeID-Index (nodeID: four dot separated numeric strings: each string 0 - 255), (Index: Numeric string).
    Example: 135.13.196.203-432165
    This shall be an optional output parameter in the ED-PATH command reply.
30. pathState2 - Path State 2
    pathState2 = pst&sst[&tst]. *pathState2* represents the status of the second path (if existing) of the connection which may be different than the status of the overall connection in *connStatus*.

    PathState2 is composed out of

    - pst (PrimaryState)
    - sst (SecondaryState)
    - tst (TertiaryState, optional).

    Up to two of the allowed values are simultaneously permitted as a sst/tst parameter.The two values must be separated by an ampersand (″&″). Individual status values are 7 characters or less.
    Type: up to three &-seperated value sets

Range *pst* values:

- CON: Connected
- NOCON: Not Connected
- DLT: Deleted
- MAINT: Maintenance mode.

Range *sst* & *tst* values

- OK: Conn good
- FAILED-PATH: failed
- SETUP: Conn SetUp occurring
- TRDOWN: Conn teardown occurring
- NO-IN: Conn failed, signal in bad
- RSTOR: path restore occurring
- RSTRD: Conn restored
- RSTRFL: Conn restore failed
- DLT-FL: Delete operation Failed
- UNKNOWN: Conn state unknown
- WTORSTR: Waiting to restore path
- SETUPFL: Connection SetUp Failed
- RVRTFL: Conn revert failed
- PREMPTD: Preempted
- WTORV: Waiting to revert path
- BRDGD: Path bridged
- EPRTFLEDGE: Port Failed
- BAD-IN: path failed, Bad signal in
- FLT: Fault.

Note: Some states listed in this list will only occur within a DLT-PATH command response or in a REPT-PTHCHG / PTHEVT notification.
This shall be an optional output parameter in the ED-PATH command reply.

31. pNodeList2 - Path Node List 2
The path node list contains the list of nodes that the 2nd path (pathID1, if existing) traverses in A-Z order from the source node.
Type: &-seperated list of nodeIDs. A *nodeID* is represented as four dot seperated numeric string with each numeric string between 0 - 255.
Range: nid1([&nidX])*
Example: 135.13.196.203&135.13.42.23&135.213.242.133&135.13.196.123
This shall be an optional output parameter in the ED-PATH command reply.

Spec block parameter:

1. rstrPriority - Restoration Priority
   This parameter describes the restoration priority of the connection.
   Range: 0 (default) - 7. Lower values represent higher priority.
   Only present when mod=PROT or mod=ROLL and supplied as input parameter.
   This shall be an optional output parameter in the ED-PATH command reply.
2. disjointness
   The actual level of disjointness of the calculated and established connection. The parameter is not filled when protectionClass is UNPROT.
   Type: alphanumeric value set
   Range:
   - COMPLETE: fully node and SRLG disjoint path
   - FULLYSRLG: maximal node and fully SRLG disjoint path
   - MAXIMAL: maximal node disjoint path.

   The value ″FULLYNODE″ for fully node disjoint path is a possible future enhancment.
   This shall be an optional output parameter in the ED-PATH command reply.

Example input/output

Output example with a *protectionClass* change:

```
   LT-ONNS-256 2002-01-01 08:00:00
M  123456 COMPLD
   ″ConnID=135.14.196.23&1-5-13-4-1&1,ConnStatus=CON&OK,
   2WAY,AUTORV,STS48,ConnAlias=AmericanExp-NY-BOS-ckt,
   MaxDelay=44,SrvID=12354,,,,IncludeID=0,rstrPriority=5,
   SrcNID=135.14.196.23,1-5-13-4-1,
   DestNID=135.13.196.123,1-2-5-5-1:
   PathID=135.14.196.23-43516,State=CON&OK,
   NodeList=135.14.196.23&135.13.42.3&135.14.242.133&
   135.13.42.15:PathID=135.14.196.23-43231,State=CON&OK,
   NodeList=135.14.196.23&135.13.22.3&135.13.24.3&
   135.13.44.93&135.13.196.123″
;
```

Output example with a parameter change:

```
   LT-ONNS-256 2002-06-01 08:00:00
M  123456 COMPLD
   ″ConnID=135.14.196.23&1-5-13-4-1&1,ConnStatus=CON&OK,
   2WAY,AUTORV,STS48,MaxDelay=44,SrvID=1.2.3.4-5,Exclude=
   135.13.42.3,,SrlgExclude=10&24&83&18, IncludeID=0,
   rstrPriority=5,SrcNID=135.14.196.23,1-5-13-4-1,
   DestNID=135.13.196.123,1-2-5-5-1&1-2-5-5-1:
   PathID=135.14.196.23-43516,State=CON&OK,
   NodeList=135.14.196.23&135.13.42.3&135.14.242.133&
```

```
   135.13.42.15:PathID=135.14.196.23-43231,State=CON&OK,
   NodeList=135.14.196.23&135.13.22.3&135.13.24.3&
   135.13.44.93&135.13.196.123"
;
```

The following is an example shows a successful execution of the ED-PATH-ROLL command:

```
   LT-ONNS-256 2002-09-01 08:00:00
M  123459 COMPLD
   "ConnID=135.14.196.23&1-5-3-2-49&2,ConnStatus=CON&OK,
   2WAY,AUTONR,STS48,ConnAlias=AmericanExp-NY-BOS-ckt,
   MaxDelay=65,SrvID=1351465478,Exclude=135.13.42.13&
   135.213.242.103& 135.13.198.22,,SrlgExclude=65&73&83&19,
   IncludeID=39,rstrPriority=5,SrcNID=135.14.196.23,
   1-5-3-2-49,DestNID=135.13.196.123,1-2-5-2-1:
   PathID=135.14.196.23-54326,State=CON&OK,
   NodeList=135.14.196.23&135.13.42.3&135.14.242.133&
   135.13.196.123:PathID=135.14.196.23-43876,State=DLT,
   NodeList=135.14.196.23&135.13.42.153&135.13.242.133&
   135.13.196.12"
;
```

Output example with old and new *connAlias* (ED-PATH):

```
   LT-ONNS-256 2003-02-11 16:34:13
M  3 COMPLD
   "ConnID=192.168.20.1&1-1-1-1-1&1,ConnStatus=CON&OK,
   1WAY,AUTONR,STS3,ConnAlias=newname,
   MaxDelay=60,,,,,IncludeID=0,,,
   SrcNID=192.168.20.1,1-1-1-1-1,DestNID=192.168.20.2,
   1-1-1-1-1:PathID=192.168.20.1-1,State=CON&OK,
   NodeList=192.168.20.1&192.168.20.3&192.168.20.2:
   PathID=0.0.0.0-0,State=NOCON,
   NodeList=192.168.20.1&192.168.20.5&192.168.20.2"
;
```

Error responses

Refer to the "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)command Error responses section. The error responses listed there also apply to the ED-PATH-mod command.

Insufficient network resources

Error code: `"E001::\"InSufficient Network Resources in the Topology DR\"`

Insufficient network resources for alternate route

If network resources for an alternate route of a connection to be changed to a restoration protected connection are insufficient, then the following error response is returned:

Error code: `"E004:srvID:\"InSufficient Network Resources for Alternate Path\","`

The following list identifies conditions that will cause similar error responses:

Error code: `E012 - SXCF - Status, XConn Failure caused path setup failure`

Error code: `E013 - SSCF - Status, Signaling Communication link Failure (or abort) caused path operation failure`

Error code: `E014 - SXCT - Status, XConn Timeout`

Error code: `E016 - SHTO - Status, Host interface TimeOut`

Error code: `E017 - SSTO - Status, Signaling Timeout`

Error code: `E022 - SPSF - Status, Path Setup Failure caused by signal transmission failure at egress node`

E016 and E022 are only sent in notifications, not in command replies

Maximum delay errors on calculated path

The maximum transport delay exceeded error response is shown below.

Error code: `"E020::\"Maximum Transport Delay Exceeded (by calculated path)\","`

ED-PATH request denied - Parameter invalid

The request parameter invalid error response is shown below:

Error code: `"E030::\"Syntax, Parameter Data Invalid, invalid_parameter\","`

The following list identifies conditions that will cause similar error responses:

Error code: `E032 - Input, Source nodeID is invalid`

Error code: `E033 - Input, Node List has Invalid / unknown ID`

Error code: `E035 -ICAE - Input, ConnAlias Already Exists`

Error code: `E037 - INCS - Input, Neither ConnID nor ConnAlias Specified`

ED-PATH syntax, invalid degree of disjointness value

Refer to the Error Response Output parameter section of the "ENT-PATH: Create ONNS path connection" (p. 4-1190).

The following list identifies conditions that will cause similar error responses:

Error code: `E335 - SCOF Error - Status, Connection Operation Failed`

Error code: `E336 - SCTP Error - Status, Invalid command for protection class N1PLUS1 or YCONN`

ED-PATH-PROT Path Protection Group Parameter transfer failed

Error code: `"E150::\"Status, Path Protection Group parameters Not Provisioned\","`

The following list identifies conditions that will cause similar error responses:

Error code: `E351 - SPOA - Status, Path Operation not Allowed on connection in Restoration queue`

ConnectionID does not exist

If the Source Node ONNS receives an ED-PATH-PROT command when the specified connection path does not exist, then the following error response is returned:

Error code: `E220 - Input, ConnectionID Non-Existent`

Port related problems

If the NE receives an ED-PATH-MODIFY command where the *portID* parameter value is not valid, then one of the following error responses is returned:

Error code: `E082 - Status, NNI connPoint / port Unavailable ID=<ASTN node ID>&<ConnPtID>`

The following list identifies conditions that will cause similar error responses:

Error code: `E083 - SCIU - Status, NNI connPoint in Use, XConn or reservation exists, ID=<ASTN node ID>&<ConnPtID>`

Error code: `E161 - CFUT - XConn Connect Failure, Unexpected toplogy or related cross connect, ID=<ASTN node ID>&<ConnPtID>`

Error code: `E162 - CFXE - XConn Connect Failure, Cross connect already exists, ID=<ASTN node ID>&<ConnPtID>`

Some of these errors can occur in the process of path setup and are similar to those found in ENT-PATH. The following condition will cause a similar error response:

Error code: `E279 - SNRE - Status NVM Record Exhausted`

This failure condition is only valid until a variable NVM allocation scheme is implemented, that does not have any restrictions wrt the length of connection records to be stored.

protectionClass is not allowed

If the NE receives an ED-PATH-PROT or ED-PATH-ROLL command or a connection of protectionClass MBYNWRK or MBYNPRT, then the following error response is returned:

Error code: `E091 - Status, Invalid command for protection class MBYNWRK or MBYNPRT`

The following list identifies further conditions that will cause error responses:

Error code: `E360 - SPMF - Status, Path Modify Failed due to invalid protection type change`

Related TL1 messages

- "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
- "ENT-PATH: Create ONNS path connection" (p. 4-1190)
- "DLT-PATH: Delete ONNS path Connection" (p. 4-148)
- "RTRV-NNCNFG: Retrieve ONNS configuration data" (p. 4-1831)
- "ED-NNCNFG: Edit ONNS configuration data" (p. 4-329)
- "REPT-PTHCHG Notification: Report path change" (p. 4-1540)
- "REPT-PTHEVT Notification: Report ONNS Path Events" (p. 4-1554)
- "RTRV-NNDR: Retrieve ONNS neighbor nodal data repository" (p. 4-1836)
- "RTRV-NTDR: Retrieve ONNS network topology data repository" (p. 4-1857)
- "REPT-NNCHG Notification: Report ONNS data repository changes" (p. 4-1531)
- "REPT-NNEVT Notification: Report ONNS internal events" (p. 4-1536)
- "RTRV-LOG-NTFCN: Retrieve notification Log" (p. 4-1765)

□

ED-PID: Edit password identifier

The ED-PID command can be initiated by a user to change the user's own password on the NE.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S1

Priority: 1

Abortable: No.

Input format

Command Syntax: `ED-PID`:*tid*::*ctag*::*old_pid*,*new_pid*;

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
3. old_pid – Old Password ID
   This is the current *pid* of the user.
   This required parameter is the confidential password authenticator for the given *uid.* Password strings are transmitted in non-encrypted form in the ACT-USER command; are encrypted when stored in the NE; and are never transmitted from the NE.
   Type: character string (case-sensitive)
   Range: 6 to 10 legal characters. Valid passwords consist of at least two non-alphabetic characters with at least one special character. The special character can be one of the required non-alpha characters. For example, TEST1+ is a valid password. The first character of a password must be a letter.
   Default: For the two superusers the default password is: UNITE+01 for User ID LUC01 and UNITE+02 for User ID LUC02. For other users: not applicable.
4. new_pid – New Password ID
   This parameter specifies the new password ID. The *new_pid* value must differ from the *old_pid* value by at least one character.

Output format

After receiving the ED-PID command, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
```

```
;
```

If the password change request completes successfully during login procedure after the password expired and transitions the state of the login procedure from the ″Password_Expired″ state to the ″Login_Active″ state, the following normal completion response from the ACT-USER command is returned:

```
   sid date time
M  ctag COMPLD
   ″uid:lastdate,lasttime,attempts,systype,release,upc″
   /* Lucent Technologies systype release
   User Privilege Code: upc
   LUCENT TECHNOLOGIES - PROPRIETARY
   THIS SOFTWARE CONTAINS INFORMATION OF LUCENT TECHNOLOGIES
   AND IS NOT TO BE DISCLOSED OR USED EXCEPT IN ACCORDANCE
   WITH APPLICABLE AGREEMENTS.
   NOTICE: THIS IS A PRIVATE COMPUTER SYSTEM.
   USE OF THIS SOFTWARE IS GOVERNED SOLELY AS EXPRESSLY
   AUTHORIZED IN THE RELEVANT AGREEMENT BETWEEN
   LUCENT TECHNOLOGIES AND CUSTOMER.
   UNAUTHORIZED ACCESS OR USE MAY LEAD TO PROSECUTION.
   */
;
```

For description of these output message refer to “ACT-USER: Activate user” (p. 4-14).

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of “RTRV-HDR: Retrieve header” (p. 4-1736).

Detailed behavior description

When the NE receives an ED-PID command, the *pid* (password ID) associated with the user’s login identifier will be changed on the NE provided that:

- the user is currently logged in on the NE
- the *old_pid* provided matches the current password for that login identifier
- the *new_pid* provided satisfies the password requirements of the NE.

It will be reported via the corresponding ED-PID notification – see “ED-PID notification” (p. 4-550) section – if a session is already established. In the password expiry scenario during a login procedure, the ED-PID notification is optional and may be omitted..

When the ED-PID command is successfully executed, the user session is not terminated and is unaffected. It will continue to use the previous values. The changes will take effect the next time the user logs in.

Example input/output

The following example shows a successful password change operation:

```
ED-PID:LT-UNITE-123::123456::soup3r+,mash%52;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
;
```

The following example shows a successful completion response of ED-PID while attempting the ACT-USER command:

```
ED-PID:LT-UNITE-123::123456::soup3r+,mash%52;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
   " nbguser1:00-12-31,09-00-00,1,WaveStar_UNITE,1.1.13,P3&M3"
   /* Lucent Technologies WaveStar_UNITE Release 1.1.13
   User Privilege Code: P3&M3
   LUCENT TECHNOLOGIES - PROPRIETARY
   THIS SOFTWARE CONTAINS INFORMATION OF LUCENT TECHNOLOGIES
   AND IS NOT TO BE DISCLOSED OR USED EXCEPT IN ACCORDANCE
   WITH APPLICABLE AGREEMENTS.
   NOTICE: THIS IS A PRIVATE COMPUTER SYSTEM.
   USE OF THIS SOFTWARE IS GOVERNED SOLELY AS EXPRESSLY
   AUTHORIZED IN THE RELEVANT AGREEMENT BETWEEN
   LUCENT TECHNOLOGIES AND CUSTOMER.
   UNAUTHORIZED ACCESS OR USE MAY LEAD TO PROSECUTION.
   */
;
```

Error responses

The general error responses defined in "RTRV-HDR: Retrieve header" (p. 4-1736) are also valid for this command.

Validation rule: Invalid *old_pid*

If the NE receives an ED-PID command with an *old_pid* value that does not match with the password ID of the associated user login ID.

Error code: `IDNV - Input, Data Not Valid, wrong old_pid`

Validation rule: Missing or invalid or syntactically incorrect *new_pid*

If the NE receives an ED-PID command with a missing *new_pid* or the *new_pid* is same as the *old_pid* or the *new_pid* is syntactically incorrect.

Error code: `IDNV - Input, Data Not Valid, incorrect new_pid`

References

TR-NWT-000835, OTGR Section 12.5: Operations Applications Messages – NE and Network System Security Administration Messages.

□

ED-PID notification

Output format

See definition of "REPT DBCHG: Report data base change" (p. 4-1517).

The ED-PID notification will have following specific syntax:

`ED-PID:`*uid*

Output parameters

Command parameters

1. uid – User ID
   This is the unique user login identifier for which the ACT-USER login command is intended. Grouping and/or ranging of *uid* values for the ACT-USER command are not allowed. Valid *uid* values for the ACT-USER command are case-sensitive alphanumeric strings which have been previously provisioned as valid login IDs in the NE.
   Type: alphanumeric string (case-sensitive)
   Range: 1 – 10 characters
   The *uid* ALL is not allowed in any combination of upper or lower cases.

Example output

The example shows a normal notification after an ED-PID command:

```
   LT-UNITE-123 00-01-01 08:00:50
A 815 REPT DBCHG
   "TIME=08-00-12,DATE=00-01-01:ED-PID:nbguser1"
;
```

ED-PROTN-GRP: Edit protection group

The ED-PROTN-GRP command allows one to modify parameter/attributes related to an already existing protection group instance of any protection group type.

Note: Manual protection switching is done by means of commands OPR-PROTNSW, RLS-PROTNSW.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M4

Priority: 1

Abortable: No

Input format

Multiplex section/line protection group

Command Syntax: `ED-PROTN-GRP`:*tid*:*aid*:*ctag*::*protype*:*spec_block;*

2-/4-fibre MS-SPRing/BLSR protection group

Command Syntax: `ED-PROTN-GRP`:*tid*:*[aid]*:*ctag*::*protype,[rid]*:*spec_block*;

Path protection group

Command Syntax: `ED-PROTN-GRP`:*tid*:*[aid]*:*ctag*::*protype,*
,[ppgname][,aid1]:*spec_block*;

The parameter *ppgname* is kept for compatibility reasons only. Because of limitations of the path protection group name aliasing, the use of *ppgname* is not recommended.

Input parameters

Command parameters (multiplex section/line protection group)

1. tid – Target Identifier
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   This parameter specifies the aid of a 1+1 multiplex section/line protection group or the aid of a 1:1 multiplex section/line protection group (only R3.0 and later) or an port aid being a member of the group.
   Type: AID
   Range: OnePlusOne_ProtGrpAID (not ranged) or NByOne_ProtGrpAID (not ranged) or SPortAID (not ranged).

3. ctag – Correlation Tag
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
4. protype – Protection Type
   This parameter specifies the architecture (type) of the protection group. The value for the 1+1 line/MS protection group is 1+1. The value for the 1:1 line/MS protection group is 1xNOPT (only R3.0 and later)
   Type: value set
   Range: 1+1 or 1xNOPT

Command parameters (2-/4-fibre MS-SPRing/BLSR protection group)

1. tid – Target Identifier
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   This parameter specifies the aid of a MS-SPRing/BLSR protection group or an port aid being a member of the group.
   Option: If *rid* is specified, then *aid* can be omitted.
   Type: AID.
   Range: TwoFibre_ProtGrpAID (not ranged) or FourFibre_ProtGrpAID (not ranged) or SPortAID (not ranged).
3. ctag – Correlation Tag
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
4. protype – Protection Type
   This parameter specifies the protection group type for which the information is retrieved.
   Type: alphanumeric value set
   Range: 2F or 4F
5. rid – Ring Identification
   This parameter specifies the ring identification name. Storage and retrieval of the *rid* is case sensitive, but actual use of the rid to determine the corresponding protection group is case insensitive. The parameter is used as an alias to identify exactly one MS-SPRing/BLSR protection group of any type. Therefore the value shall be unique for all protection groups of type 2F or 4F within the NE.
   Type: text string of chars allowed for TID strings.
   Range: 1 to 15 characters.
   Default: NONE.

Command parameters (path protection group)

1. tid – Target Identifier
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   This parameter specifies a path protection group aid or an input tributary aid being a member of the group in combination with *ppgname*.
   This parameter specifies an input tributary *aid* when used in combination with parameter *aid1*.
   Option: If *ppgname* is specified, then *aid* can be omitted or used as an input tributary aid.
   For low order path protections, the *aid* cannot be omitted as the *ppgname* is not supported for those protection groups. For such protection groups always a path protection group AID has to be specified.
   The parameter *ppgname* is kept for compatibility reasons only. Because of limitations of the path protection group name aliasing, the use of *ppgname* is not recommended.
   Option: If parameters aid specifies a HO tributary on a port of port class EDGE and this tributary is combined with another HO tributary within an OUC, then ED-PROTN-GRP shall operate on all protection groups of type PATHDRI identified by these two HO tributaries, if existing. If aid specifies a HO tributary on a port of port class INNI, the command shall be rejected.
   Option: When parameter *aid* is used in combination with parameter *aid1*, then ED-PROTN-GRP shall operate on all protection groups of type PATHDRI having the AIDs given in parameters *aid* and *aid1* as input tributaries. If *aid* or *aid1* specifies a tributaries on a port of port class INNI, the command shall be rejected.
   Type: AID.
   Range: STS1NumAID or VCGNumAID or GenLOTribAID.
   The usage of wild cards shall not be allowed for any part of the AID.
3. ctag – Correlation Tag
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
4. protype – Protection Type
   This parameter specifies the protection group type for which the information is retrieved.
   Type: alphanumeric value set
   Range: PATHDRI
5. ppgname – Path protection group Name
   The parameter shall specify the path protection group name. Storage and retrieval of the ppgname shall be case sensitive, but actual use of the ppgname to determine the corresponding protection group is case insensitive.
   Option for high order path protection groups: For high order path protections, if *aid* is specified, then *ppgname* can be omitted. For low order path protections, the *ppgname* shall be omitted as not being supported at all. If an input value is

specified for *ppgname* and none is specified for *aid*, then RTRV-PROTN-GRP operates on all protection groups of type PATHDRI that have the specified path protection group name.
If input values are specified for *aid* and *ppgname* then RTRV-PROTN-GRP operates on all protection groups of type PATHDRI that have the specified *aid*, *ppgname* pair. The command will complete successfully if there is no protection group described by *aid*, *ppgname*, but no data will be returned.
The parameter *ppgname* is kept for compatibility reasons only. Because of limitations of the path protection group name aliasing, the use of *ppgname* is not recommended.
Type: text string
Range: 1 to 24 characters
In particular follow the reference to check options and mandatory omissions associated with this parameter.

6. aid1 - Access identifier 1
   Together with parameter *aid* this parameter shall specify a pair of input tributaries in order to access emulated selector bridges in one command.
   If input values are specified for *aid* and *aid1* then ED-PROTN-GRP operates on all protection groups of type PATHDRI that have these specified tributaries as inputs. If an input value is specified for *aid1*, no value must be specified for *ppgname*. If *aid1* specifies a HO tributary in a port of port class INNI, the command shall be rejected.
   Type: AID
   Range: STS1NumAID
   The use of wildcards shall not be allowed.

Spec block parameters (multiplex section/line protection group)

1. apspn – MSP-APS ASAP Pointer
   This parameter specifies the value for the ASAP (alarm severity assignment profile) name of type MSP-APS (Multiplex Section Protection – Automatic protection switching).
   Type: alphanumeric string
   Range: 1-24 characters including character '-'.
   Default: DEFAULT
2. dcclmsprotmd – DCC Line/MS Protection Mode
   The parameter shall specify, whether the line/MS dcc channel is switched as part of the line/MS protection group. The value ENABLE shall be used, if dcc channel is switched as part of line/MS protection group; otherwise the value DISABLED shall be used.
   Type: alphanumeric value set 3;
   Range: ENABLE, DISABLE
   Default: DISABLE

3. dccsrsprotmd – DCC Sect/RS Protection Mode
   The parameter shall specify, whether the section/RS dcc channel is switched as part of the line/MS protection group. The value ENABLE shall be used, if dcc channel is switched as part of line/MS protection group; otherwise the value DISABLED shall be used.
   Type:alphanumeric value set
   Range: ENABLE, DISABLE
   Default: DISABLE
4. wtr – Wait To Restore Time
   The parameter specifies the 'wait to restore' time used by the protection state machine operating in revertive mode (MSP1+1, MSP1:1). In case of MSP 1+1 Optimized the same parameter is used for the 'wait to rename' time.
   Type: numeric string [minute]
   Range: 0 - 60
   Default: 5.

Spec block parameters (2-fibre MS-SPRing/BLSR protection group)

1. ard – Automatic Ring Discovery
   If this parameter is enabled, the automatic ring discovery algorithm will assign nodeID values to each node in the ring and construct the necessary ring map information. All nodes in the ring must be Lucent. If disabled, the user will assign the NodeID value manually with ED-MAP-RING and supply the ring map information to each node on the ring for the BLSR protocol to operate. It is necessary to activate this user-provisioned information with SET-MAP-RING. Until all nodes on the ring have the same ring map, nodes will have most likely an outstanding NodeID mismatch alarm active.
   Type: alphanumeric string.
   Range: ENABLE, DISABLE.
   Default: ENABLE.
2. asmc - Automatic Squelch Map Calculation
   If this parameter is enabled, the automatic squelch map calculation is switched on. If disabled, the function is switched off.
   Type: alhpanumeric string
   Range: ENABLE, DISABLE (default)
3. blsrpn – MSSPRING-BLSR ASAP Pointer
   This parameter specifies the value for the ASAP (alarm severity assignment profile) name of type MSSPRING-BLSR.
   Type: alphanumeric string
   Range: 1-24 characters including character '-'.
   Default: DEFAULT

4. newrid – New Ring Identification
   This parameter specifies the ring identification name. Storage and retrieval of the *rid* is case sensitive, but actual use of the rid to determine the corresponding protection group is case insensitive. The parameter is used as an alias to identify exactly one MS-SPRing/BLSR protection group of any type. Therefore the value shall be unique for all protection groups of type 2F or 4F within the NE.
   Type: text string of chars allowed for TID strings.
   Range: 1 to 15 characters.
   Default: NONE.
5. rcamode – Ring Circuit Alarm Mode
   This parameter can be used to enable or disable ring circuit alarms for the local MS SPRING / BLSR protection group. If rcamode is DISABLED, any alarm associated with the local cross-connections will be suppressed and not issued.
   Type: alphanumeric value set
   Range: ENABLE (default), DISABLE
6. wtr – Wait To Restore Time
   This parameter specifies the wait to restore time for ring switches used by the protection state machine operating in revertive mode. The protection operates in revertive mode if the wait-to-restore time is in the range 0-12. The protection operates in non-revertive mode if the wait-to-restore time has the value 99 representing the infinite value.
   Note: If *wtr* time is set to infinite, the switch request state shall be WTR until a higher request occurs.
   Type: numeric string [minute].
   Range: 0 – 12 in 1 minute increments and 99.
   Default: 5.

Spec block parameters (4-fibre MS-SPRing/BLSR protection group)

1. ard – Automatic Ring Discovery
   If this parameter is enabled, the automatic ring discovery algorithm will assign nodeID values to each node in the ring and construct the necessary ring map information. All nodes in the ring must be Lucent. If disabled, the user will assign the NodeID value and supply the ring map information to each node on the ring for the BLSR protocol to operate. Until all nodes on the ring have the same ring map, nodes will have most likely an outstanding NodeID mismatch alarm active.
   Type: alphanumeric string.
   Range: ENABLE, DISABLE.
   Default: ENABLE.
2. asmc - Automatic Squelch Map Calculation
   If this parameter is enabled, the automatic squelch map calculation is switched on. If disabled, the function is switched off.
   Type: alhpanumeric string
   Range: ENABLE, DISABLE (default)

3. blsrpn – MSSPRING-BLSR ASAP Pointer
   This parameter specifies the value for the ASAP (alarm severity assignment profile) name of type MSSPRING-BLSR.
   Type: alphanumeric string.
   Range: 1-24 characters including character '-'.
   Default: DEFAULT.
4. eastwkg - East Worker Port
   This parameter specifies the port being a member in the role of the east worker port for a 4-fibre MS-SPRing/BLSR protection group.
   Type: In case of an asymmetric ring: alphanumeric string; in all other cases: AID.
   Range: In case of an asymmetric ring: NOTUSED. In all other cases: SPortAID.
5. newrid – New Ring Identification
   This parameter specifies the new ring identification name. Storage and retrieval of the *rid* is case sensitive, but actual use of the *rid* to determine the corresponding protection group is case insensitive. The parameter is used as an alias to identify exactly one MS-SPRing/BLSR protection group of any type. Therefore the value shall be unique for all protection groups of type 2F or 4F within the NE.
   Type: text string of chars allowed for TID strings.
   Range: 1 to 15 characters.
   Default: NONE
6. protnmode - Protection Switch Mode
   The parameter specifies the protection switch mode. The value LOOPBACK shall be used for the classical ring application. The value SHORTENED shall be used for transmission delay sensitive applications. The value TOPEX (only R3.0 and ^R3.1) shall be used for the so called transoceanic application, which allows extra traffic, improves restorability and improves delay as well as in SHORTENED mode.
   In case of a ring switch ... LOOPBACK performs the bridge and switch function in that nodes which are most close to the failed span. SHORTENED performs the bridge function at the add node repectively the switch function at the drop node of each ring circuit. It is an application only similar to the transoceanic protocol. TOPEX allows, compared to SHORTENED mode, additionally the traffic restoration of not affected spans. It is the transoceanic protocol application.
   Type: alphanumeric value set.
   Range: LOOPBACK, SHORTENED.
   Default: LOOPBACK.
7. rcamode – Ring Circuit Alarm Mode
   This parameter can be used to enable or disable ring circuit alarms for the local MS SPRING / BLSR protection group. If rcamode is DISABLED, any alarm associated with the local cross-connections will be suppressed and not issued.
   Type: alphanumeric value set
   Range: ENABLE (default), DISABLE

8. swtr - Span Wait To Restore Time
   The parameter specifies the wait to restore time for span switches used by the protection state machine operating in revertive mode. The protection shall operate in revertive mode if the wait-to-restore time is in the range 0-12. The protection shall operate in non-revertive mode if the wait-to-restore time has the value 99 representing the infinite value.
   Note: If *wtr* time is set to infinite, the switch request state shall be WTR until a higher request occurs.
   Type: numeric string [minute].
   Range: 0 - 12 in 1 minute increments and 99.
   Default: 5.
9. westwkg - West Worker Port
   This parameter specifies the port being a member in the role of the west worker port for a 4-fibre MS-SPRing/BLSR protection group
   Type: In case of an asymmetric ring: alphanumeric string; in all other cases: AID
   Range: In case of an asymmetric ring: NOTUSED; in all other cases: SPortAID.
10. wtr – Wait To Restore Time
    This parameter specifies the wait to restore time for ring switches used by the protection state machine operating in revertive mode. The protection operates in revertive mode if the wait-to-restore time is in the range 0-12. The protection operates in non-revertive mode if the wait-to-restore time has the value 99 representing the infinite value.
    Note: If wtr time is set to infinite, the switch request state shall be WTR until a higher request occurs.
    Type: numeric string [minute].
    Range: 0 – 12 in 1 minute increments and 99.
    Default: 5.

Spec block parameters (path protection group)

1. dripathpn – SNCP-UPSR ASAP Pointer
   This parameter specifies the value for the ASAP (alarm severity assignment profile) name of type SNCP-UPSR.
   Type: alphanumeric string.
   Range: 1-24 characters including character ’-’.
   Default: DEFAULT.
2. htmr – Hold-Off Time
   This parameter specifies the hold-off time for automatic protection switching used by the protection state machine.
   Type: numeric string [ms].
   Range for high order path protection groups, the range shall be:
   - 0 .. 99 msec in 1 msec steps and
   - 00 .. 10000 msec in100 msec steps

Range for low order path protection groups, the range shall be:

- 0, 25, 50, 75 msec (thus in steps of 25 msec) and
- 100 .. 10000 msec in 100 msec steps.

3. newppgname – New Path protection group Name
   This parameter specifies the path protection group name. Storage and retrieval of the *ppgname* is case sensitive, but actual use of the *ppgname* to determine the corresponding protection group is case insensitive.
   Type: text string.
   Range: 0 to 24 characters.
   Default: empty string
4. rme – Protection Reversion
   This parameter specifies, whether revertive or non-revertive mode is used as operation mode of the protection group.
   The value ENABLE is used if the protection operates in revertive mode.
   The value DISABLE is used if the protection operates in non-revertive mode.
   Type: alphanumeric value set.
   Range: ENABLE, DISABLE.
5. snctype – SNC Protection Type
   This parameter specifies the type of the path protection w.r.t. switch criteria used by the protection state machine.
   The value SNCI (Inherent) is used if server signal fail is used as switch criteria.
   The value SNCN (Non-Instrusive) is used if server signal fail and defects supervised by a non-intrusive path monitor are used as switch criteria
   The value NA is used if one of the tributary inputs is related to a port operating in SONET mode.
   Type: alphanumeric value set.
   Range: SNCI, SNCN, NA.
6. wtr – Wait To Restore Time
   This parameter specifies the wait to restore time used by the protection state machine operating in revertive mode.
   Type: numeric string [minute].
   Range: 0 – 60.

Note:

If a value beyond the allowed range is entered for the hold-off time (*htmr*) or for the wait-to restore time (*wtr*) the returned error code is incorrect: Instead of `/* Input, Data Not Valid */` the following error code is returned: `/*Input, Non-null Unimplemented Parameter*/`

Output format

After receiving the ED-PROTN-GRP command, the following normal completion response is returned:

```
sid date time
```

```
M  ctag COMPLD
;
```

Output parameters

See "RTRV-HDR: Retrieve header" (p. 4-1736) command Output parameters section for a normal completion response.

Detailed behavior description

The command modifies attributes for the existing protection group instances identified by *aid, rid, ppgname* of type as specified by means of parameter *protype.* The corresponding attribute of the protection group instance is updated with the value as specified in command block.

The command parameter *newrid* causes an update of the attribute *rid.* The command parameter *newppgname* causes an update of the attribute *ppgname.*

The update of the attributes is reported by means of an ED-PROTN-GRP notification.

The parameter *ppgname* is kept for compatibility reasons only. Because of limitations of the path protection group name aliasing, the use of *ppgname* to identify path protection groups is not recommended.

DCC protection as part of 1+1 multiplex section/line protection

If DCC protection is enabled for section/rs dcc channels (value of dccsrsprotmd equals ENABLE), then following updates for DCC channels shall be done.

1. The protection mode (attribute dccprottp) of the dcc channel of type 'SECTION' associated with the worker port shall be set to '1+1' protected. This update shall be reported by means of a ED-FECOM notification for the changed attribute.

If DCC protection is disabled for section/rs dcc channels (value of dccsrsprotmd equals DISABLE), then following updates for DCC channels shall be done.

1. The protection mode (attribute dccprottp) of the dcc channel of type 'SECTION' associated with the worker port shall be set to '0X1' unprotected. This update shall be reported by means of a ED-FECOM notification for the changed attribute.

If DCC protection is enabled for line/ms dcc channels (value of dcclmsprotmd equals ENABLE), then following updates for DCC channels shall be done.

1. The protection mode (attribute dccprottp) of the dcc channel of type 'LINE' associated with the worker port shall be set to '1+1' protected. This update shall be reported by means of a ED-FECOM notification for the changed attribute.

If DCC protection is disabled for line/ms dcc channels (value of dcclmsprotmd equals DISABLE), then following update for DCC channels shall be done.

1. The protection mode (attribute dccprottp) of the dcc channel of type 'LINE' associated with the worker port shall be set to '0X1' unprotected. This update shall be reported by means of a ED-FECOM notification for the changed attribute.

Path protection group

The command modifies certain attributes for existing protection group instances identified by *aid, ppgname* of type 'PATHDRI'.

Beside changing the specified attribute value, the modification shall also have the side effects as described by means of the following scenario:

1. Change of Protection Type for higher-order path protection groups: An update for the attribute *snctype* causes an update of the same attribute for all protection group instances sharing one or both inputs of the protection group which was identified by means of the command input. The additional modification for these protection group instances is reported by means of additional ED-PROTN-GRP notifications. The lower order path protection groups on the LOXC are independent from each other. Therefore no update of snctype for other lower order path protection groups is needed.
   Identification of VCG Tributaries: The system shall allow to edit path protection groups at VCG Tributaries using the AID format of an AU-3/STS-1 Tributary. I.e. the VCG number specified in the port field of the AID shall be allowed with or without the leading ″v″.

Example input/output

Multiplex section/line protection group 1+1

The following example assigns a wait-to-restore time of 8 minutes to the protection group named 1-1-o011 which is of type 1+1:

```
ED-PROTN-GRP:LT-UNITE:1-1-o011:123456::1+1:wtr=8;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
;
```

2 fibre MS-SPRing/BLSR protection group

The following example assigns a wait-to-restore time of 10 minutes to the two fiber protection group that is identified by ring id *denver21*. It also renames the ring id to *dallas3*:

```
ED-PROTN-GRP:LT-UNITE::123456::2F,″denver21″:
newrid=″dallas3″,wtr=10;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
;
```

4 fibre MS-SPRing/BLSR protection group

The following example assigns a wait-to-restore time of 10 minutes to the four fiber protection group that is identified by ring id *denver*21. It also renames the ring id to *dallas3*:

```
ED-PROTN-GRP:LT-UNITE::123456::4F,"denver21":
newrid="dallas3",wtr=10;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
;
```

Path protection group

The following example assigns a holdoff time of 100 mesc to the path protection group that is identified by path protection group name *denver21*. It also renames the path protection group name to *dallas3*:

```
ED-PROTN-GRP:LT-UNITE::123456::PATHDRI,, "denver21":
newppgname="dallas3",htmr=10;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
;
```

The following example assigns a holdoff time of 100 mesc to both path protection groups forming an emulated selector bridge on input tributaries 1-1-#-#-8-1-25 and 1-1-#-#-6-1-25. It also renames the path protection group name to dallas3:

```
ED-PROTN-GRP:LT-UNITE:1-1-#-#-8-1-25:123456::PATHDRI,,,
1-1-#-#-6-1-25:newppgname="dallas3",htmr=10;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses (Multiplex section/Line protection group)

Validation rule: dcc protection side is enabled

The dcc channel (section/line) of the protection side shall be disabled if corresponding dcc protection is enabled (section/line).

Error Code: `SNVS - Status, Not in Valid State, protection dcc channel is enabled`

Validation rule: dcc protection: working side is disabled

The dcc channel (section/line) of the working side shall be enabled if corresponding dcc protection is enabled (section/line).

Error Code: `SNVS - Status, Not in Valid State, working dcc channel is disabled`

Validation rule: dcc protection: protection side is active

The system shall reject the disabling of the dcc protection, if the protection side of dcc protection is the active one.

Error Code: `SNVS - Status, Not in Valid State, dcc protection side carries traffic`

Validation rule: Transparent DCC for DCC Line/MS protection mode

The LINE DCC channel of protecting port shall not be used in a transparent DCC cross-connection if DCC Line/MS Protection Mode - *dcclmsprotmd* - will be set to ENABLED.

Error Code: `SNVS - Status, Not in Valid State, DCC channel used in transparent DCC cross connection`

Validation rule: Transparent DCC for DCC Sect/RS protection mode

The SECTION DCC channel of protecting port shall not be used in a ransparent DCC cross-connection if DCC Sect/RS Protection Mode - dcslrsprotmd - will be set to ENABLED.

Error Code: `SNVS - Status, Not in Valid State, DCC channel used in transparent DCC cross connection`

Error responses (2-fibre MS-SPRing/BLSR protection group)

Validation rule: unique rid

The specified *newrid* is not already used by an already existing protection group of type 2F, 4F.

Error code: `IDNV - Input, Data Not Valid, rid is already used by another protection group`

Validation rule: consistent aid and rid

If both an *aid* and an *rid* are specified as input parameters and they are inconsistent, then the following error response is returned

Error code: `IDNV - Input, Data Not Valid, inconsistent aid and rid`

Validation rule: Automatic squelch map calculation only with automatic ring discovery

The system shall not allow to set *ard* to DISABLE while the Automatic Squelch Map Calculation (asmc) is enabled or to set *asmc* to ENABLE while the Automatic Ring Discovery (ard) is disabled.

Error code: `IDNV - Input, Data Not Valid, Automatic Squelch Map Calculation only allowed with Automatic Ring Discovery`

Error responses (4-fibre MS-SPRing/BLSR protection group)

Validation rule: unique *rid*

The specified *newrid* is not already used by an already existing protection group of type 2F, 4F.

Error code: `IDNV - Input, Data Not Valid, rid is already used by another protection group`

The check of *rid* uniqueness is case insensitive.

Validation rule: port on same pack

Each port being added as member for the protection group shall be located on different circuit packs.

Error Code: `SNVS - Status, Not in Valid State, ports must be on different circuit packs`

Validation rule: common interface standard

Each port being added as member for the protection group shall have the same interface standard as already included ports.

Error Code: `SNVS - Status, Not in Valid State, ports have different interface types`

Validation rule: port in one group

Each port being added as member for the protection group shall be not be a member of an already provisioned protection group.

Error Code: `SNVS - Status, Not in Valid State, port is already used in another protection group`

Validation rule: common port rate

Each port being added as member for the protection group shall have the same port rate as the other ports.

Error Code: `SNVS - Status, Not in Valid State, ports have different port rates`

Validation rule: no XC loopback on tribs

There shall exist no cross-connection loopbacks on tributaries related to the specified ports being added/removed as member for the protection group.

Error Code: `SNVS - Status, Not in Valid State, Tributary is used in cross-connection`

Validation rule: no XC on tribs

There shall exist no cross-connections on tributaries related to the specified ports being added/removed as member for the protection group.

Error Code: `SNVS - Status, Not in Valid State, Tributary is used in cross-connection`

Validation rule: no test access session active

Tributaries related to the specified ports being added/removed as member for the protection group must not be used in a test access session either as tributaries under test or as test access tributaries.

Error Code: `SNVS - Status, Not in Valid State, Tributary used in test access session`

Validation rule: dcc enabled on worker port

If automatic ring discovery (parameter ard) is ENABLED, then for each working port being added as member for the protection group at least one dcc channel (section/dcc-r or line/dcc-m) with mode UITS shall be enabled.

Error Code: `SNVS - Status, Not in Valid State, no dcc channel with mode UITS enabled`

Validation rule: dcc enabled on protection port

If the worker port is removed from one side of a protection group while the parameter ard (automatic ring discovery) is ENABLED, then at least one dcc channel (section/dcc-r or line/dcc-m) for the protection port at the same side shall be enabled.

Error Code: `SNVS - Status, Not in Valid State, no dcc channel enabled`

Validation rule: Automatic squelch map calculation only with automatic ring discovery

The system shall not allow to set *ard* to DISABLE while the Automatic Squelch Map Calculation (asmc) is enabled or to set *asmc* to ENABLE while the Automatic Ring Discovery (ard) is disabled.

Error code: `IDNV - Input, Data Not Valid, Automatic Squelch Map Calculation only allowed with Automatic Ring Discovery`

Validation rule: Working port to be added is assigned as timing reference

If a port that is already assigned as timing reference shall be added to a protection group as working port, then no port of the circuit pack that holds the protection port shall be assigned as timing reference.

Error Code: `SNVS - Status, Not in Valid State, one port of protection unit is assigned as timing reference`

Validation rule: Timing Reference Assigned on Protection Unit

If a port which is not assigned as timing reference is added to a protection group as working port, then the protection port shall not be assigned as timing reference.

Error Code: SNVS - Status, Not in Valid State, protection port is assigned as timing reference

Validation rule: consistent *aid* and *rid*

If both an aid and an rid are specified as input parameters and they are inconsistent, then the following error response is returned

Error code: IDNV - Input, Data Not Valid, inconsistent aid and rid

Validation rule: no multiple added XCs for TOP

If *protnmode* is changed to SHORTENED and there exists a path protection group having one trib of worker port as output (so-called multiple added XC) then the following error response is returned.

Error code: SNVS - Status, Not in Valid State, multiple added XCs for TOP

Validation rule: SDH ports for TOP

If *protnmode* is changed to SHORTENED then all member ports shall have the interface standard SDH.

Error code: SNVS - Status, Not in Valid State, SONET port not allowed for TOP

Validation rule: Idle ring node for protocol conversion

If protnmode is changed then ringndst shall be 'IDLE' or 'SUSPENDED-IDLE'.

Error code: SNVS - Status, Not in Valid State, node not in idle state.

Validation rule: supported *portClass* for TOP

If *protnmode* equals SHORTENED or TOPEX (both are TOP), then none of the specified member ports shall have the *portClass* EDGE.

Error code: SNVS - Status, Not in Valid State, portClass must not be EDGE for TOP

Validation rule: portClass not INNI

Ports must not be of portClass INNI.

Error Code: SNVS - Status, Not in Valid State, portClass must not be INNI

Validation rule: Unallowed modification of worker ports

The system shall only allow to change the parameters eastwkg and westwkg from a port AID to NOTUSED or from NOTUSED to a port AID (i.e. asymmetric ring conversion). All other modification attempts, i.e. change from one port AID to another port AID shall be denied.

Error Code: IDNV - Input, Data Not Valid, change of worker port not allowed

Error responses (path protection group)

Validation rule: Protection Group must exist

If the parameter *aid*, or the combination of the parameters *aid* and *ppgname* does not specify a path protection group, then the following error response is returned:

Error code: `IENE - Input, Entity Not Exists`

Validation rule: Protection Group must exist

If the combination of the parameters *aid* and *aid1* does not specify a path protection group, then the following error response is returned:

Error code: `IENE - Input, Entity Not Exists`

Validation rule: Maximum number of ppgnames exceeded

The new *ppgname* shall not exceed the maximum number of 768 ppgnames (i.e. is already in use for 768 other path protection groups).

Error code: `SSRE - Status, System Resources Exceeded, limit of ppgnames exceeded`

Validation rule: *ppgname* and low order path protections

If a *ppgname* is given as input parameter while the *aid* references a low order tributary, then the following error response is returned:

Error code: `IDNV - Input, Data Not Valid, ppgname not supported for this transmission rate`

Validation rule: *ppgname* and *aid1*

If an *aid1* is given as input parameter and additionally a value is given for parameter *ppgname*, then the following error response is returned:

Error code: `IDNV - Input, Data Not Valid, ppgname not allowed if aid1 is given`

Validation rule: Access via tributary on INNI port

If in input parameter *aid* or *aid1* for access via input or output a tributary is given located on a port of port class INNI, then the following error response is returned:

Error code: `IDNV - Input, Data Not Valid, No Access via AID located on INNI port`

Related TL1 messages

- “RTRV-PROTN-GRP: Retrieve protection group” (p. 4-1997)
- “ENT-PROTN-GRP: Enter protection group” (p. 4-1222)
- “DLT-PROTN-GRP: Delete protection group” (p. 4-164)

- "OPR-PROTNSW: Operate protection switch" (p. 4-1472)
- "RLS-PROTNSW: Release protection switch" (p. 4-1574)

□

ED-PROTN-GRP notification

Output format

The ED-PROTN-GRP notification shall use the general format of a REPT DBCHG (Report Database Change) notification. The following syntax is used for 1+1 multiplex section/line, 2-/4-fibre MS-SPRing/BLSR, path protection group.

General Syntax: `ED-PROTN-GRP`:*aid*:*protype:spec_block*;

Path Protection Group Syntax: `ED-PROTN-GRP`:aid:protype:spec_block {outtribaid, CML: cml_block}+ ;

Output parameters

Command parameters (multiplex section/line protection group)

1. aid – Access Identifier
   This parameter specifies the aid of a 1+1 multiplex section/line protection group or the aid of a 1:1 multiplex section/line protection group (only R3.0 and later) or an port aid being a member of the group.
   Type: AID
   Range: *bay-shelf*-oall (ranged over OnePlusOne_ProtGrpAID) or OnePlusOne_ProtGrpAID (not ranged) or NByOne_ProtGrpAID (not ranged) or SPortAID (not ranged)
2. protype – Protection Type
   This parameter specifies the architecture (type) of the protection group. The value for the 1+1 line/MS protection group is 1+1. The value for the 1:1 line/MS protection group is 1xNOPT (only R3.0 and later)
   Type: value set
   Range: 1+1 or 1xNOPT

Command parameters (2-fibre MS-SPRing/BLSR protection group)

1. aid – Access Identifier
   This parameter specifies the aid of a MS-SPRing/BLSR protection group or an port aid being a member of the group.
   Option: If *rid* is specified, then *aid* can be omitted.
   Type: AID
   Range: *bay-shelf*-tall (ranged over TwoFibre_ProtGrpAID) or bay-shelf-fall (ranged over FourFibre_ProtGrpAID) or TwoFibre_ProtGrpAID (not ranged) or FourFibre_ProtGrpAID (not ranged) or SPortAID (not ranged).
2. protype – Protection Type
   This parameter specifies the protection group type for which the information is retrieved.
   Type: alphanumeric value set
   Range: 2F or 4F

Command parameters (4-fibre MS-SPRing/BLSR protection group)

1. aid – Access Identifier
   This parameter specifies the aid of a MS-SPRing/BLSR protection group or an port aid being a member of the group.
   Option: If *rid* is specified, then *aid* can be omitted.
   Type: AID
   Range: *bay-shelf*-tall (ranged over TwoFibre_ProtGrpAID) or bay-shelf-fall (ranged over FourFibre_ProtGrpAID) or TwoFibre_ProtGrpAID (not ranged) or FourFibre_ProtGrpAID (not ranged) or SPortAID (not ranged).
2. protype – Protection Type
   This parameter specifies the protection group type for which the information is retrieved.
   Type: alphanumeric value set
   Range: 2F or 4F

Command parameters (path protection group)

1. aid – Access Identifier
   This parameter specifies a path protection group aid or an input tributary aid being a member of the group in combination with *ppgname*.
   Option: If ppgname is specified, then *aid* can be omitted or used as an input tributary aid.
   Type: AID
   Range: bay-shelf-#-#-all-all-all (ranged over Path_ProtGrpAID) or Path_ProtGrpAID (not ranged) or bay-shelf-#-#-all-all-all (ranged over input STS1NumAID) or STS1NumAID (not ranged) bay-shelf-#-#-all-all-all (ranged over input VCGNumAID) or VCGNumAID (not ranged).
2. protype – Protection Type
   This parameter specifies the protection group type for which the information is retrieved.
   Type: alphanumeric value set
   Range: PATHDRI
3. outtribaid - Output Tributary Access Identifier
   This parameter specifies the output tributary AID for a constituent signal within the protection group. One value shall be returned for each constituent signal together with the corresponding CML (Constituent Member List) block.
   Type:AID
   Range: STS1NumAID or VCGNumAID or GenLOTribAID
   The usage of wild cards shall not be allowed for any part of the AID. This range equals to the definition of Path_ProtGrpAID.

Spec block parameters (multiplex section/line protection group)

1. apspn – MSP-APS ASAP Pointer
   This parameter specifies the value for the ASAP (alarm severity assignment profile) name of type MSP-APS (Multiplex Section Protection – Automatic protection switching).
   Type: alphanumeric string
   Range: 1-24 characters including character '-'.
   Default: DEFAULT
2. dcclmsprotmd – DCC Line/MS Protection Mode
   The parameter shall specify, whether the line/MS dcc channel is switched as part of the line/MS protection group. The value ENABLE shall be used, if dcc channel is switched as part of line/MS protection group; otherwise the value DISABLED shall be used.
   Type: alphanumeric value set 3;
   Range: ENABLE, DISABLE
   Default: DISABLE
3. dccsrsprotmd – DCC Sect/RS Protection Mode
   The parameter shall specify, whether the section/RS dcc channel is switched as part of the line/MS protection group. The value ENABLE shall be used, if dcc channel is switched as part of line/MS protection group; otherwise the value DISABLED shall be used.
   Type:alphanumeric value set
   Range: ENABLE, DISABLE
   Default: DISABLE
4. protocol – APS Protocol
   This parameter specifies the protocol used by the protection state machine. The value 1+1_UNI is used for 1+1 unidirectional switching. The value 1xN_BIDIR is used for 1:1 bidirectional switching (N=1) (only R3.0 and later). The value 1+1_OPTM is used for 1+1 optimized, bidirectional switching (only R3.0 and later). The value 1+1_BIDIR is used for 1+1 bidirectional switching (only R4.0 and later).
   Type: alphanumeric value set
   Range: 1+1_UNI, 1xN_BIDIR, 1+1_OPTIt can also be used to convert a 2-side node to an asymmetric node and vice versa.
   In mind the 'N' in 1xN_BIDIR is considered to be always equal '1'. The value 1+1_OPTM implicitly specifies bidirectional operation mode.
   Default: 1+1_UNI, in case of protype = 1+1; 1xN_BIDIR, in case of protype = 1xNOPT (i.e. protection type 1:1).
5. rme – Protection Reversion
   The parameter specifies, whether revertive or non-revertive mode is used as operation mode of the protection group. The value ENABLE shall be used if the protection group operates in revertive mode. The value DISABLE shall be used if the protection group operates in non-revertive mode.
   Type: alphanumeric value set

Range: DISABLE in case of protype = 1+1; ENABLE in case of protype = 1xNOPT.
Default: DISABLE, in case of protype = 1+1; ENABLE, in case of protype = 1xNOPT (i.e. protection type 1:1)
The *protocol* = OPTM can only be chosen in case of *protype* = 1+1, thus default is DISABLE then.

6. wtr – Wait To Restore Time / Wait to Rename Time
   The parameter shall specify the 'wait to restore' time used by the protection state machine operating in revertive mode (MSP1+1, MSP1:1). In case of MSP 1+1 Optimized the same parameter shall be used for the 'wait to rename' time.
   Type: numeric string [minute]
   Range: 0 - 60
   Default: 5.

Spec block parameters (2-fibre MS-SPRing/BLSR protection group)

1. ard – Automatic Ring Discovery
   If this parameter is enabled, the automatic ring discovery algorithm will assign nodeID values to each node in the ring and construct the necessary ring map information. All nodes in the ring must be Lucent. If disabled, the user will assign the NodeID value manually with ED-MAP-RING and supply the ring map information to each node on the ring for the BLSR protocol to operate. It is necessary to activate this user-provisioned information with SET-MAP-RING. Until all nodes on the ring have the same ring map, nodes will have most likely an outstanding NodeID mismatch alarm active.
   Type: alphanumeric string.
   Range: ENABLE, DISABLE.
   Default: ENABLE.
2. asmc - Automatic Squelch Map Calculation
   If this parameter is enabled, the automatic squelch map calculation is switched on. If disabled, the function is switched off.
   Type: alphanumeric string
   Range: ENABLE, DISABLE (default)
3. blsrpn – MSSPRING-BLSR ASAP Pointer
   This parameter specifies the value for the ASAP (alarm severity assignment profile) name of type MSSPRING-BLSR.
   Type: alphanumeric string
   Range: 1-24 characters including character '-'.
   Default: DEFAULT

4. newrid – New Ring Identification
   This parameter specifies the ring identification name. Storage and retrieval of the *rid* is case sensitive, but actual use of the rid to determine the corresponding protection group is case insensitive. The parameter is used as an alias to identify exactly one MS-SPRing/BLSR protection group of any type. Therefore the value shall be unique for all protection groups of type 2F or 4F within the NE.
   Type: text string of chars allowed for TID strings.
   Range: 1 to 15 characters.
   Default: NONE.
5. rcamode - Ring Circuit Alarm Mode
   This parameter can be used to enable or disable ring circuit alarms for the local MS SPRING / BLSR protection group. If *rcamode* is DISABLED, any alarm associated with the local cross-connections will be suppressed and not issued.
   Type: alphanumeric value set
   Range: ENABLE (default), DISABLE
6. wtr – Wait To Restore Time
   This parameter specifies the wait to restore time for ring switches used by the protection state machine operating in revertive mode. The protection operates in revertive mode if the wait-to-restore time is in the range 0-12. The protection operates in non-revertive mode if the wait-to-restore time has the value 99 representing the infinite value.
   Note: If *wtr* time is set to infinite, the switch request state shall be WTR until a higher request occurs.
   Type: numeric string [minute].
   Range: 0 – 12 in 1 minute increments and 99.
   Default: 5.

Spec block parameters (4-fibre MS-SPRing/BLSR protection group)

1. ard – Automatic Ring Discovery
   If this parameter is enabled, the automatic ring discovery algorithm will assign nodeID values to each node in the ring and construct the necessary ring map information. All nodes in the ring must be Lucent. If disabled, the user will assign the NodeID value and supply the ring map information to each node on the ring for the BLSR protocol to operate. Until all nodes on the ring have the same ring map, nodes will have most likely an outstanding NodeID mismatch alarm active.
   Type: alphanumeric string.
   Range: ENABLE, DISABLE.
   Default: ENABLE.
2. asmc - Automatic Squelch Map Calculation
   If this parameter is enabled, the automatic squelch map calculation is switched on. If disabled, the function is switched off.
   Type: alphanumeric string
   Range: ENABLE, DISABLE (default)

3. blsrpn – MSSPRING-BLSR ASAP Pointer
   This parameter specifies the value for the ASAP (alarm severity assignment profile) name of type MSSPRING-BLSR.
   Type: alphanumeric string.
   Range: 1-24 characters including character '-'.
   Default: DEFAULT.
4. newrid – New Ring Identification
   This parameter specifies the new ring identification name. Storage and retrieval of the *rid* is case sensitive, but actual use of the *rid* to determine the corresponding protection group is case insensitive. The parameter is used as an alias to identify exactly one MS-SPRing/BLSR protection group of any type. Therefore the value shall be unique for all protection groups of type 2F or 4F within the NE.
   Type: text string of chars allowed for TID strings.
   Range: 1 to 15 characters.
   Default: NONE
5. protnmode - Protection Switch Mode
   The parameter specifies the protection switch mode. The value LOOPBACK shall be used for the classical ring application. The value SHORTENED shall be used for transmission delay sensitive applications. The value TOPEX (only R3.0 and ^R3.1) shall be used for the so called transoceanic application, which allows extra traffic, improves restorability and improves delay as well as in SHORTENED mode.
   In case of a ring switch ... LOOPBACK performs the bridge and switch function in that nodes which are most close to the failed span. SHORTENED performs the bridge function at the add node repectively the switch function at the drop node of each ring circuit. It is an application only similar to the transoceanic protocol. TOPEX allows, compared to SHORTENED mode, additionally the traffic restoration of not affected spans. It is the transoceanic protocol application.
   Type: alphanumeric value set.
   Range: LOOPBACK, SHORTENED.
   Default: LOOPBACK.
6. rcamode - Ring Circuit Alarm Mode
   This parameter can be used to enable or disable ring circuit alarms for the local MS SPRING / BLSR protection group. If rcamode is DISABLED, any alarm associated with the local cross-connections will be suppressed and not issued.
   Type: alphanumeric value set
   Range: ENABLE (default), DISABLE
7. swtr - Span Wait To Restore Time
   The parameter specifies the wait to restore time for span switches used by the protection state machine operating in revertive mode. The protection shall operate in revertive mode if the wait-to-restore time is in the range 0-12. The protection shall operate in non-revertive mode if the wait-to-restore time has the value 99 representing the infinite value.

Note: If *wtr* time is set to infinite, the switch request state shall be WTR until a higher request occurs.
Type: numeric string [minute].
Range: 0 - 12 in 1 minute increments and 99.
Default: 5.

8. wtr – Wait To Restore Time
   This parameter specifies the wait to restore time for ring switches used by the protection state machine operating in revertive mode. The protection operates in revertive mode if the wait-to-restore time is in the range 0-12. The protection operates in non-revertive mode if the wait-to-restore time has the value 99 representing the infinite value.
   Note: If wtr time is set to infinite, the switch request state shall be WTR until a higher request occurs.
   Type: numeric string [minute].
   Range: 0 – 12 in 1 minute increments and 99.
   Default: 5.

Spec block parameters (Path protection group)

1. dripathpn - SNCP-UPSR ASAP Pointer
   This parameter specifies the value for the ASAP (alarm severity assignment profile) name of type SNCP-UPSR
   Type: alphanumeric string
   Range: 1-24 characters including character ’-’.
   Default: DEFAULT
2. htmr – Hold-Off Time
   This parameter specifies the hold-off time for automatic protection switching used by the protection state machine.
   Type: numeric string [ms].
   Range: 0 .. 99 msec in 1 msec steps and 100 .. 10000 msec in 100 msec steps.
3. newppgname – New Path protection group Name
   This parameter specifies the path protection group name. Storage and retrieval of the *ppgname* is case sensitive, but actual use of the *ppgname* to determine the corresponding protection group is case insensitive.
   Type: text string.
   Range: 0 to 24 characters.
   Default: empty string
4. protn – Protection Tributary
   This parameter specifies the protection input tributary AID being a member of the path protection group.
   Type: AID.
   Range: STS1NumAID.

5. rme – Protection Reversion
   This parameter specifies, whether revertive or non-revertive mode is used as operation mode of the protection group.
   The value ENABLE is used if the protection operates in revertive mode.
   The value DISABLE is used if the protection operates in non-revertive mode.
   Type: alphanumeric value set.
   Range: ENABLE, DISABLE.
6. snctype – SNC Protection Type
   This parameter specifies the type of the path protection w.r.t. switch criteria used by the protection state machine.
   The value SNCI (Inherent) is used if server signal fail is used as switch criteria.
   The value SNCN (Non-Instrusive) is used if server signal fail and defects supervised by a non-intrusive path monitor are used as switch criteria
   The value NA is used if one of the tributary inputs is related to a port operating in SONET mode.
   Type: alphanumeric value set.
   Range: SNCI, SNCN, NA.
7. wkg – Worker Tributary
   This parameter specifies the worker input tributary AID being a member of the path protection group.
   Type: AID.
   Range: STS1NumAID.
8. wtr – Wait To Restore Time
   This parameter specifies the wait to restore time used by the protection state machine operating in revertive mode.
   Type: numeric string [minute].
   Range: 0 – 60.

CML block parameters (Path protection group)

1. cst - Constituent Signal Type
   The parameter specifies the rate of the constituent signal within the path protection group.
   Type: alphanumeric string
   Range: LOVT1, STS1, STS3C, STS12C, STS48C, STS192C, LOVC12, LOVC3, VC3, VC4, VC44C, VC416C, VC464C
   Default: The default value shall be derived from the tributary input signal rate list in case of fixed mode.

Example output

Multiplex section/line protection group (1+1)

The following example reports the modification of wait-to restore timer for an 1+1 multiplex section/line protection group:

```
LT-UNITE 00-11-03 15:00:00
A  000 REPT DBCHG
```

```
   "TIME=15-00-00,DATE=00-11-03:ED-PROTN-GRP:1-1-o001:1+1:wtr=8"
;
```

2 fibre MS-SPRing/BLSR protection group

The following example reports the modification of wait-to-restore time and ring id for a two fiber protection group:

```
LT-UNITE 00-11-03 15:00:00
A  000 REPT DBCHG
   "TIME=15-00-00,DATE=00-11-03:ED-PROTN-GRP:1-1-t001:2F:newrid=\"dallas3\",wtr=1
;
```

4 fibre MS-SPRing/BLSR protection group

The following example reports the modification of wait-to-restore time and ring id for a four fiber protection group:

```
LT-UNITE 00-11-03 15:00:00
A  000 REPT DBCHG
   "TIME=15-00-00,DATE=00-11-03:ED-PROTN-GRP:1-1-f001:4F:newrid=\"dallas3\",wtr=1
;
```

Path protection group

The following example reports the modification of hold off time and path protection group name for a path protection group:

```
LT-UNITE 00-11-03 15:00:00
A  000 REPT DBCHG
   "TIME=15-00-00,DATE=00-11-03:ED-PROTN-GRP:1-1-#-#-10-1-25:PATHDRI:newppgname=
;
```

ED-PTF: Edit tributary with Path Termination Function (PTF)

The ED-PTF command modifies the properties of a tributary with path termination function.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: No.

Input format

Command Syntax: `ED-PTF-`*modifier:tid:aid:ctag:::spec_block;*

Input parameters

Command parameters

1. modifier
   The modifier specifies the type of the tributary.
   Type: alphanumeric value set.
   Range: STS, HOSTS1, HOVC4
2. tid - Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
3. aid - Access Identifier
   Thiss identifier specifiess the PTF tributary whose attributes are to be modified.
   Type: AID
   Range: STSNumAID as defined in AID structure, i.e. the value all is allowed for Simple_STSNumAID. For Simple_UnivSlotAID there shall be no usall value.
4. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. brstintvl – Bursty Interval
   The parameter *brstintvl* shall specify the measurement period for degraded defect if *sdsfmode* is set to BURST. If *sdsfmode* is not set to BURST then *brstintvl* has no affect to NE behaviour.
   The parameter brstintvl is not supported for modifiers HOVC4 and HOSTS1.
   Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.

Option: If the parameter *brstintvl* is not supported, then the parameter shall be omitted.
Type: integer.
Range: 2, 3, ..., 10 [seconds]
Default: 7 [seconds].

2. brstthr – Bursty Error Threshold
   The parameter *brstthr* shall specify the degradation threshold for degraded defect if *sdsfmode* is set to BURST. If *sdsfmode* is not set to BURST then *brstthr* has no affect to NE behaviour.
   The parameter brstthr is not supported for modifiers HOVC4 and HOSTS1.
   Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
   Option: If the parameter *brstthr* is not supported, then the parameter shall be omitted.
   Type: integer.
   Range: 5, 10, 15, ... 50 [%].
   Default: 30.
3. degthr – Signal Degrade Threshold
   This parameter specifies the exponent to base 10 for building the degraded threshold level. The degraded threshold level is used for building the degraded defect if *sdsfmode* is set to POISSON. If *sdsfmode* is not set to POISSON then *degthr* has no affect to NE behaviour. For the definition of *sdsfmode* refer to RTRV-PTF Output parameters.
   The parameter degthr is not supported for modifiers HOVC4 and HOSTS1.
   Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
   Type: integer.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
4. dexcthr – Excessive Degrade Threshold
   This parameter specifies the exponent to base 10 for building the excessive threshold level. The excessive threshold level is used for building the excessive bit error defect if *sdsfmode* is set to POISSON. If *sdsfmode* is not set to POISSON then *dexcthr* has no affect to NE behaviour. For the definition of *sdsfmode* refer to RTRV-PTF Output parameters.
   The parameter dexcthr is not supported for modifiers HOVC4 and HOSTS1.
   Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end

performance monitoring on T3 related path terminations are kept for compatibility reasons.
Type: integer
Range (as exponents of 10): –3; –4; –5.
Default: –3.

5. exphptrc - Expected HP trace identifier
   This parameter specifies the Expected Higher Order Path Trace Identifier (J1). The first byte value shall be in the range from 80 to FF (MSB always set to 1). The other byte values shall be in the range from 00 to 7F (MSB always set to 0). This parameter is only useful if ptrcrfmt is set to 16.
   Type: hexadecimal number without a preceeding 'H'.
   Range: length: 32 hexadecimal digits; value:specific string acc. ITU/ETSI mode 1.
   Default: 89000000000000000000000000000000
6. feppm - Far End Path PM Enable
   The parameter *feppm* specifies whether the performance monitoring for the far end is enabled or disabled for this tributary.
   This parameter shall be omitted for PTF entities which have been created due to a substructured SONET/SDH signal.
   Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
7. hptimais - HP Trace Identifier Mismatch AIS Insertion
   The parameter *hptimais* shall specifies if a detected TIM will cause AIS insertion. This parameter is relevant only if the related trace read format ptrcrfmt is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE.

   Default: The default value depends on interface standard specified by *ptfstd* for the PTF tributary. DISABLE, if *ptfstd*=SONET.
8. hptimmon - HP Trace Identifier Mismatch Monitor
   This parameter specifies if the mode of the TIM detection. This parameter is relevant only if the related trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set.

Range:

- ENABLE
- DISABLE (default).

9. neppm - Near End Path PM Enable
   This parameter specifies whether the performance monitoring for the near end is enabled or disabled for this tributary.
   This parameter shall be omitted for PTF entities which have been created due to a substructured SONET/SDH signal.
   Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
10. pmhpfeses - PM HP Far End SES Threshold
    This parameter specifies the Higher Order Path Far End Severely Errored Seconds Performance Monitioring Threshold for errored frames. If errored frames are crossing this threshold this will result in an SES count for the far end. The behaviour depends on interface standard specified by *ptfstd* for the PTF tributary. If *ptfstd* is not set to SDH then *pmhpfeses* has no affect to NE behaviour.
    This parameter shall be omitted for PTF entities which have been created due to a substructured SONET/SDH signal.
    Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
    Type: integer.
    Range: 1, 2, 3, ..., 63998, 63999, 64000. Includes SDH/SONET range.
    Default: 2400
11. pmhpneses - PM HP Near End SES Threshold
    This parameter specifies the Higher Order Path Near End Severely Errored Seconds Performance Monitioring Threshold for errored frames. If errored frames are crossing this threshold this will result in an SES count for the near end. The behaviour depends on interface standard specified by *ptfstd* for the tributary. If *ptfstd* is not set to SDH then pmhpneses has no affect to NE behaviour.
    This parameter shall be omitted for PTF entities which have been created due to a substructured SONET/SDH signal.
    Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end

performance monitoring on T3 related path terminations are kept for compatibility reasons.
Type: inteteger.
Range: 1, 2, 3, ..., 63998, 63999, 64000. Includes SDH/SONET range.
Default: 2400

12. ptca - Path TCA Profile Pointer
    This parameter specifies the name of the threshold crossing alert (TCA) profile used for this tributary.
    This parametershall be omitted for PTF entities which have been created due to a substructured SONET/SDH signal.
    Type: alphanumeric value set.
    Range: 1 ... 24 characters.
    Default: DEFAULT0
13. ptfstd - Path Termination Standard
    Standard of the tributary with Path Termination Function. This is currently a read-only parameter.
    Type: alphanumeric value set.
    Range:
    - SDH (only if modifier=HOVC4)
    - SONET (only if modifier= STS or HOSTS1)

    Default:
    - SDH (if modifier=HOVC4)
    - SONET (if modifier= STS or HOSTS1).
14. ptpn - Path Terminating ASA Profile Name
    This parameter points to a tributary ASAP profile name pfname for the designated AID.
    Type: alphanumeric value set. A hyphen (-) is additionally allowed in the name.
    Range: 1 ... 24 characters
    Default: DEFAULT
15. ptrcrfmt - Path Trace Read Format
    The parameter *ptrcrfmt* shall specify the format of the path trace (J1 byte) to be received (sink).
    Type: numeric string
    Range:
    - 2 (default): for non-specific repeating byte
    - 16: for 16 byte specific string
    - 64: for 64 byte string.
16. ptrcwfmt - Path Trace Write Format
    The parameter ptrcwfmt shall specify the format of the path trace (J1 byte) to be sent (source).
    Type: numeric string

Range:

- 2: for non-specific repeating byte
- 16: for 16 byte specific string
- 64: for 64 byte string.

Default: 2.

17. sdsfmode - Signal Degrade/Signal Fail Mode
    This parameter specifies the determination mode of degraded defect for transmission.
    The parameter sdsfmode is not supported for modifiers HOVC4 and HOSTS1.
    Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
    Option: If the parameter sdsfmode is not supported, then the parameter shall be omitted.
    Type: alphanumeric value set.
    Range: BURST, POISSON
    Default: The default value depends on interface standard specified by *ptfstd* for the tributary. POISSON, if *ptfstd*=SONET.
18. tcamd - TCA mode
    Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
19. tmonmd - Tributary Monitoring Mode
    This parameter specifies the monitoring mode for the tributary.
    Type: alphanumeric value set.
    Range: MON, NMON 6(default).
20. trc - Outgoing Path Trace
    This parameter specifies the path trace (J1) to be sent (source). For the 16 byte path trace format the following syntactical rule shall be applied: The first byte value shall be in the range from 80 to FF (MSB always set to 1). The other byte values shall be in the range from 00 to 7F (MSB always set to 0). This parameter is irrelevant if the format is non-specific repeating byte (ptrcwfmt=2).
    Type: hexadecimal number without a preceeding H'.

Range: the range depends on the parameter ptrcwfmt specified in RTRV-PTF
Output parameters

- length: 32 hexadecimal digits, if *ptrcwfmt*=16; 128 hexadecimal digits, if *ptrcwfmt*=64
- value: specific string string acc. ITU/ETSI mode 1, if *ptrcwfmt*=16; 64 byte string if *ptrcwfmt*=64

Default: 00. This implies also that *ptrcwfmt* is set to 2.

21. tslmmon - Trail Signal Label Mismatch Monitor
    The parameter tslmmon shall specify the mode of the TSL mismatch detection.
    Type: alphanumeric value set.
    Range: DISABLE, ENABLE (default).

Output format

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time* and *ctag* included in the normal completion response are specified in the Output parameter section for the RTRV-HDR command.

Detailed behavior description

The ED-PTF shall generate a REPT DBCHG message. The command shall modify the attributes (listed in the spec_block parameters part of this command) of the addressed entitiy according to the parameters given with this command. The parameters *brstintvl*, *brstthr*, *degthr* and *dexcthr* shall be modifiable also if they are not meaningful at the moment. The modification shall be reported by means of an ED-PTF notification.

Dependencies

- *brstintvl* and *brstthr* are only meaningful if *sdsfmode* is set to BURST.
- *degthr* and *dexcthr* are only meaningful if *sdsfmode* is set to POISSON.

Supply outgoing J1 trace value and format together

When changing the format of the outgoing J1 trace *ptrcwfmt*, the parameter *trc* specifying the outgoing J1 trace shall always be supplied within the same TL1-command to always have a consistent set of trace format and value. When the format of the outgoing J1 trace *ptrcwfmt* is set to 2 (non-specific repeating byte) then the outgoing J1 trace (mandatory parameter trc) specified in the command shall be ignored.

Supply outgoing J1 trace value according to format of outgoing J1

When changing the outgoing J1 trace value, the format must be according to the format parameter ptrcwfmt for the outgoing J1 trace.

Change of J1 expected format - FM impact

When the expected J1 format (ptrcrfmt) is changed to 16 (16 byte specific string) while the TI Mismatch detection is enabled, then the TI Mismatch alarm shall be updated according to the provisioned ecpected J1 (exphptrc) and the currently received J1 (ptrc).

When the expected J1 format is changed away from 16, while the TI Mismatch alarm is active, then the TI Mismatch alarm shall be cleared.

Switching of tributary standard - Notification behaviour

A change of the interface standard ptfstd is not allowed unless this parameter is set to the same value. For convenience reasons, the parameter ptfstd is not dropped from the message definition as other products managed by the same EMS may support this common parameter.

Disabling of PM monitor

The disabling of a PM monitor shall have the following impacts w.r.t. existing PM registers:

1. stop PM counting
2. all current bins related to the PM monitor shall be deleted
3. all history bins related to the PM monitor shall be deleted

The term PM monitor has the same semantics as the term PM package as used in SRD_PerformanceMonitoring. The number of PM monitors is determined by means of the number of *pm enable attributes*.

PM monitors can be disabled explicitly by means of the *pm enable* attribute or are implicitly disabled as part of a port/tributary deletion.

Additional to the above listed impacts (ID 52924) the disabling of a PM monitor shall have the following impacts: the system has to clear all active TCA events of the deleted PM monitor if TCA mode TR-RTR was selected.

Changing TCA mode from TR-RTR to TR-only

The change of tcamd from TR-RTR (also known as the explicit reset method) to TR-only (also known as the implicit reset method) has the impact, that all active TCA events of the related entity must be cleared.

Example input/output

```
ED-PTF-STS:LT-UNITE:1-1-#-#-21-1-1:123456:::tmonmd=NMON;
   LT-UNITE 00-11-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the RTRV-PTF command, too.

Validation rule: ASAP profile exists

Check of the existance of the ASAP profile.

Error Code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: TCA profile exists

Check of the existance of the TCA profile.

Error Code: `IDNV - Input, Data Not Valid, TCA profile does not exist`

Validation rule: supply of transmitted path trace

Check that a transmit path trace (trc) is supplied, too, if the path trace mode (ptrcwfmt) is changed.

Error Code: `IDNC - Input, Data Not Consistent, a new trc must also be supplied for a path trace mode change`

Validation rule: transmitted path trace length

Check that a length of the transmit path trace (trc) fits to the length given by path trace mode, i.e. write format (ptrcwfmt).

Error Code: `IDNC - Input, Data Not Consistent, trc length must match the given path trace mode`

Validation rule: Maximum number of enabled PM monitors

For PTF entities with the modifier STS, check that the number of enabled PM monitors is less than the maximum number of supported enabled PM monitors (2000) before a new PM monitor is enabled.

Error Code: `SSRE - Status, System Resources Exceeded, limit of PM monitors exceeded`

Since several monitor points can be enabled/disabled within one command, the ED command may only fail if the validation rule is not met after all PM enable attributes would have been updated as specified in the corresponding ED request.

Example: The ED command requests that 1 monitor point is enabled and 1 monitor points is disabled and currently 2000 packages are enabled. This command should complete.

This validation rule is not applicable for entities related to lower order tributaries (PTF and LONIM) as all possible monitors on these entities are allowed to be activated in parallel.

Validation rule: Check CCB against *ptfstd* of related tributary

Check wether the CCB fits to *ptfstd* of the tributary.

Error Code: `ICNV - Input, Command Not Valid, Interface Standard does not match.`

Related TL1 messages

- "RTRV-PTF: Retrieve tributary with Path Termination Function (PTF)" (p. 4-2037)

□

ED-PTF notification

Output format

The ED-PTF notification shall use the general format of a REPT DBCHG notification.

Syntax

`ED-PTF`:*aid,aidtype::spec_block;*

Output parameters

Command parameters

1. aid - Access Identifier
   The access identifier shall specify the PTF tributary whose attributes are reported.
   Type: AID
   Range: STSNumAID as defined in AID structure with exception of value *all*.
2. aidtype - Access Identifier Type
   The aidtype shall specify the type of the tributary.
   Type: alphanumeric value set
   Range: STS, HOSTS1, HOVC4..

Spec block parameters

1. brstintvl – Bursty Interval
   The parameter *brstintvl* shall specify the measurement period for degraded defect if *sdsfmode* is set to BURST. If *sdsfmode* is not set to BURST then *brstintvl* has no affect to NE behaviour.
   The parameter brstintvl is not supported for modifiers HOVC4 and HOSTS1.
   Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
   Option: If the parameter *brstintvl* is not supported, then the parameter shall be omitted.
   Type: integer.
   Range: 2, 3, ..., 10 [seconds]
   Default: 7 [seconds].
2. brstthr – Bursty Error Threshold
   The parameter *brstthr* shall specify the degradation threshold for degraded defect if *sdsfmode* is set to BURST. If *sdsfmode* is not set to BURST then *brstthr* has no affect to NE behaviour.
   The parameter brstthr is not supported for modifiers HOVC4 and HOSTS1.
   Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.

Option: If the parameter *brstthr* is not supported, then the parameter shall be omitted.
Type: integer.
Range: 5, 10, 15, ... 50 [%].
Default: 30.

3. crslpbkstat - Crossconnect Loopback Status
   The parameter *crslpbkstat* reports the configuration of the cross-connection loopback of this triburay. For changing the loopback operation refer to OPR-LPBK of section Transmission and Cross-Connection Handling, Tributary.
   The parameter crslpbkstat is not supported for modifiers HOVC4 and HOSTS1.
   Option: If the parameter *crslpbkstat* is not supported, then the parameter shall be omitted.
   Type: alphanumeric value set
   Range: YES, for enabled loopback; NO, for disabled loopback
4. degthr – Signal Degrade Threshold
   This parameter specifies the exponent to base 10 for building the degraded threshold level. The degraded threshold level is used for building the degraded defect if *sdsfmode* is set to POISSON. If *sdsfmode* is not set to POISSON then *degthr* has no affect to NE behaviour. For the definition of *sdsfmode* refer to RTRV-PTF Output parameters.
   The parameter degthr is not supported for modifiers HOVC4 and HOSTS1.
   Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
   Type: integer.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
5. dexcthr – Excessive Degrade Threshold
   This parameter specifies the exponent to base 10 for building the excessive threshold level. The excessive threshold level is used for building the excessive bit error defect if *sdsfmode* is set to POISSON. If *sdsfmode* is not set to POISSON then *dexcthr* has no affect to NE behaviour. For the definition of sdsfmode refer to RTRV-PTF Output parameters.
   The parameter *dexcthr* is not supported for modifiers HOVC4 and HOSTS1.
   Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
   Type: integer
   Range (as exponents of 10): –3; –4; –5.
   Default: –3.

6. exphptrc - Expected HP trace identifier
   This parameter specifies the Expected Higher Order Path Trace Identifier (J1). The first byte value shall be in the range from 80 to FF (MSB always set to 1). The other byte values shall be in the range from 00 to 7F (MSB always set to 0). This parameter is only useful if ptrcrfmt is set to 16.
   Type: hexadecimal number without a preceeding 'H'.
   Range: length: 32 hexadecimal digits; value:specific string acc. ITU/ETSI mode 1.
   Default: 89000000000000000000000000000000
7. feppm - Far End Path PM Enable
   The parameter *feppm* specifies whether the performance monitoring for the far end is enabled or disabled for this tributary.
   This parameter shall be omitted for PTF entities which have been created due to a substructured SONET/SDH signal.
   Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
8. hptimais - HP Trace Identifier Mismatch AIS Insertion
   The parameter *hptimais* shall specifies if a detected TIM will cause AIS insertion. This parameter is relevant only if the related trace read format ptrcrfmt is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE.

   Default: The default value depends on interface standard specified by *ptfstd* for the PTF tributary. DISABLE, if *ptfstd*=SONET
9. hptimmon - HP Trace Identifier Mismatch Monitor
   This parameter specifies if the mode of the TIM detection. This parameter is relevant only if the related trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).

10. inputsig - Tributary Input Signal Rate List
    The parameter inputsig shall specify the input LO signal structure. The parameter inputsig is only supported for modifiers HOVC4 and HOSTS1.
    Option: If the parameter inputsig is not supported, then the parameter shall be omitted.
    Type: numeric value set
    Range: NX-NX-... (N is the number of Xs. X can be 3, 12, or 11 representing VC3, VC12 or VT1.5).
    The possible values (SDH) are: 6312 (default), 2112-13-2112, 4212-13, 23-2112, 13-2112-13, 2112-23, 33
    The possible values (SONET) are: 2811 (default)
11. neppm - Near End Path PM Enable
    This parameter specifies whether the performance monitoring for the near end is enabled or disabled for this tributary.
    This parameter shall be omitted for PTF entities which have been created due to a substructured SONET/SDH signal.
    Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
12. pmhpfeses - PM HP Far End SES Threshold
    This parameter specifies the Higher Order Path Far End Severely Errored Seconds Performance Monitioring Threshold for errored frames. If errored frames are crossing this threshold this will result in an SES count for the far end. The behaviour depends on interface standard specified by *ptfstd* for the PTF tributary. If *ptfstd* is not set to SDH then *pmhpfeses* has no affect to NE behaviour.
    This parameter shall be omitted for PTF entities which have been created due to a substructured SONET/SDH signal.
    Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
    Type: integer.
    Range: 1, 2, 3, ..., 63998, 63999, 64000. Includes SDH/SONET range.
    Default: 2400
13. pmhpneses - PM HP Near End SES Threshold
    This parameter specifies the Higher Order Path Near End Severely Errored Seconds Performance Monitioring Threshold for errored frames. If errored frames are crossing this threshold this will result in an SES count for the near end. The behaviour depends on interface standard specified by *ptfstd* for the tributary. If

ptfstd is not set to SDH then pmhpneses has no affect to NE behaviour.
This parameter shall be omitted for PTF entities which have been created due to a substructured SONET/SDH signal.
Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
Type: inteteger.
Range: 1, 2, 3, ..., 63998, 63999, 64000. Includes SDH/SONET range.
Default: 2400

14. ptca - Path TCA Profile Pointer
    This parameter specifies the name of the threshold crossing alert (TCA) profile used for this tributary. This parameter shall be omitted for PTF entities which have been created due to a substructured SONET/SDH signal.
    Type: alphanumeric value set.
    Range: 1 ... 24 characters.
    Default: DEFAULT0
15. ptfstd - Path Termination Standard
    Standard of the tributary with Path Termination Function. This is currently a read-only parameter.
    Type: alphanumeric value set.
    Range:
    - SDH (only if modifier=HOVC4)
    - SONET (only if modifier= STS or HOSTS1)

    Default:
    - SDH (if modifier=HOVC4)
    - SONET (if modifier= STS or HOSTS1).
16. ptpn - Path Terminating ASA Profile Name
    This parameter points to a tributary ASAP profile name pfname for the designated AID.
    Type: alphanumeric value set. A hyphen (-) is additionally allowed in the name.
    Range: 1 ... 24 characters
    Default: DEFAULT
17. ptrcrfmt - Path Trace Read Format
    The parameter *ptrcrfmt* shall specify the format of the path trace (J1 byte) to be received (sink).
    Type: numeric string
    Range:
    - 2 (default): for non-specific repeating byte
    - 16: for 16 byte specific string
    - 64: for 64 byte string.

18. ptrcwfmt - Path Trace Write Format
    The parameter ptrcwfmt shall specify the format of the path trace (J1 byte) to be sent (source).
    Type: numeric string
    Range:
    - 2: for non-specific repeating byte
    - 16: for 16 byte specific string
    - 64: for 64 byte string.

    Default: 2.
19. sdsfmode - Signal Degrade/Signal Fail Mode
    This parameter specifies the determination mode of degraded defect for transmission.
    The parameter sdsfmode is not supported for modifiers HOVC4 and HOSTS1.
    Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
    Type: alphanumeric value set.
    Range: BURST, POISSON
    Default: The default value depends on interface standard specified by *ptfstd* for the tributary. POISSON, if *ptfstd*=SONET.
20. tcamd - TCA mode
    Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
21. tmonmd - Tributary Monitoring Mode
    This parameter specifies the monitoring mode for the tributary.
    Type: alphanumeric value set.
    Range: MON, NMON 6(default).
22. trc - Outgoing Path Trace
    This parameter specifies the path trace (J1) to be sent (source). For the 16 byte path trace format the following syntactical rule shall be applied: The first byte value shall be in the range from 80 to FF (MSB always set to 1). The other byte values shall be in the range from 00 to 7F (MSB always set to 0). This parameter is irrelevant if the format is non-specific repeating byte (*ptrcwfmt*=2).
    Type: hexadecimal number without a preceeding H'.

Range: the range depends on the parameter ptrcwfmt specified in RTRV-PTF Output parameters

- length: 32 hexadecimal digits, if *ptrcwfmt*=16; 128 hexadecimal digits, if *ptrcwfmt*=64
- value: specific string string acc. ITU/ETSI mode 1, if *ptrcwfmt*=16; 64 byte string if *ptrcwfmt*=64

Default: 00. This implies also that *ptrcwfmt* is set to 2.

23. tslmmon - Trail Signal Label Mismatch Monitor
    The parameter tslmmon shall specify the mode of the TSL mismatch detection.
    Type: alphanumeric value set.
    Range: DISABLE, ENABLE (default).
24. unequiposig - Unequipped Output Signal List
    The parameter unequiposig shall specify the output LO signal structure, independent whether the signal is connected or not.
    The parameter unequiposig is only supported for modifiers HOVC4 and HOSTS1.
    Option: If the parameter *unequiposig* is not supported, then the parameter shall be omitted.
    Type: numeric value set
    Range: NX-NX-...(N is the number of Xs. X can be 3, 12, or 11 representing VC3, VC12 or VT1.5).
    The possible values (SDH) are: 6312 (default) , 13-4212, 2112-13-2112, 4212-13, 23-2112, 13-2112-13, 2112-23, 33
    The possible values (SONET) are: 2811 (default).

Example output

```
   LT-UNITE 00-11-01 08:00:00
A  001 REPT DBCHG
   "TIME=11-10-30,DATE=00-11-11:ED-PTF:
   1-1-#-#-21-1-1,STS::tmonmd=MON"
;
```

□

ED-STATE-EQPT (CP) notification

Output format

The ED-STATE-EQPT notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ED-STATE-EQPT`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   The AID of a circuit pack.
   Type: AID
   Range:
   - CpAID ::= UnivSlotAID-cp for universal circuit packs
   - CpAID ::= XCSlotAID-cp for cross-connect circuit packs
   - CpAID ::= CTLSlotAID-cp for controller circuit packs
   - CpAID ::= SlotAID-cp for any circuit pack.

   The keyword `usall` is allowed for Simple_UnivSlotAID
   The keyword `xcall` is allowed for Simple_XCSlotAID
   The keyword `ctlall` is allowed for Simple_CTLSlotAID
   The keyword `all` is allowed for Simple_SlotAID
   Refer to the AID syntax description.

Spec block parameters

1. opstate – Operational State
   Each circuit pack has a retrievable attribute indicating whether circuit pack is operational for the system internal communication.
   Type: alphanumeric value set
   Range:
   - OS_ENABLED
   - OS_DISABLED (default)
   - OS_SYNCHING.

Example output

```
   UNITE-NE 00-11-14 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-14:ED-STATE-EQPT:
   1-1-#-#-1-cp:::opstate=OS_ENABLE";
```

□

ED-STATE-EQPT (slot) notification

Output format

The ED-STATE-EQPT notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ED-STATE-EQPT`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   The AID of a slot.
   Type: AID
   Range:
   - SlotAID

   The keyword `usall` is allowed for Simple_UnivSlotAID.
   The keyword `xcall` is allowed for Simple_XCSlotAID.
   The keyword `ctlall` is allowed for Simple_CTLSlotAID.
   The keyword `all` is allowed for Simple_SlotAID, Simple_UnivSlotAID, Simple_XCSlotAID, Simple_CTLSlotAID.
   The keyword `all` is not allowed on bay/shelf level.

Spec block parameters

1. holdst – Holder Status
   Each provisionable slot has an attribute indicating its equipage state.
   Type: alphanumeric value set
   Range:
   - EMPTY. The system uses the value ″EMPTY″ if no circuit pack is equipped in that slot.
   - VALID. The system shall use the value ″Valid″ if a circuit pack is equipped in that slot as provisioned.
   - UNEXPECTED. The system shall use the value ″Unexpected″ if a different circuit pack is equipped in that slot as provisioned or if the circuit pack is not acceptable for this slot.
   - UNKNOWN. The system shall use the value ″Unknown″ if a circuit pack is equipped in that slot with non-readable functional type or illegal values for the functional type.

   Default: EMPTY.

Example output

```
   UNITE-NE 00-11-14 08:00:30
A  001 REPT DBCHG
   ″TIME=08-00-12,DATE=00-11-14:ED-STATE-EQPT:
```

```
   1-1-#-#-1::holdst=VALID"
;
```

□

ED-STATE-EQPT (Socket) notification

Output format

The ED-STATE-EQPT notification shall use the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ED-STATE-EQPT:`*aid*`::`*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   The AID of a socket.
   Type: AID.
   Range: SocketAID. The keyword *usall* or *all* shall be allowed for Simple_UnivSlotAID. The keyword *scall* shall be allowed for Simple_SocketAID. The keyword *all* is not allowed on bay/shelf level.

Spec block parameters

1. holdst – Holder Status
   Each provisionable socket shall have an attribute indicating its equipage state.
   Type: alphanumeric value set.
   Range:
   - EMPTY, the system uses the value ″EMPTY″ if no module is equipped in that socket.
   - VALID, the system uses the value ″Valid″ if a module is equipped in that socket as provisioned.
   - UNEXPECTED, the system uses the value ″Unexpected″ if a different module is equipped in that socket as provisioned or if the module is not acceptable for this socket.
   - UNKNOWN, the system uses the value ″Unknown″ if a module is equipped in that socket with non-readable functional type or illegal values for the functional type.

   For further details w.r.t. state transitions for holder status - see SRD_Configuration-Management.
   Default: EMPTY.

Example output

This example shows an ED-STATE-EQPT notification reporting a plug out of a module from the socket:

```
UNITE-NE 00-11-14 08:00:30
A  001 REPT DBCHG
   ″TIME=08-00-12,DATE=00-11-14:ED-STATE-EQPT:1-1-#-#-5-sc2::holdst=EMPTY″
```

;

ED-STATE-EQPT (system): Edit equipment state

The ED-STATE-EQPT command modifies the state information on system (NE) level.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M4

Priority: 4

Abortable: no

Input format

Command Syntax: `ED-STATE-EQPT`*:tid:aid:ctag:::spec_block*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   The aid of the system itself.
   Type: AID
   Range: system; the usage of the keyword `all` on system level is not allowed.
   Default: system
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. mcond – Maintenance Condition
   This parameter denotes whether the system condition is in maintenance condition or not.
   Type: alphanumeric value set.
   Range:
   - Y = maintenance mode
   - N = normal mode.

Output format

If the ED-EQPT command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
```

;

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output Parameter section for the RTRV-HDR command.

Detailed behavior description

The command switches the system to the maintenance condition or back to normal condition. There is an autonomous system reset when the maintenance condition is left. The following attribute of the system entity is updated due to that operation:

mcond as specified in the command input.

The modification is reported by means of an ED-STATE-EQPT notification for the system.

Updated affected entities:

Setting *mcond*=Y causes that *opstate*=OS_DISABLED for all non-CTL circuit packs in the system. The change is reported by means of an ED-STATE-EQPT notification for the circuit pack.

Example input/output

```
ED-STATE-EQPT:LT-UNITE:system:123456:::mcond=y;
   LT-UNITE 00-11-14 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the ED-STATE-EQPT command.

Related TL1 messages

"RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720)

□

ED-STATE-EQPT (system) notification

Output format

The ED-STATE-EQPT notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ED-STATE-EQPT`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   The aid of the system itself.
   Type: AID
   Range: system; the usage of the keyword `all` on system level is not allowed.
   Default: system

Spec block parameters

1. commitstate – SW Commitment Status
   The system provides an indication of the SW generic commitment status.
   Type: alphanumeric value set.
   Range:
   - PENDING = the SW generic is in trial phase, switch back to previous generic possible
   - COMMITTED = the SW generic is committed, no switch back possible.
2. dbstate – Data Base Change State
   The system provides an indication of the validity of the active data base.
   Type: alphanumeric value set.
   Range:
   - EMPTY = data base state empty.
   - NEW = data base state new
   - VALID = database state valid
   - UNKNOWN = database state is not known.

   Default: UNKNOWN.
3. mcond – Maintenance Condition
   This parameter denotes whether the system condition is in maintenance condition or not.
   Type: alphanumeric value set.
   Range:
   - Y = maintenance mode
   - N = normal mode.

Example output

```
ED-STATE-EQPT:LT-UNITE:system:123456:::mcond=n;
   LT-UNITE 00-11-14 08:00:00
M  123456 COMPLD
;
   LT-UNITE 00-11-14 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-14:ED-STATE-EQPT:system::mcond=N"
;
```

□

ED-STM1E: Edit STM1E port

The ED-STM1E command is used to provision all parameters related to the electical STM1E port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: no

Input format

Command Syntax: `ED-STM1E`:*tid:aid:ctag:::spec_block*;

Input parameters

Command parameters

1. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
2. aid – Access Identifier
   Access Identifier of an STM1E port.
   Type: AID.
   Range: SPortAID of STM1E port.
   For changing the *portControl* parameter the ALL qualifier for the port aid shall be allowed.
3. ctag – Correlation Tag
   Refer to the “RTRV-HDR: Retrieve header” (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....65535
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
   The setting of this parameter is allowed when the related STM1E port is created, it is used when *sdfsmode*=BURST.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
   The setting of this parameter is allowed when the related STM1E port is created, it is used when *sdfsmode*=BURST.
4. degthr – Signal Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
   The setting of this parameter is allowed when the related STM1E port is created, it is used when *sdfsmode*=POISSON.
5. dexcthr – Excessive Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –3; –4; –5.
   Default: –3.
   The setting of this parameter is allowed when the related STM1E port is created, it is used when *sdfsmode*=POISSON.

6. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
7. femspm – Far-end Multiplex Section Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
8. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU
9. inputsig – Tributary Input Signal Rate List
   This parameter is a list of VCn rates across the port's bandwidth.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 3 or 4 representing VC3 or VC4.
   Default: 14.
10. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC4 (default), VC3.

11. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC3 (default), VC4.
12. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
13. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of *portClass*=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if *ndetmd*=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0. If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″.
14. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if *ndetmd*=MAN. If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″

15. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborPortID is introduced specifically for use by NN application.
    Type: Four dash separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0-0-0-0.
    Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.
16. nemspm – MS Near-End PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
17. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) per second to declare a second as severly errored.
    Type: numeric value set.
    Range: STM1: 1 – 192000.
    Default value for SDH: STM1: 28800.
18. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) per second to declare a second as severly errored.
    Type: numeric value set.
    Range: STM1: 1 – 192000.
    Default value for SDH: STM1: 28800.
19. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set

Range:

- AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
- MON indicates that alarm monitoring is taking place on the port.
- NMON means that alarm monitoring is not occurring on the port.

20. portClass – Port Class
    This identifies the port class of the AID.
    portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.
21. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
    portControl is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.
22. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(default) ...255.
23. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) per second to declare a second as severly errored.
    Type: numeric value set.
    Range: 1 – 64000.
    Default value for SDH: STM1: 2400.
24. rsmstca – RS/MS TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.

25. rspm – RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
26. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter *portClass* is set to INNI and ndetmd is set to AUTO, the parameter *rstimca* shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE (default): enable consequent action for TIM
    - DISABLE: disable consequent action for TIM.
27. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter *portClass* is set to INNI and *ndetmd* is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
28. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET Alarm Severity Assignment Profile for the SONET ports (see definition of output parameter SONET in "RTRV-OC48: Retrieve OC48 port" (p. 4-1894)) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
29. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON.

30. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
31. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    srlgList is introduced specifically for use by ONNS application. The max. number of identities that can be provisioned per port may be release dependent. The order of the identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only less than the max. number of identities are provisioned, the remaing ones shall be set to the default value 0, e.g. 3-2-1 given yields 3-2-1-0-0-0-0-0-0-0, if the max number that can be given is 10.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0-0-0-0-0-0-0-0.
32. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
33. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (*strcwfmt* = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter *portClass* is set to INNI, the system shall autonomously set the parameter *strcout* according to the actually outgoing J0.
    Type: Hexadecimal digits.

Range:

- 1 byte string
- 16 bytes string
- 64 bytes string, dependent on the *strcwfmt* parameter.

Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
Default: 01Hex

34. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
35. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable:
    - TR-only (lso known as the implicit reset method)
    - TR-RTR (lso known as the explicit reset method).

    Type: alphanumeric value set.
    Range: TR or TRRTR (default).
36. unequiposig – Unequipped Output Signal List
    This parameter is a list of VCn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need the identical setting. Mixed rates for tx and rx side of the port are allowed.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3 or 4 representing VC3 or VC4.
    Default: 14.

Output format

If the ED-STM1E command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
```

;

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The command modifies the attributes (listed in the *spec_block* parameters part of this command) of the addressed port entity according to the parameters given with this command.

The modification is reported by means of an ED-STM1 notification for port (except for parameter *istd;* see below).

Supply outgoing J0 trace value and format together

When changing the format of the outgoing J0 trace *strcwfmt*, the parameter *strcout* specifying the outgoing J0 trace is always supplied within the same TL1-command to always have a consistent set of trace format and value.

When the format of the outgoing J0 trace *strcwfmt* is set to 2 (non-specific repeating byte) then the outgoing J0 trace (mandatory parameter strcout) specified in the command shall be ignored.

Supply outgoing J0 trace value according to format of outgoing J0

When changing the outgoing J0 trace value, the format must be according to the format parameter *strcwfmt* for the outgoing J0 trace.

When the expected J0 format (strcfmt) is changed to 16 (16 byte specific string) while the TI Mismatch detection is enabled, then the TI Mismatch alarm shall be updated according to the provisioned ecpected J0 (expstrc) and the currently received J0 (strc). When the expected J0 format is changed away from 16, while the TI Mismatch alarm is active, then the TI Mismatch alarm shall be cleared.

Disabling of PM monitor

The disabling of a PM monitor shall have the following impacts w.r.t. existing PM registers:

1. stop PM counting
2. all current bins related to the PM monitor shall be deleted
3. all history bins related to the PM monitor shall be deleted

The term PM monitor has the same semantics as the term PM package as used in SRD_PerformanceMonitoring. The number of PM monitors is determined by means of the number of *pm enable attributes*.

PM monitors can be disabled explicitly by means of the *pm enable* attribute or are implicitly disabled as part of a port/tributary deletion.

Additional to the above listed impacts (ID 52924) the disabling of a PM monitor shall have the following impacts: the system has to clear all active TCA events of the deleted PM monitor if TCA mode TR-RTR was selected.

Changing TCA mode from TR-RTR to TR-only

The change of tcamd from TR-RTR (also known as the explicit reset method) to TR-only (also known as the implicit reset method) has the impact, that all active TCA events of the related entity must be cleared.

ONNS specific behaviour - Impact on *portControl* when changing *portClass*

When *portClass* is changed to TRADITIONAL, *portControl* shall be set to NORMAL, if not set differently within the same command..

Such a change shall be reported by an ED-STM1E notification for the parameter *portControl*.

ONNS specific behaviour - Impact on tributary mode setting when portClass is set to INNI

When *portClass* is set to INNI for a port, the parameter *trbmd* shall be set to ″adaptive″. This is reported by an ED-STM1E notification for the parameter *trbmd*.

ONNS specific behaviour - Impact on tributary mode setting when *portClass* is set to EDGE

When *portClass* is set to EDGE for a port, the parameter *trbmd* shall be set to FIXED. This is reported by an ED-STM1E notification for the parameter *trbmd*.

ONNS specific behaviour - Impact on *loca*, *locz* when setting *portClass* from EDGE to TRADITIONAL when port is involved in a 2F or 4F BLSR/MSSPRING protection group

For all tributaries of that port the *loca*, *locz* parameters shall be reset to their default values (empty string). This is reported by an ED-STS1 (*istd*=SONET for the port) or ED-VC3 (*istd*=SDH for the port) notification using a range over the port.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI and *ndetmd* is set to AUTO

When *portClass* is set to INNI and ndetmd is set to AUTO for a port, the parameter *pmode* shall be set to MONITORING. This shall be reported by an ED-STM1E notification for the parameter *pmode*.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI and *ndetmd* is set to MAN

When *portClass* is set to INNI and ndetmd is set to MAN for a port, the parameters *rstimca* and *rstimmon* shall be set to DISABLE. This shall be reported by an ED-STM1E notification for the parameters *rstimca* and *rstimmon*.

ONNS specific behaviour - Impact on tributary parameter settings when *portClass* is set to INNI

When *portClass* is set to INNI, the parameter *hptimmon* shall be set to DISABLE for all tributaries located on this port.. This shall be reported by ED-VC3 notifications for the parameter *hptimmon*.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI

When *portClass* is set to INNI, each of the following parameters shall take its default value, unless a value is specified together with the transition of *portClass* to INNI:

- *ndetmd*
- *neighborASTNNodeID*
- *neighborNodeID*
- *neighborPortID*

ONNS specific behaviour - Impact on neighbour related parameters if *portClass* is changed away from INNI

When portClass is changed away from INNI, the following parameters shall be set to their default values: *neighborASTNNodeID*, *neighborNodeID*, *neighborPortID*.

ONNS specific behaviour - Impact on port parameter settings when *ndetmd* is set to AUTO

When *ndetmd* is set to AUTO for a port, the parameters *neighborNodeID* and *neighborPortID* shall keep their current values until automatic neighbor detection delivers new valid values.

When *ndetmd* is set to AUTO for a port, the parameter *neighborASTNNodeID* shall keep its current value until automatic neighbor detection delivers a new valid value.

ONNS specific behaviour - Impact on port parameter settings while *portClass* is INNI

When *portClass* has the value INNI for a port, setting of the following parameters shall be inhibited:

- *exprstrc*
- *rstimca*
- *rstimmon*
- *strcfmt*
- *strcout*
- *strcwfmt.*

At the moment *portClass* is changed away from INNI the parameters are set back to their default values. This is reported by means of an ED-STM1E notification.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is different from INNI

When *portClass* has a value being different from INNI for a port, setting of the following parameters shall be accepted, but shall have no impact until *portClass* is changed to INNI:

- *propagationDelay*
- *adminCost*
- *srlgList*
- *link_includeID*
- *maxNNXCRate*
- *minNNXCRate*

At the moment the *portClass* is changed to INNI the current values of these parameters shall be considered as valid.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is different from INNI

When *portClass* has a value being different from INNI for a port, setting of the following parameters shall be accepted:

- *ndetmd*
- *neighborASTNNodeID*
- *neighborNodeID*
- *neighborPortID*

ONNS specific behaviour - Impact on port parameter settings while *portClass* is TRADITIONAL

When *portClass* has the value TRADITIONAL for a port, setting of the following parameters shall be accepted, but shall have no impact until *portClass* is changed away from TRADITIONAL:

- *portControl.*

At the moment the *portClass* is changed away from TRADITIONAL the current values of these parameters shall be considered as valid.

Example input/output

```
ED-STM1E:UNITE-NE:1-1-#-#-1-1:123456:::INPUTSIG=14,
UNEQUIPOSIG=14;
   UNITE-NE 00-11-28 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-STM1E:1-1-#-#-1-1
```

```
   ::inputsig=14,unequiposig=14:"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the ED-STM1E command.

Validation rule: ASAP profile exists

Check of the existence of the ASAP profile.

Error code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: TCA profile exists

Check of the existance of the TCA profile.

Error code: `IDNV - Input, Data Not Valid, TCA profile does not exist`

Validation rule: *inputsig* consistent with existing cross-connections

Check of the consistency of the structure of the input signal (*inputsig*) with existing cross-connections.

Error code: `SNVS - Status, Not in Valid State, signal structure cannot be changed for connected parts of a fixed port`

Validation rule: *unequiposig* consistent with existing cross-connections

Check of the consistency of the structure of the output signal (*unequiposig*) with existing cross-connections.

Error code: `SNVS - Status, Not in Valid State, signal structure cannot be changed for connected parts of a fixed port`

Validation rule: *servcond* must be enabled when timing source

Check that the *servcond* is not disabled when the port is used as a timing source.

Error code: `SNVS - Status, Not in Valid State, Timing reference is assigned to this port`

Validation rule: *servcond* must be enabled when DCC enabled

Check that the *servcond* is not disabled when DCC channels are still existing for this port.

Error code: `SNVS - Status, Not in Valid State, DCC channels are active for this port`

Validation rule: *servcond* must be enabled when *portClass*=INNI

Check that the servcond is not OUTOFSERVICE when *portClass*=INNI.

Error code: SNVS - Status, Not in Valid State, can not disable servcond for INNI ports

Validation rule: *servcond* must be disabled for facility loopback

Check that the *servcond* is not enabled when a facility loopback is existing for this port.

Error code: SNVS - Status, Not in Valid State, Facility Loopback is active for this port

Validation rule: Supply of outgoing J0 trace

Check that an outgoing J0 trace value (*strcout*) is supplied, too, if the format of the outgoing J0 trace (*strcwfmt*) is changed.

Error code: IDNC - Input, Data Not Consistent, a new trace value must also be supplied for a trace format change.

Validation rule: transmitted path trace length

Check that the length of the outgoing J0 trace value (*strcout*) fits to the length given by outgoing J0 trace mode, i.e. write format (*strcwfmt*).

Error code: IDNC - Input, Data, Not Consistent, strcout length must match the given outgoing J0 trace mode.

Validation rule: 'ALL' qualifier used for wrong parameters

The 'ALL' qualifier for the port aid is only allowed for changing the *portControl* parameter.

Error Code: IDNC - Input, Data Not Consistent, 'ALL' qualifier for port aid not allowed

Check CCB against ptype and istd

Check wether the CCB fits to ptype and SDH standard.

Error code: ICNV - Input, Command Not Valid, Interface Standard does not match

E.g. DENY, if a command with rr=OC3 is made on a EP155 port which is provisionened as ptype=STM1E.

ONNS specific error codes (validation rules)

Validation rule: *portClass* only settable when xcsetup=SWISS

Modification of the *portClass* parameter shall only be allowed when xcsetup=SWISS.

Error code: SNVS - Status, Not in Valid State, SwiSS not enabled

Validation rule: Not allowed to change the portClass directly from INNI to EDGE or EDGE to INNI

It is not allowed to change the *portClass* of a port directly from INNI to EDGE or from EDGE to INNI.

Error code: `SNVS - Status, Not in Valid State, Port Class must not be EDGE or INNI`

Validation rule: Setting of *portClass* to INNI not possible for ports in equipment protection groups

It shall not be allowed to change *portClass* of a port to INNI, if this port is member of an equipment protection group.

Error code: `SNVS - Status, Not in Valid State, Port must not be member of an equipment protection group`

Validation rule: Setting of *portClass* to INNI only possible, if no cross-connection existing

It shall not be allowed to change *portClass* to INNI, if cross-connections on that port are still existing.

Error code: `SNVS - Status, Not in Valid State, Cross-connections still existing`

Validation rule: Setting of *portClass* to INNI only possible, if no lower order cross-connections exist

Check if lower order cross connections exist which involve the port to be changed. If lower order cross connections exist, the following error message shall be returned:

Error code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

Validation rule: Setting of *portClass* to INNI only possible, if service condition not OUTOFSERVICE

It shall not be allowed to change *portClass* to INNI, if servcond=OUTOFSERVICE

Error code: `SNVS - Status, Not in Valid State, port in out of service state`

Validation rule: Setting of *portClass* to INNI or EDGE only possible, if no test access session active

It shall not be allowed to change portClass of a port to INNI or EDGE when a tributary related to this port is used in a test access session either as tributary under test or as test access tributary.

Error code: `SNVS - Status, Not in Valid State, a test access session exists`

Validation rule: Setting of *portClass* away from INNI only possible, if the port is not in use

For setting portClass from INNI to TRADITIONAL or EDGE the following must be fulfilled:

- No cross-connection may exist on any tributary of the port
- *portControl* must be LOCKOUT

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

Validation rule: Setting of *portClass* away from INNI only possible, if the port is not in use by M:N reservation

For setting portClass from INNI to TRADITIONAL or EDGE the following must be fulfilled: No reservation related to a protecting NN connection within an M:N protected connection group may exist on any tributary of the port.

Error code: `SNVS - Status, Not in Valid State, Port is still in use`

Validation rule: Changing of *portClass* from INNI to EDGE or TRADITIONAL only possible, if no DCC for SCN is enabled on the port

For changing the value of the parameter *portClass* no DCC of the port must be enabled for the SCN.

Error code: `SNVS - Status, Not in Valid State, DCC on SCN may not be enabled`

Validation rule: Setting of *portClass* from EDGE to TRADITIONAL only possible, if the tributaries on the port are not in use by ONNS

For setting *portClass* from EDGE to TRADITIONAL the following must be fulfilled:

- No cross-connections of xconcls=NN may exist on any tributary of the port
- *portControl* must be LOCKOUT

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

Validation rule: Setting of some INNI properties only possible, if no cross-connection existing

It shall not be allowed to change one of the following parameters (provided this parameter is supported in a particular release at all) on a port with *portClass*=INNI, if cross-connections on that port are existing:

- *ink_IncludeID, neighborNodeID, neighborPortID, propagationDelay, srlgList, neighborASTNNodeID,maxNNXCRate, minNNXCRate*

Error code: `SNVS - Status, Not in Valid State, no XCs allowed for change of iNNI parameters`

Validation rule: Setting of some INNI properties only possible, if no reservations wrt. M:N protecting connections existing

It shall not be allowed to change one of the following parameters on a port with *portClass* = INNI, if reservations wrt. M:N protecting NN connections on that port are existing:

- *link_IncludeID, neighborNodeID, neighborPortID, propagationDelay, srlgList, neighborASTNNodeID, maxNNXCRate, minNNXCRate*

Error Code: `SNVS - Status, Not in Valid State, no XC reservations allowed for change of iNNI parameters`

Validation rule: Setting of INNI properties only possible if *portControl* is LOCKOUT

The system shall allow to change the following parameters only under the conditions:

- if the port control is LOCKOUT while port class is INNI
- together with the transition of port control from LOCKOUT to NORMAL while port class is INNI or
- together with the transition of port class to INNI

adminCost, *link_IncludeID*, *maxNNXCRate, minNNXCRate, ndetmd, neighborASTNNodeID, neighborNodeID*, *neighborPortID*, *propagationDelay*, *srlgList*

Error code: `SNVS - Status, Not in Valid State, only allowed for INNI port in lockout state`

Validation rule: Some parameters not settable for ports of *portClass*=INNI

The following parameters shall not be changeable for ports with *portClass*=INNI:

- *exprstrc*, *rstimca*, *rstimmon*, *strcfmt*, *strcout*, *strcwfmt*.

Error code: `SNVS - Status, Not in Valid State, J0 parameters can not be set for INNI ports`

Validation rule: Port Mode not settable for ports of *portClass*=INNI

The system shall not allow to change the parameter *pmode* if *portClass* has been set to INNI prior to this command or if *portClass* is set to INNI with this command. The paramer pmode shall either be omitted or specified with the only allowed value MON.

Error code: `SNVS - Status, Not in Valid State, port mode change not allowed for INNI ports`

Validation rule: Some parameters not settable for ports of *ndetmd* AUTO

The following parameters shall not be changeable for ports with ndetmd AUTO:

- *neighborNodeID*
- *neighborPortID*
- *neighborASTNNodeID*

Error code: `SNVS - Status, Not in Valid State, ndetmd must not be AUTO`

Validation rule: Additional parameters required when setting *ndetmd* to MAN

Values for the following parameters must be given, if *ndetmd* is changed to MAN:

- *neighborNodeID*
- *neighborPortID*
- *neighborASTNNodeID*

Error code: `IDNV - Input, Data Not Valid, additional parameters required`

Validation rule: No setting of duplicate *neighborASTNNodeID* and *neighborPortID* parameter combination

Setting of the parameters *neighborASTNNodeID* and *neighborPortID* shall only be possible, if the same combination of values does not already exists for a different INNI port in the system.

Error code: `IDNV - Input, Data Not Valid, duplicate neighbor port information`

Validation rule: No setting of neighborASTNNodeID or neighborNodeID to corresponding IDs of local node

It shall not be allowed to configure parameters *neighborASTNNodeID* or *neighborNodeID* to corresponding values of the local node itself, i.e. it shall not be possible to configure a node to be its own ONNS neighbor.

Error code: `IDNV - Input, Data Not Valid, node itself is not a valid neighbor`

Validation rule: Setting of neighbor information to UNKNOWN

In order to set neighbor information to UNKNOWN, zero values must be set for all parameters *neighborASTNNodeID*, *neighborNodeID* and *neighborPortID* consistently. It shall not be possible to set zero value for only one or two of them.

Error Code: `IDNV - Input, Data Not Valid, zero values can only be set for all neighbor information consistently`

Validation rule: No setting of *minNNXCRate* to values larger than value of *maxNNXCRate* and vice versa

It shall not be allowed to configure parameters *maxNNXCRate* and *minNNXCRate* in a way, that the value of *minNNXCRate* is larger than the value of *maxNNXCRate*

Error Code: `IDNV - Input, Data Not Valid, Min. and max. NN XC rates incompatible`

Related TL1 messages

"RTRV-STM1E: Retrieve STM1E port" (p. 4-2063)

References

GR-199-CORE (ED-*rr*)

□

ED-STM1E notification

Output format

The ED-STM1E notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ED-STM1`*:aid::spec_block*

Output parameter

Command parameters

1. aid – Access Identifier
   Access Identifier of an STM1E port.
   Type: AID.
   Range: SPortAID of STM1E port.
   The keyword `all` is allowed up to shelf level.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
   Type: Numeric string.
   Range: 1(default).....65535
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the Tributary Input Rate Signal List.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 3, or 4 representing VC3 or VC4.

5. degthr – Signal Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
6. dexcthr – Excessive Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –3; –4; –5.
   Default: –3.
7. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter *portClass* is set to INNI and *ndetmd* is set to AUTO, the parameter *exprstrc* shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
8. femspm – Far-end Multiplex Section Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
9. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU

10. fsflpbkstat – Far Side Facililiy Loopback Status
    This parameter specifies the current far-side facility loopback status of the considered output *aid.*
    A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
    Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
11. inputsig – Tributary Input Signal Rate List
    This parameter is a list of VCn rates across the port's bandwidth.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3 or 4 representing VC3 or VC4.
    Default: 14.
12. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
13. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC4 (default), VC3.

14. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC4, VC3 (default).
15. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
16. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of *portClass*=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection. neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0. If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
17. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if *ndetmd*=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection. *neighborNodeID* is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″

18. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection. *neighborPortID* is introduced specifically for use by ONNS application.
    Type: Four dash separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0-0-0-0.
    Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.
19. nemspm – MS Near-End PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
20. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) per second to declare a second as severly errored.
    Type: numeric value set.
    Range: STM1: 1 – 192000.
    Default value for SDH: STM1: 28800.
21. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) per second to declare a second as severly errored.
    Type: numeric value set.
    Range: STM1: 1 – 192000.
    Default value for SDH: STM1: 28800.
22. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set

Range:

- AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
- MON indicates that alarm monitoring is taking place on the port.
- NMON means that alarm monitoring is not occurring on the port.

23. pmrsneses – Performance Monitoring RS Near-End SES Threshold
    This parameter describes the RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) per second to declare a second as severly errored.
    Type: numeric value set.
    Range: 1 – 64000.
    Default value for SDH: STM1: 2400.
24. portClass – Port Class
    This identifies the port class of the AID.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.
25. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd*. *portControl* is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.
26. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(default) ...255.
27. rsmstca – RS/MS TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
28. rspm – RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.

Range:

- ENABLE
- DISABLE (default).

29. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter *portClass* is set to INNI and *ndetmd* is set to AUTO, the parameter *rstimca* shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE (default): enable consequent action for TIM
    - DISABLE: disable consequent action for TIM.
30. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter *portClass* is set to INNI and *ndetmd* is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
31. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET Alarm Severity Assignment Profile for the SONET ports of corresponding line rate (see definition of output parameter sonet in "RTRV-OC12: Retrieve OC12 port" (p. 4-1881)) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
32. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON.
33. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.

Range:

- INSERVICE (default): Provisioning values for service are accepted
- OUTOFSERVICE: Provisioning values for service are not accepted.

34. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. srlgList is introduced specifically for use by ONNS application. The max. number of identities that can be provisioned per port may be release dependent. The order of the identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only less than the max. number of identities are provisioned, the remaing ones shall be set to the default value 0, e.g. 3-2-1 given yields 3-2-1-0-0-0-0-0-0-0, if the max number that can be given is 10.
    Type: Ten numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0-0-0-0-0-0-0-0.
35. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter *portClass* is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1 for specific repeating byte (SONET)
    - 2 (default) for non-specific repeating byte (ITU/ETSI mode 2)
    - 16 for 16 byte specific string (ITU/ETSI mode 1)
    - 64 for 64 byte string (SONET).
36. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter. If ITU/ETSI mode 2 is selected (*strcwfmt* = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter *portClass* is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string dependent on the *strcwfmt* parameter.

    Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex

37. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter *portClass* is set to INNI, the system shall autonomously set the parameter *strcwfmt* according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1 for specific repeating byte (SONET)
    - 2 (default) for non-specific repeating byte (ITU/ETSI mode 2)
    - 16 for 16 byte specific string (ITU/ETSI mode 1)
    - 64 for 64 byte string (SONET).
38. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable:
    - TR-only (lso known as the implicit reset method)
    - TR-RTR (lso known as the explicit reset method).

    Type: alphanumeric value set.
    Range: TR or TRRTR (default).
39. unequiposig – Unequipped Output Signal List
    This parameter is a list of VCn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need the identical setting. Mixed rates for tx and rx side of the port are allowed.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3 or 4 representing VC3 or VC4.
    Default: 14.

Example input/output

```
ED-STM1E:UNITE-NE:1-1-#-#-1-1:123456:::INPUTSIG=14,
UNEQUIPOSIG=14;
   UNITE-NE 00-11-28 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-STM1E:1-1-#-#-1-1
   ::inputsig=14,unequiposig=14:"
;
```

□

ED-STM1E autonomous notifications

LOS for transmission port STM1E clears

If LOS is cleared and current port mode is AUTO, then *pmode* is updated (new value: MON). This update is reported via ED-STM1E notification with parameter *pmode.*

Change of neighbor Node and Neighbor Port Information

If *ndetmd*=AUTO a change of the attributes *neighborNodeID* or *neighborPortID* is notified by the related ED-STM1E notification.

If ndetmd=AUTO a change of the attribute *neighborASTNNodeID* is notified by the related ED-STM1E notification.

□

ED-STM1: Edit STM1 port

The ED-STM1 command is used to provision all parameters related to optical STM1 port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: no

Input format

Command Syntax: `ED-STM1`:*tid:aid:ctag:::spec_block*;

Input parameters

Command parameters

1. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
2. aid – Access Identifier
   Type: AID.
   Range: SPortAID of STM1 port.
   For changing the *portControl* parameter the ALL qualifier for the port aid shall be allowed.
3. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the NE in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters.
   Note: Current implementation also allows ’0’ as valid CTAG, which is an extension to GR-831.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....65535
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
   The setting of this parameter is allowed when the related STM1 port is created, it is used when *sdfsmode*=BURST.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
   The setting of this parameter is allowed when the related STM1 port is created, it is used when *sdfsmode*=BURST.
4. degthr – Signal Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
   The setting of this parameter is allowed when the related STM1 port is created, it is used when *sdfsmode*=POISSON.
5. dexcthr – Excessive Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –3; –4; –5.
   Default: –3.
   The setting of this parameter is allowed when the related STM1 port is created, it is used when *sdfsmode*=POISSON.

6. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
7. femspm – Far-end Multiplex Section Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
8. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU
9. inputsig – Tributary Input Signal Rate List
   This parameter is a list of VCn rates across the port's bandwidth.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 3 or 4 representing VC3 or VC4.
   Default: 14.
10. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET.
    Type: alphanumeric value set.
    Range:
    - SONET
    - SDH.

    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).

11. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC4 (default), VC3.
12. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC3 (default), VC4.
13. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
14. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
15. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN. If ndetmd=MAN, this parameter shall indicate the value set by the operator. If

ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
neighborNodeID is introduced specifically for use by ONNS application.
Type: Four dot separated numeric string.
Range: Each numeric string: 0...255.
Default: 0.0.0.0
If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″

16. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborPortID is introduced specifically for use by NN application.
    Type: Four dash separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0-0-0-0.
    Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.
17. nemspm – MS Near-End PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
18. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-1/OC-3: 1 – 192000.

    Default: The default values differ for SDH and SONET:
    - STM1: 28800
    - OC3: 154.

19. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-1/OC-3: 1 – 192000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM1: 28800
    - OC3: 154.

20. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.

21. portClass – Port Class
    This identifies the port class of the AID.
    portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.

22. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
    portControl is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.

23. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(default) ...255. The unit of this value is ″milliseconds″.
24. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000.
    Default: The default values differ for SDH and SONET and the different rates:
    - STM1: 2400
    - OC3: 155.
25. rsmstca – RS/MS TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
26. rspm – RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
27. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimca shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE (default): enable consequent action for TIM
    - DISABLE: disable consequent action for TIM.

28. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
29. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET ASAP for the SONET ports of corresponding line rate (see definition of output parameter SONET in RTRV-OC12) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
30. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON.
31. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
32. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    srlgList is introduced specifically for use by ONNS application. The max. number of identities that can be provisioned per port may be release dependent. The order of the identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only less than the max. number of identities are provisioned, the remaining ones

shall be set to the default value 0, e.g. 3-2-1 given yields 3-2-1-0-0-0-0-0-0-0, if the max number that can be given is 10.
Type: Ten numeric strings separated by dashes.
Range: Each numeric string: 0...65535.
Default: 0-0-0-0-0-0-0-0-0-0.

33. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
34. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string dependent on the *strcwfmt* parameter.

    Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
35. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)

- 16: for 16 byte specific string (ITU/ETSI mode 1).
- 64: for 64 byte string (SONET).

36. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable:
    - TR-only (lso known as the implicit reset method)
    - TR-RTR (lso known as the explicit reset method).

    Type: alphanumeric value set.
    Range: TR or TRRTR (default).
37. unequiposig – Unequipped Output Signal List
    This parameter is a list of VCn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need the identical setting. Mixed rates for tx and rx side of the port are allowed.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3 or 4 representing VC3 or VC4.
    Default: 14.

Output format

If the ED-STM1 command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

Behavior

The command modifies the attributes (listed in the *spec_block* parameters part of this command) of the addressed port entity according to the parameters given with this command.

The modification is reported by means of an ED-STM1 notification for port (except for parameter *istd;* see below).

Switching of interface standard – Ignore other parameters

If additional parameters beside *istd* are specified with the *ED-rr* command they will be ignored by the NE.

This simple approach has the advantage that all ambiguous situations are avoided and it is not necessary to implement an order or follow a certain sequence when evaluating the parameters.

Switching of interface standard – FM impact

The change of the interface standard of a port from SDH to SONET has the following impact related to fault management:

- all SDH alarms related to that port are cleared
- the corresponding SONET alarms are raised.

Supply outgoing J0 trace value and format together

When changing the format of the outgoing J0 trace *strcwfmt*, the parameter *strcout* specifying the outgoing J0 trace is always supplied within the same TL1-command to always have a consistent set of trace format and value.

When the format of the outgoing J0 trace *strcwfmt* is set to 2 (non-specific repeating byte) then the outgoing J0 trace (mandatory parameter strcout) specified in the command shall be ignored.

Supply outgoing J0 trace value according to format of outgoing J0

When changing the outgoing J0 trace value, the format must be according to the format parameter *strcwfmt* for the outgoing J0 trace.

Change of J0 expected format - FM impact

When the expected J0 format (strcfmt) is changed to 16 (16 byte specific string) while the TI Mismatch detection is enabled, then the TI Mismatch alarm shall be updated according to the provisioned ecpected J0 (expstrc) and the currently received J0 (strc). When the expected J0 format is changed away from 16, while the TI Mismatch alarm is active, then the TI Mismatch alarm shall be cleared.

Switching of interface standard – Impact on port parameters

Switching of interface standard:

The switching of istd should not result in an deletion and recreation of the port. NE internally there are no differences between SDH and SONET.

Switching of interface standard I:

In detail the following attributes are influenced by switching of the *istd* from SDH to SONET (see also the related RTRV-OC*n* command for SONET parameter description):

- *brstintvl* is set to the default value
- *brstthr* is set to the default value
- *crstat* may change according to its semantics (see description of *crstat*)
- *femspm* is mapped to *felpm* (no changes)
- *inputsig* is set to the default value

- *istd* is set to SONET
- *nemspm* is mapped to *nelpm* (no changes)
- *rspm* is mapped to *spm* (no changes)
- *rstimca* is set to the default value for a SONET port
- *rstimmon* is set to the default value for a SONET port
- *sdhpn* is mapped to SONET (no changes)
- *sdsfmode* is set to the default value for a SONET port
- *sdthr* is set to the default value for a SONET port
- *sfthr* is set to the default value for a SONET port
- *trbmd* is set to the default value for a SONET port
- *unequiposig* is set to its default value
- *z0outmode* is set to its default value for a SONET port.

All other port parameters remain unchanged.

Switching of interface standard II:

In addition to the list of attributes above the following attributes are influenced by switching of the *istd* from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *sltca* is set to the default value for a SONET port
- *tcamd* is set to the default value for a SONET port.

Switching of interface standard III:

In addition to the list of attributes above the following attributes are influenced by switching of the *istd* from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *pmmsfeses* is set to the default value for a SONET port
- *pmmsneses* is set to the default value for a SONET port
- *pmrsneses* is set to the default value for a SONET port.

Switching of interface standard IV:

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *minNNXCrate* is set to the default value for a SONET tributary
- *maxNNXCrate* is set to the default value for a SONET tributary

Switching of interface standard – Side effects on tributaries

The switching of *istd* should not result in an deletion and recreation of the tributaries of a port. NE internally there are no differences between SDH and SONET.

In detail the following side-effects apply to the related tributary attributes when switching the *istd* from SDH to SONET (see also the related RTRV-OC*n* command for SONET parameter description):

- *brstintvl* is set to the default value for a SONET tributary
- *brstthr* is set to the default value for a SONET tributary
- *pse* (PDI-P parameter) is set to the default value for a SONET tributary
- *sdsfmode* is set to the default value for a SONET tributary.

Switching of interface standard – Side effects on tributaries II

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *degthr* is set to the default value for an SONET tributary
- *dexcthr* is set to the default value for an SONET tributary
- *ptca* shall be set to the default value for a SONET tributary
- *tcamd* is set to the default value for a SONET tributary.

The attribute tcamd does not exist for SONET ports. SONET ports only support ″TR-only″ mode. Thus the mode must be internally set to ″TR-only″.

Switching of interface standard – Side effects on tributaries III

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *pmhpneses* is set to the default value for an SONET tributary
- *pmhpfeses* is set to the default value for an SONET tributary.

Switching of interface standard – notification behavior for port attributes

When changing the interface standard *istd* using the ED-STMn command all resulting parameter changes are reported by ED-OCn notifications of the related port rate. This is valid for the parameter istd itself as well as for all other parameters which might change as a consequence of changing the interface standard.

Switching of interface standard – notification behavior for tributary attributes

When changing the interface standard *istd* using the ED-STMn command all resulting tributary parameter changes are reported by ED-STS1 notifications.

Switching of interface standard - notification behavior for active TCA events

If the changing of the interface standard *istd* to SONET includes an change of *tcamd* from TR-RTR to TR-only (SONET default value), then all active TCA events of the related entities must be cleared.

Switching of interface standard – PM impact

The change of interface standard has the following impacts w.r.t. existing PM registers:

1. all current bins related to the port will be reset
2. all history bins related to the port remain unchanged
3. all current bins related to tributaries being a member of the port will be reset
4. all history bins related to tributaries being a member of the port remain unchanged.

Retrieving the bins after switching the interface standard may result in a strange reporting behavior:

- When switching the interface standard to SONET the periods before the switch contain SDH-related parameters and values even though the port is addressed as a SONET port.
- When switching the interface standard to SDH the periods before the switch contain SONET-related parameters and values even though the port is addressed as a SDH port.

Disabling of PM monitor

The disabling of a PM monitor shall have the following impacts w.r.t. existing PM registers:

1. stop PM counting
2. all current bins related to the PM monitor shall be deleted
3. all history bins related to the PM monitor shall be deleted

The term PM monitor has the same semantics as the term PM package as used in SRD_PerformanceMonitoring. The number of PM monitors is determined by means of the number of *pm enable attributes*.

PM monitors can be disabled explicitly by means of the *pm enable* attribute or are implicitly disabled as part of a port/tributary deletion.

Additional to the above listed impacts (ID 52924) the disabling of a PM monitor shall have the following impacts: the system has to clear all active TCA events of the deleted PM monitor if TCA mode TR-RTR was selected.

Changing TCA mode from TR-RTR to TR-only

The change of tcamd from TR-RTR (also known as the explicit reset method) to TR-only (also known as the implicit reset method) has the impact, that all active TCA events of the related entity must be cleared.

ONNS specific behaviour - Impact on *portControl* when changing *portClass*

When *portClass* is changed to TRADITIONAL, *portControl* shall be set to NORMAL, if not set differently within the same command.

Such a change shall be reported by an ED-STM1 notification for the parameter *portControl.*

ONNS specific behaviour - Impact on tributary mode setting when *portClass* is set to INNI

When *portClass* is set to INNI for a port, the parameter *trbmd* shall be set to *adaptive*. This shall be reported by an ED-STM1 notification for the parameter *trbmd*.

ONNS specific behaviour - Impact on tributary mode setting when *portClass* is set to EDGE

When *portClass* is set to EDGE for a port, the parameter *trbmd* shall be set to FIXED. This shall be reported by an ED-STM1 notification for the parameter *trbmd*.

ONNS specific behaviour - Impact on *loca*, *locz* when setting *portClass* from EDGE to TRADITIONAL when port is involved in a 2F or 4F BLSR/MSSPRING protection group

For all tributaries of that port the *loca*, *locz* parameters shall be reset to their default values (empty string). This is reported by an ED-STS1 (istd=SONET for the port) or ED-VC3 (istd=SDH for the port) notification using a range over the port.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI and *ndetmd* is set to AUTO

When *portClass* is set to INNI and *ndetmd* is set to AUTO for a port, the parameter *pmode* shall be set to MONITORING. This is reported by an ED-STM1 notification for the parameter *pmode*.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI and *ndetmd* is set to MAN

When *portClass* is set to INNI and ndetmd is set to MAN for a port, the parameters *rstimca* and *rstimmon* shall be set to DISABLE. This is reported by an ED-STM1 notification for the parameters *rstimca* and *rstimmon*.

ONNS specific behaviour - Impact on tributary parameter settings when *portClass* is set to INNI

When *portClass* is set to INNI, the parameter *hptimmon* shall be set to DISABLE for all tributaries located on this port. This shall be reported by ED-VC3 notifications for the parameter *hptimmon*

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI

When *portClass* is set to INNI, each of the following parameters shall take its default value, unless a value is specified together with the transition of portClass is changed to INNI:

- *ndetmd*
- *neighborASTNNodeID*
- *neighborNodeID*
- *neighborPortID*

ONNS specific behaviour - Impact on neighbour related parameters if *portClass* is changed away from INNI

When *portClass* is changed away from INNI, the following parameters shall be set to their default values: *neighborASTNNodeID*, *neighborNodeID*, *neighborPortID*.

ONNS specific behaviour - Impact on port parameter settings when *ndetmd* is set to AUTO

When *ndetmd* is set to AUTO for a port, the parameters *neighborNodeID* and *neighborPortID* shall keep their current values until automatic neighbor detection delivers new valid values.

When *ndetmd* is set to AUTO for a port, the parameter *neighborASTNNodeID* shall keep its current value until automatic neighbor detection delivers a new valid value.

ONNS specific behaviour - Impact on port parameter settings while *portClass* is INNI

When *portClass* has the value INNI for a port, setting of the following parameters shall be inhibited:

- *exprstrc*
- *rstimca*
- *rstimmon*
- *strcfmt*
- *strcout*
- *strcwfmt.*

At the moment *portClass* is changed away from INNI the parameters are set back to their default values. This shall be reported by means of an ED-STM1 notification.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is different from INNI

When *portClass* has a value being different from INNI for a port, setting of the following parameters shall be accepted, but shall have no impact until *portClass* is changed to INNI:

- *propagationDelay*, *adminCost*, *srlgList*, *link_includeID,maxNNXCRate,minNNXCRate*.

At the moment the *portClass* is changed to INNI the current values of these parameters shall be considered as valid.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is different from INNI

When *portClass* has a value being different from INNI for a port, setting of the following parameters shall be accepted: *neighborASTNNodeID*, *neighborNodeID, neighborPortID*.

ONNS specific behaviour - Impact on port parameter settings while *portClass* is TRADITIONAL

When *portClass* has the value TRADITIONAL for a port, setting of the following parameters shall be accepted, but shall have no impact until *portClass* is changed away from TRADITIONAL: *portControl*.

At the moment the *portClass* is changed away from TRADITIONAL the current values of these parameters shall be considered as valid.

Example input/output

```
ED-STM1:UNITE-NE:1-1-#-#-1-1:123456:::INPUTSIG=14,
UNEQUIPOSIG=14;
   UNITE-NE 00-11-28 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-STM1:1-1-#-#-1-1
   ::inputsig=14,unequiposig=14:"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the ED-STM1 command.

Validation rule: ASAP profile exists

Check of the existence of the ASAP profile.

Error code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: TCA profile exists

Check of the existance of the TCA profile.

Error Code: `IDNV - Input, Data Not Valid, TCA profile does not exist`

Validation rule: *inputsig* consistent with existing cross-connections

Check of the consistency of the structure of the input signal (*inputsig*) with existing cross-connections.

Error code: `SNVS - Status, Not in Valid State, signal structure cannot be changed for connected parts of a fixed port`

Validation rule: *unequiposig* consistent with existing cross-connections

Check of the consistency of the structure of the output signal (*unequiposig*) with existing cross-connections.

Error code: `SNVS - Status, Not in Valid State, signal structure cannot be changed for connected parts of a fixed port`

Validation rule: No lower order cross-connections for *istd* change

Check that the interface standard parameter (*istd*) is not changed when lower order cross-connections are still on this port. If lower order cross-connections exist, the following error message shall be returned:

Error code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

Validation rule: no loopbacks for *istd* change

Check that the interface standard parameter (*istd*) is not changed when cross-connection loopback is still on this port.

Error code: `SNVS - Status, Not in Valid State, a loopback is existing`

Validation role: no ONNS for interface standard change

Check that the interface standard parameter (istd) is not changed if ONNS functionality is available.

This means:

- *portClass* must be TRADITIONAL or
- *portControl* must be LOCKOUT.

Error code: `SNVS - Status, Not in Valid State, SwiSS access possible`

Validation rule: no protection for *istd* change

Check that the interface standard parameter (*istd*) is not changed when this port is in an protection group.

Error code: `SNVS - Status, Not in Valid State, a protection group is existing`

Validation rule: *servcond* must be enabled when timing source

Check that the *servcond* is not disabled when the port is used as a timing source.

Error code: `SNVS - Status, Not in Valid State, Timing reference is assigned to this port`

Validation rule: *servcond* must be enabled when DCC enabled

Check that the *servcond* is not disabled when DCC channels are still existing for this port.

Error code: `SNVS - Status, Not in Valid State, DCC channels are active for this port`

Validation rule: *servcond* must be enabled when *portClass*=INNI

Check that the servcond is not OUTOFSERVICE when portClass=INNI.

Error code: `SNVS - Status, Not in Valid State, can not disable servcond for INNI ports`

Validation rule: *servcond* must be enabled for protection ports

Check that the servcond is not OUTOFSERVICE if the port is used as protection port.

Error code: `SNVS - Status, Not in Valid State, can not disable servcond for protection ports`

Validation rule: *servcond* must be disabled for facility loopback

Check that the *servcond* is not enabled when a facility loopback is existing for this port.

Error code: `SNVS - Status, Not in Valid State, Facility Loopback is active for this port`

Validation rule: Supply of outgoing J0 trace

Check that an outgoing J0 trace value (*strcout*) is supplied, too, if the format of the outgoing J0 trace (*strcwfmt*) is changed.

Error code: `IDNC - Input, Data Not Consistent, a new trace value must also be supplied for a trace format change.`

Validation rule: transmitted path trace length

Check that the length of the outgoing J0 trace value (*strcout*) fits to the length given by outgoing J0 trace mode, i.e. write format (*strcwfmt*).

Error code: `IDNC - Input, Data, Not Consistent, strcout length must match the given outgoing J0 trace mode.`

Validation rule: 'ALL' qualifier used for wrong parameters

The ALL qualifier for the port aid is only allowed for changing the *portControl* parameter.

Error Code: `IDNC - Input, Data Not Consistent, 'ALL' qualifier for port aid not allowed`

Check CCB against ptype and istd

Check wether the CCB fits to ptype and istd.

Error Code: `ICNV - Input, Command Not Valid, Interface Standard does not match`

ONNS specific validation rule: *portClass* only settable when *xcsetup*=SWISS

Modification of the *portClass* parameter shall only be allowed when xcsetup=SWISS.

Error code: `SNVS - Status, Not in Valid State, SwiSS not enabled`

ONNS specific validation rule: Not allowed to change the *portClass* directly from INNI to EDGE or EDGE to INNI

It shall not be allowed to change the *portClass* of a port directly from INNI to EDGE or from EDGE to INNI.

Error code: `SNVS - Status, Not in Valid State, Port Class must not be EDGE or INNI`

ONNS specific validation rule: Setting of *portClass* to INNI not possible for ports in protection groups

It shall not be allowed to change *portClass* of a port to INNI, if this port is member of a Line/MS protection scheme.

Error Code: `SNVS - Status, Not in Valid State, Port must not be member of a protection group`

ONNS specific validation rule: Setting of *portClass* to INNI only possible, if no cross-connection existing

It shall not be allowed to change *portClass* to INNI, if cross-connections on that port are still existing.

Error Code: `SNVS - Status, Not in Valid State, Cross-connections still existing`

ONNS specific validation rule: Setting of *portClass* to INNI only possible, if no lower order cross-connections exist

Check if lower order cross-connections exist which involve the port to be changed. If lower order cross-connections exist the following error message is returned:

Error code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

ONNS specific validation rule: Setting of *portClass* to INNI only possible, if service condition is not OUTOFSERVICE

It shall not be allowed to change *portClass* to INNI, if servcond=OUTOFSERVICE.

Error code: `SNVS - Status, Not in Valid State, port in out of service state`

ONNS specific validation rule: Setting of *portClass* to INNI or EDGE only possible, if no test access session active

It shall not be allowed to change *portClass* of a port to INNI when a tributary related to this port is used in a test access session either as tributary under test or as test access tributary.

Error code: `SNVS - Status, Not in Valid State, a test access session exists`

ONNS specific validation rule: Setting of *portClass* away from INNI only possible, if the port is not in use

For setting *portClass* from INNI to TRADITIONAL or EDGE the following must be fulfilled:

- No cross-connection may exist on any tributary of the port
- *portControl* must be LOCKOUT.

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

ONNS specific validation rule: Setting of *portClass* away from INNI only possible, if the port is not in use by M:N reservation

For setting *portClass* from INNI to TRADITIONAL or EDGE the following must be fulfilled:

- No reservation related to a protecting NN connection within an M:N protected connection group may exist on any tributary of the port

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

ONNS specific validation rule: Changing of *portClass* from INNI to EDGE or TRADITIONAL only possible, if no DCC for SCN is enabled on the port

For changing the value of the parameter *portClass* no DCC of the port must be enabled for the SCN.

Error Code: `SNVS - Status, Not in Valid State, DCC on SCN may not be enabled`

ONNS specific validation rule: Setting of *portClass* from EDGE to TRADITIONAL only possible, if the tributaries on the port are not in use by ONNS:

For setting *portClass* from EDGE to TRADITIONAL the following must be fulfilled:

- No cross-connections of xconcls=NNmay exist on any tributary of the port
- *portControl* must be LOCKOUT.

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

ONNS specific validation rule: Setting of *portClass* from TRADITIONAL to EDGE

For setting *portClass* from TRADITIONAL to EDGE the port must not be the protection port of a 1+1 MSP group.

Error code: `SNVS - Status, Not in Valid State, Port must not be a 1+1 protection port`

ONNS specific validation rule: Setting of *portClass* from TRADITIONAL to EDGE

For setting *portClass* from TRADITIONAL to EDGE the port must not be the protection port of a 1:1 MSP group.

Error code: `SNVS - Status, Not in Valid State, Port must not be a 1:1 protection port`

ONNS specific validation rule: Setting of some INNI properties only possible, if no cross-connection existing

It shall not be allowed to change one of the following parameters on a port with *portClass*=INNI, if cross-connections on that port are existing:

- *link_IncludeID*, *neighborNodeID*, *neighborPortID*, *propagationDelay*, *srlgList, neighborASTNNodeID,maxNNXCRate,minNNXCRate*

Error code: `SNVS - Status, Not in Valid State, no XCs allowed for change of iNNI parameters`

ONNS specific validation rule: Setting of some INNI properties only possible, if no reservations wrt. M:N protecting connections existing

It shall not be allowed to change one of the following parameters on a port with portClass=INNI, if reservations wrt. M:N protecting NN connections on that port are existing:

- *link_IncludeID, neighborNodeID, neighborPortID, propagationDelay, srlgList, neighborASTNNodeID, maxNNXCRate, minNNXCRate*

Error Code: `SNVS - Status, Not in Valid State, no XC reservations allowed for change of iNNI parameters`

ONNS specific validation rule: Setting of INNI properties only possible if *portControl* is LOCKOUT

The system shall allow to change the following parameters only under the conditions

- if the port control is LOCKOUT while port class is INNI
- together with the transition of port control from LOCKOUT to NORMAL while port class is INNI or
- together with the transition of port class to INNI

adminCost, *link_IncludeID*, *maxNNXCRate, minNNXCRate, ndetmd, neighborASTNNodeID, neighborNodeID*, *neighborPortID*, *propagationDelay*, *srlgList*.

Error code: `SNVS - Status, Not in Valid State, only allowed for INNI port in lockout state`

ONNS specific validation rule: Some parameters not settable for ports of *portClass*=INNI

The following parameters shall not be changeable for ports with portClass=INNI: *exprstrc*, *rstimca, rstimmon, strcfmt*, *strcout*, *strcwfmt*.

Error code: `SNVS - Status, Not in Valid State, J0 parameters can not be set for INNI ports`

ONNS specific validation rule: Port mode not settable for ports of *portClass* INNI

The system shall not allow to change the parameter *pmode* if *portClass* has been set to INNI prior to this command or if *portClass* is set to INNI with this command. The paramer pmode shall either be omitted or specified with the only allowed value MON.

Error Code: `SNVS - Status, Not in Valid State, port mode change not allowed for INNI ports`

ONNS specific validation rule: Some parameters not settable for ports of *ndetmd* AUTO

The following parameters shall not be changeable for ports with ndetmd AUTO: *neighborNodeID*, *neighborPortID*, *neighborASTNNodeID*.

Error Code: `SNVS - Status, Not in Valid State, ndetmd must not be AUTO`

ONNS specific validation rule: Additional parameters required when setting *ndetmd* to MAN

Values for the following parameters must be given, if *ndetmd* is changed to MAN: *neighborNodeID*, *neighborPortID, neighborASTNNodeID.*

Error Code: `IDNV - Input, Data Not Valid, additional parameters required`

ONNS specific validation rule: No setting of duplicate *neighborASTNNodeID* and *neighborPortID* parameter combination

Setting of the parameters *neighborASTNNodeID* and *neighborPortID* shall only be possible, if the same combination of values does not already exists for a different INNI port in the system.

Error code: `IDNV - Input, Data Not Valid, duplicate neighbor port information`

ONNS specific validation rule: No setting of *neighborASTNNodeID* or *neighborNodeID* to corresponding IDs of local node

It shall not be allowed to configure parameters *neighborASTNNodeID* or *neighborNodeID* to corresponding values of the local node itself, i.e. it shall not be possible to configure a node to be its own ONNS neighbor.

Error code: `IDNV - Input, Data Not Valid, node itself is not a valid neighbor`

ONNS specific validation rule: Setting of neighbor information to UNKNOWN

In order to set neighbor information to UNKNOWN, zero values must be set for all parameters *neighborASTNNodeID*, *neighborNodeID* and *neighborPortID* consistently. It shall not be possible to set zero value for only one or two of them.

Error Code: `IDNV - Input, Data Not Valid, zero values can only be set for all neighbor information consistently`

ONNS specific validation rule: No setting of minNNXCRate to values larger than value of *maxNNXCRate* and vice versa

It shall not be allowed to configure parameters *maxNNXCRate* and *minNNXCRate* in a way, that the value of *minNNXCRate* is larger than the value of *maxNNXCRate*

Error code: `IDNV - Input, Data Not Valid, Min. and max. NN XC rates incompatible`

Related TL1 messages

"RTRV-STM1: Retrieve STM1 port" (p. 4-2074)

References

GR-199-CORE (ED-*rr*)

□

ED-STM1 autonomous notifications

LOS for transmission port STM1 clears

If LOS is cleared and current port mode is AUTO, then *pmode* is updated (new value: MON). This update is reported via ED-STM1 notification with parameter *pmode.*

Change of neighbor node and neighbor port Information

If *ndetmd*=AUTO a change of the attributes *neighborNodeID* or *neighborPortID* is notified by the related ED-STM1 notification.

If ndetmd=AUTO a change of the attribute *neighborASTNNodeID* is notified by the related ED-STM1 notification.

□

ED-STM1 notification

Output format

The ED-STM1 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ED-STM1`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID.
   Range: SPortAID of STM1 port.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
   Parameter name adapted to ONNS specific TL1. *adminCost* is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....65535
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter inputsig showing the Tributary Input Rate Signal List.
   Type: numeric value set.
   Range: NX-NX-NX-... N is the number of Xs. X can be 3 or 4 representing VC3 or VC4.

5. degthr – Signal Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
6. dexcthr – Excessive Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –3; –4; –5.
   Default: –3.
7. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter *portClass* is set to INNI and *ndetmd* is set to AUTO, the parameter *exprstrc* shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
8. femspm – Far-end Multiplex Section Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
9. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU

10. fsflpbkstat – Far Side Facililiy Loopback Status
    This parameter specifies the current far-side facility loopback status of the considered output *aid.*
    A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
    Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
11. inputsig – Tributary Input Signal Rate List
    This parameter is a list of VCn rates across the port's bandwidth.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3 or 4 representing VC3 or VC4.
    Default: 14.
12. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET.
    Type: alphanumeric value set.
    Range:
    - SONET
    - SDH.

    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
13. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).

14. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC4 (default), VC3.
15. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC3 (default), VC4.
16. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. *ndetmd* is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
17. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection. *neighborASTNNodeID* is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If: portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
18. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic

neighbor detection. *neighborNodeID* is introduced specifically for use by ONNS application.
Type: Four dot separated numeric string.
Range: Each numeric string: 0...255.
Default: 0.0.0.0
If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″

19. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection. *neighborPortID* is introduced specifically for use by ONNS application.
    Type: Four dash separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0-0-0-0.
    Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.
20. nemspm – MS Near-End PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
21. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-1/OC-3: 1 – 192000.

    Default: The default values differ for SDH and SONET:
    - STM1: 28800
    - OC3: 154.

22. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-1/OC-3: 1 – 192000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM1: 28800
    - OC3: 154.

23. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.

24. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000.
    Default: The default values differ for SDH and SONET and the different rates:
    - STM1: 2400
    - OC3: 155.

25. portClass – Port Class
    This identifies the port class of the AID.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.

26. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd*. *portControl* is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.
27. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    Type: Numeric string
    Range: 0(default) ...255. The unit of this value is ″milliseconds″.
28. rsmstca – RS/MS TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
29. rspm – RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
30. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0). This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter *portClass* is set to INNI and *ndetmd* is set to AUTO, the parameter *rstimca* shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE (default): enable consequent action for TIM
    - DISABLE: disable consequent action for TIM.

31. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter *portClass* is set to INNI and *ndetmd* is set to AUTO, the parameter *rstimmon* shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
32. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET ASAP for the SONET ports of corresponding line rate (see definition of output parameter SONET in RTRV-OC12) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
33. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON.
34. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
35. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    srlgList is introduced specifically for use by ONNS application. The max. number of identities that can be provisioned per port may be release dependent. The order of the identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only less than the max. number of identities are provisioned, the remaining ones

shall be set to the default value 0, e.g. 3-2-1 given yields 3-2-1-0-0-0-0-0-0-0, if the max number that can be given is 10.
Type: Ten numeric strings separated by dashes.
Range: Each numeric string: 0...65535.
Default: 0-0-0-0-0-0-0-0-0-0.

36. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter *portClass* is set to INNI and *ndetmd* is set to AUTO, the parameter *strcfmt* shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1 for specific repeating byte (SONET)
    - 2 (default)for non-specific repeating byte (ITU/ETSI mode 2)
    - 16 for 16 byte specific string (ITU/ETSI mode 1). 64 for 64 byte string (SONET)
    - 16 for 16 byte specific string (ITU/ETSI mode 1). 64 for 64 byte string (SONET)
37. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter. If ITU/ETSI mode 2 is selected (*strcwfmt* = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter *portClass* is set to INNI, the system shall autonomously set the parameter *strcout* according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string dependent on the strcwfmt parameter.

    Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
38. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1 for specific repeating byte (SONET)
    - 2 (default)for non-specific repeating byte (ITU/ETSI mode 2)

- 16 for 16 byte specific string (ITU/ETSI mode 1). 64 for 64 byte string (SONET)
- 16 for 16 byte specific string (ITU/ETSI mode 1). 64 for 64 byte string (SONET)

39. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable:
    - TR-only (lso known as the implicit reset method)
    - TR-RTR (lso known as the explicit reset method).

    Type: alphanumeric value set.
    Range: TR or TRRTR (default).
40. unequiposig – Unequipped Output Signal List
    This parameter is a list of VCn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need the identical setting. Mixed rates for tx and rx side of the port are allowed.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3 or 4 representing VC3 or VC4.
    Default: 14.

Example output

```
ED-STM1:UNITE-NE:1-1-#-#-1-1:123456:::INPUTSIG=14,
UNEQUIPOSIG=14;
   UNITE-NE 00-11-28 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-STM1:1-1-#-#-1-1::
   inputsig=14,unequiposig=14:"
;
```

□

ED-STM4: Edit STM4 port

The ED-STM4 command is used to provision all parameters related to optical STM4 port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: no

Input format

Command Syntax: `ED-STM4`:*tid:aid:ctag:::spec_block*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   Type: AID.
   Range: SPortAID of STM4 port.
   For changing the portControl parameter the ALL qualifier for the port aid shall be allowed.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....65535
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
   The setting of this parameter is allowed when the related STM4 port is created, it is used when *sdfsmode*=BURST.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
   The setting of this parameter is allowed when the related STM4 port is created, it is used when *sdfsmode*=BURST.
4. degthr – Signal Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
   The setting of this parameter is allowed when the related STM4 port is created, it is used when *sdfsmode*=POISSON.
5. dexcthr – Excessive Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –3; –4; –5.
   Default: –3.
   The setting of this parameter is allowed when the related STM4 port is created, it is used when *sdfsmode*=POISSON.

6. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
7. femspm – Far-end Multiplex Section Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
8. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU
9. inputsig – Tributary Input Signal Rate List
   This parameter is a list of VCn rates across the port's bandwidth.
   Type: numeric value set.
   Range: NX-NX-NX-...
   N is the number of Xs. X can be 3, 4 or 4C representing VC3, VC4 or VC4-4C.
   Default: 44.
10. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET.
    Type: alphanumeric value set.
    Range:
    - SONET
    - SDH.

    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).

11. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC44C (default), VC4, VC3.
12. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC3 (default), VC4, VC44C.
13. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
14. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
15. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN. If ndetmd=MAN, this parameter shall indicate the value set by the operator. If

ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
neighborNodeID is introduced specifically for use by ONNS application.
Type: Four dot separated numeric string.
Range: Each numeric string: 0...255.
Default: 0.0.0.0
If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″

16. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborPortID is introduced specifically for use by NN application.
    Type: Four dash separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0-0-0-0.
    Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.
17. nemspm – MS Near-End PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
18. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-4/OC-12: 1 – 768000.

    Default: The default values differ for SDH and SONET:
    - STM4: 115200
    - OC12: 615.

19. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-4/OC-12: 1 – 768000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM4: 115200
    - OC3: 615.

20. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.

21. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000.
    Default: The default values differ for SDH and SONET and the different rates:
    - STM4: 2400
    - OC12: 616.

22. portClass – Port Class
    This identifies the port class of the AID.
    portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.

23. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
    portControl is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.
24. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(default) ...255.
25. rsmstca – RS/MS TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
26. rspm – RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
27. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimca shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE (default): enable consequent action for TIM
    - DISABLE: disable consequent action for TIM.

28. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
29. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET ASAP for the SONET ports of corresponding line rate (see definition of output parameter SONET in RTRV-OC12) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
30. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON.
31. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
32. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    srlgList is introduced specifically for use by ONNS application. The max. number of identities that can be provisioned per port may be release dependent. The order of the identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only less than the max. number of identities are provisioned, the remaining ones

shall be set to the default value 0, e.g. 3-2-1 given yields 3-2-1-0-0-0-0-0-0-0, if the max number that can be given is 10.
Type: Ten numeric strings separated by dashes.
Range: Each numeric string: 0...65535.
Default: 0-0-0-0-0-0-0-0-0-0.

33. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
34. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string dependent on the strcwfmt parameter.

    Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
35. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)

- 16: for 16 byte specific string (ITU/ETSI mode 1).
- 64: for 64 byte string (SONET).

36. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable:
    - TR-only (lso known as the implicit reset method)
    - TR-RTR (lso known as the explicit reset method).

    Type: alphanumeric value set.
    Range: TR or TRRTR (default).
37. unequiposig – Unequipped Output Signal List
    This parameter is a list of VCn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need the identical setting. Mixed rates for tx and rx side of the port are allowed.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3, 4 or 4c representing VC3, VC4 or VC4-4C.
    Default: 44.

Output format

If the ED-STM4 command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

Behavior

The command modifies the attributes (listed in the *spec_block* parameters part of this command) of the addressed port entity according to the parameters given with this command.

The modification is reported by means of an ED-STM16 notification for port (except for parameter *istd;* see below).

Switching of interface standard – Ignore other parameters

If additional parameters beside *istd* are specified with the *ED-rr* command they will be ignored by the NE.

This simple approach has the advantage that all ambiguous situations are avoided and it is not necessary to implement an order or follow a certain sequence when evaluating the parameters.

Switching of interface standard – FM impact

The change of the interface standard of a port from SDH to SONET has the following impact related to fault management:

- all SDH alarms related to that port are cleared
- the corresponding SONET alarms are raised.

Supply outgoing J0 trace value and format together

When changing the format of the outgoing J0 trace *strcwfmt*, the parameter *strcout* specifying the outgoing J0 trace is always supplied within the same TL1-command to always have a consistent set of trace format and value.

When the format of the outgoing J0 trace *strcwfmt* is set to 2 (non-specific repeating byte) then the outgoing J0 trace (mandatory parameter strcout) specified in the command shall be ignored.

Supply outgoing J0 trace value according to format of outgoing J0

When changing the outgoing J0 trace value, the format must be according to the format parameter *strcwfmt* for the outgoing J0 trace.

Change of J0 expected format - FM impact

When the expected J0 format (strcfmt) is changed to 16 (16 byte specific string) while the TI Mismatch detection is enabled, then the TI Mismatch alarm shall be updated according to the provisioned ecpected J0 (expstrc) and the currently received J0 (strc).

When the expected J0 format is changed away from 16, while the TI Mismatch alarm is active, then the TI Mismatch alarm shall be cleared.

Switching of interface standard – Impact on port parameters

Switching of interface standard.

The switching of istd should not result in an deletion and recreation of the port. NE internally there are no differences between SDH and SONET.

Switching of interface standard I:

In detail the following attributes are influenced by switching of the *istd* from SDH to SONET (see also the related RTRV-OC*n* command for SONET parameter description):

- *brstintvl* is set to the default value
- *brstthr* is set to the default value
- *crstat* may change according to its semantics (see description of *crstat*)
- *femspm* is mapped to *felpm* (no changes)
- *inputsig* is set to the default value

- *istd* is set to SONET
- *nemspm* is mapped to *nelpm* (no changes)
- *rspm* is mapped to *spm* (no changes)
- *rstimca* is set to the default value for a SONET port
- *rstimmon* is set to the default value for a SONET port
- *sdhpn* is mapped to SONET (no changes)
- *sdsfmode* is set to the default value for a SONET port
- *sdthr* is set to the default value for a SONET port
- *sfthr* is set to the default value for a SONET port
- *trbmd* is set to the default value for a SONET port
- *unequiposig* is set to its default value
- *z0outmode* is set to its default value for a SONET port.

All other port parameters remain unchanged.

Switching of interface standard II:

In addition to the list of attributes above the following attributes are influenced by switching of the *istd* from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *sltca* is set to the default value for a SONET port
- *tcamd* is set to the default value for a SONET port.

Switching of interface standard III:

In addition to the list of attributes above the following attributes are influenced by switching of the *istd* from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *pmmsfeses* is set to the default value for a SONET port
- *pmmsneses* is set to the default value for a SONET port
- *pmrsneses* is set to the default value for a SONET port.

Switching of interface standard IV:

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *minNNXCrate* is set to the default value for a SONET tributary
- *maxNNXCrate* is set to the default value for a SONET tributary

Switching of interface standard – Side effects on tributaries

The switching of *istd* should not result in an deletion and recreation of the tributaries of a port. NE internally there are no differences between SDH and SONET.

In detail the following side-effects apply to the related tributary attributes when switching the *istd* from SDH to SONET (see also the related RTRV-OC*n* command for SONET parameter description):

- *brstintvl* is set to the default value for a SONET tributary
- *brstthr* is set to the default value for a SONET tributary
- *pse* (PDI-P parameter) is set to the default value for a SONET tributary
- *sdsfmode* is set to the default value for a SONET tributary.

Switching of interface standard – Side effects on tributaries II

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *degthr* is set to the default value for an SONET tributary
- *dexcthr* is set to the default value for an SONET tributary
- *ptca* shall be set to the default value for a SONET tributary
- *tcamd* is set to the default value for a SONET tributary.

Switching of interface standard – Side effects on tributaries III

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *pmhpneses* is set to the default value for an SONET tributary
- *pmhpfeses* is set to the default value for an SONET tributary.

Switching of interface standard – notification behavior for port attributes

When changing the interface standard *istd* using the ED-STMn command all resulting parameter changes are reported by ED-OCn notifications of the related port rate. This is valid for the parameter istd itself as well as for all other parameters which might change as a consequence of changing the interface standard.

Switching of interface standard – notification behavior for tributary attributes

When changing the interface standard *istd* using the ED-STMn command all resulting tributary parameter changes are reported by ED-STS1 notifications.

Switching of interface standard - notification behavior for active TCA events

If the changing of the interface standard *istd* to SONET includes an change of *tcamd* from TR-RTR to TR-only (SONET default value), then all active TCA events of the related entities must be cleared.

Switching of interface standard – PM impact

The change of interface standard has the following impacts w.r.t. existing PM registers:

1. all current bins related to the port will be reset
2. all history bins related to the port remain unchanged
3. all current bins related to tributaries being a member of the port will be reset
4. all history bins related to tributaries being a member of the port remain unchanged.

Retrieving the bins after switching the interface standard may result in a strange reporting behavior:

- When switching the interface standard to SONET the periods before the switch contain SDH-related parameters and values even though the port is addressed as a SONET port.
- When switching the interface standard to SDH the periods before the switch contain SONET-related parameters and values even though the port is addressed as a SDH port.

Disabling of PM monitor

The disabling of a PM monitor shall have the following impacts w.r.t. existing PM registers:

1. stop PM counting
2. all current bins related to the PM monitor shall be deleted
3. all history bins related to the PM monitor shall be deleted

The term PM monitor has the same semantics as the term PM package as used in SRD_PerformanceMonitoring. The number of PM monitors is determined by means of the number of *pm enable attributes*.

PM monitors can be disabled explicitly by means of the *pm enable* attribute or are implicitly disabled as part of a port/tributary deletion.

Additional to the above listed impacts (ID 52924) the disabling of a PM monitor shall have the following impacts: the system has to clear all active TCA events of the deleted PM monitor if TCA mode TR-RTR was selected.

Changing TCA mode from TR-RTR to TR-only

The change of tcamd from TR-RTR (also known as the explicit reset method) to TR-only (also known as the implicit reset method) has the impact, that all active TCA events of the related entity must be cleared.

ONNS specific behaviour - Impact on *portControl* when changing *portClass*

When portClass is changed to TRADITIONAL, *portControl* shall be set to NORMAL, if not set differently within the same command.

Such a change shall be reported by an ED-STM4 notification for the parameter *portControl*.

ONNS specific behaviour - Impact on tributary mode setting when *portClass* is set to INNI

When *portClass* is set to INNI for a port, the parameter trbmd shall be set to *adaptive*. This shall be reported by an ED-STM4 notification for the parameter *trbmd*.

ONNS specific behaviour - Impact on tributary mode setting when *portClass* is set to EDGE

When *portClass* is set to EDGE for a port, the parameter *trbmd* shall be set to FIXED. This shall be reported by an ED-STM4 notification for the parameter *trbmd*.

ONNS specific behaviour - Impact on *loca*, *locz* when setting *portClass* from EDGE to TRADITIONAL when port is involved in a 2F or 4F BLSR/MSSPRING protection group

For all tributaries of that port the *loca*, *locz* parameters shall be reset to their default values (empty string). This is reported by an ED-STS1 (istd=SONET for the port) or ED-VC3 (istd=SDH for the port) notification using a range over the port.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI and *ndetmd* is set to AUTO

When *portClass* is set to INNI and *ndetmd* is set to AUTO for a port, the parameter *pmode* shall be set to MONITORING. This is reported by an ED-STM4 notification for the parameter *pmode*.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI and *ndetmd* is set to MAN

When *portClass* is set to INNI and *ndetmd* is set to MAN for a port, the parameters rstimca and rstimmon shall be set to DISABLE. This is reported by an ED-STM4 notification for the parameters *rstimca* and rstimmon.

ONNS specific behaviour - Impact on tributary parameter settings when *portClass* is set to INNI

When *portClass* is set to INNI, the parameter *hptimmon* shall be set to DISABLE for all tributaries located on this port.. This shall be reported by ED-VC3 notifications for the parameter *hptimmon*.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI

When *portClass* is set to INNI, each of the following parameters shall take its default value, unless a value is specified together with the transition of *portClass* to INNI:

ndetmd, *neighborASTNNodeID*, *neighborNodeID*, *neighborPortID*

ONNS specific behaviour - Impact on neighbour related parameters if *portClass* is changed away from INNI

When *portClass* is changed away from INNI, the following parameters shall be set to their default values:

- *neighborASTNNodeID*
- *neighborNodeID*
- *neighborPortID*.

ONNS specific behaviour - Impact on port parameter settings when *ndetmd* is set to AUTO

When *ndetmd* is set to AUTO for a port, the parameters *neighborNodeID*, *neighborPortID* and *neighborASTNNodeID* shall keep their current values until automatic neighbor detection delivers new valid values.

ONNS specific behaviour - Impact on port parameter settings while *portClass* is INNI

When *portClass* has the value INNI for a port, setting of the following parameters will be accepted:

- *exprstrc*
- *rstimca*
- *rstimmon*
- *strcfmt*
- *strcout*
- *strcwfmt.*

At the moment *portClass* is changed away from INNI the parameters are set back to their default values. This shall be reported by means of an ED-STM4 notification.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is different from INNI

When *portClass* has a value being different from INNI for a port, setting of the following parameters shall be accepted, but shall have no impact until *portClass* is changed to INNI:

- *propagationDelay*, *adminCost*, *srlgList*, *link_includeID,maxNNXCRate,minNNXCRate*.

At the moment the *portClass* is changed to INNI the current values of these parameters shall be considered as valid.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is different from INNI

When *portClass* has a value being different from INNI for a port, setting of the following parameters shall be accepted:

- *ndetmd*, *neighborASTNNodeID*, *neighborNodeID*, *neighborPortID*.

At the moment the *portClass* is changed to INNI the current values of these parameters shall be considered as valid.

ONNS specific behaviour - Impact on port parameter settings while *portClass* is TRADITIONAL

When *portClass* has the value TRADITIONAL for a port, setting of the following parameters shall be accepted, but shall have no impact until *portClass* is changed away from TRADITIONAL: *portControl.*

At the moment the *portClass* is changed away from TRADITIONAL the current values of these parameters shall be considered as valid.

Example input/output

```
ED-STM4:UNITE-NE:1-1-#-#-1-1:123456:::INPUTSIG=14-33-24,UNEQUIPOSIG=14-
     33-24;
   UNITE-NE 00-11-28 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-STM4:1-1-#-#-1-1::inputsig=14-33-
     24,unequiposig=14-33-24:"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the ED-STM4 command.

Validation rule: ASAP profile exists

Check of the existence of the ASAP profile.

Error code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: TCA profile exists

Check of the existance of the TCA profile.

Error Code: `IDNV - Input, Data Not Valid, TCA profile does not exist`

Validation rule: *inputsig* consistent with existing cross-connections

Check of the consistency of the structure of the input signal (*inputsig*) with existing cross-connections.

Error code: `SNVS - Status, Not in Valid State, signal structure cannot be changed for connected parts of a fixed port`

Validation rule: *unequiposig* consistent with existing cross-connections

Check of the consistency of the structure of the output signal (*unequiposig*) with existing cross-connections.

Error code: `SNVS - Status, Not in Valid State, signal structure cannot be changed for connected parts of a fixed port`

Validation rule: No lower order cross-connections for *istd* change

Check that the interface standard parameter (istd) is not changed when lower order cross-connections are still on this port. If lower order cross connections exist the following error message shall be returned:

Error code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

Validation rule: no cross-connections for *istd* change

Check that the interface standard parameter (*istd*) is not changed when cross-connections are still on this port.

Error code: `SNVS - Status, Not in Valid State, cross-connections are still existing`

Validation rule: no loopbacks for *istd* change

Check that the interface standard parameter (*istd*) is not changed when cross-connection loopback is still on this port.

Error code: `SNVS - Status, Not in Valid State, a loopback is existing`

Validation rule: no protection for *istd* change

Check that the interface standard parameter (*istd*) is not changed when this port is in an protection group.

Error code: `SNVS - Status, Not in Valid State, a protection group is existing`

Validation rule: No ONNS for interface standard change

Check that the interface standard parameter (istd) is not changed if ONNS functionality is available.

This means:

- *portClass* must be TRADITIONAL or
- *portControl* must be LOCKOUT.

Error code: `SNVS - Status, Not in Valid State, SwiSS access possible`

Validation rule: *servcond* must be enabled when timing source

Check that the *servcond* is not disabled when the port is used as a timing source.

Error code: `SNVS - Status, Not in Valid State, Timing reference is assigned to this port`

Validation rule: *servcond* must be enabled when DCC enabled

Check that the *servcond* is not disabled when DCC channels are still existing for this port.

Error code: `SNVS - Status, Not in Valid State, DCC channels are active for this port`

Validation rule: *servcond* must be enabled when portClass=INNI

Check that the servcond is not OUTOFSERVICE when portClass=INNI.

Error code: `SNVS - Status, Not in Valid State, can not disable servcond for INNI ports`

Validation rule: *servcond* must be enabled for protection ports

Check that the servcond is not OUTOFSERVICE if the port is used as protection port.

Error code: `SNVS - Status, Not in Valid State, can not disable servcond for protection ports.`

Validation rule: *servcond* must be disabled for facility loopback

Check that the *servcond* is not enabled when a facility loopback is existing for this port.

Error code: `SNVS - Status, Not in Valid State, Facility Loopback is active for this port`

Validation rule: Supply of outgoing J0 trace

Check that an outgoing J0 trace value (*strcout*) is supplied, too, if the format of the outgoing J0 trace (*strcwfmt*) is changed.

Error code: `IDNC - Input, Data Not Consistent, a new trace value must also be supplied for a trace format change.`

Validation rule: transmitted path trace length

Check that the length of the outgoing J0 trace value (*strcout*) fits to the length given by outgoing J0 trace mode, i.e. write format (*strcwfmt*).

Error code: `IDNC - Input, Data Not Consistent, strcout length must match the given outgoing J0 trace mode.`

Validation rule: 'ALL' qualifier used for wrong parameters

The ALL qualifier for the port aid is only allowed for changing the *portControl* parameter.

Error Code: `IDNC - Input, Data Not Consistent, 'ALL' qualifier for port aid not allowed`

Check CCB against ptype and istd

Check wether the CCB fits to ptype and istd.

Error Code: `ICNV - Input, Command Not Valid, Interface Standard does not match`

ONNS specific validation rule: *portClass* only settable when *xcsetup*=SWISS

Modification of the *portClass* parameter shall only be allowed when *xcsetup*=SWISS.

Error code: `SNVS - Status, Not in Valid State, SwiSS not enabled`

ONNS specific validation rule: Not allowed to change the *portClass* directly from INNI to EDGE or EDGE to INNI

It shall not be allowed to change the portClass of a port directly from INNI to EDGE or from EDGE to INNI.

Error code: `SNVS - Status, Not in Valid State, Port Class must not be EDGE or INNI`

ONNS specific validation rule: Setting of *portClass* to INNI not possible for ports in protection groups

It shall not be allowed to change *portClass* of a port to INNI, if this port is member of a Line/MS protection scheme.

Error Code: `SNVS - Status, Not in Valid State, Port must not be member of a protection group`

ONNS specific validation rule: Setting of *portClass* to INNI only possible, if no cross-connection existing

It shall not be allowed to change *portClass* to INNI, if cross-connections on that port are still existing.

Error Code: `SNVS - Status, Not in Valid State, Cross-connections still existing`

ONNS specific validation rule: Setting of *portClass* to INNI only possible, if no lower order cross-connections exist

Check if lower order cross-connections exist which involve the port to be changed. If lower order cross connections exist the following error message shall be returned:

Error Code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

ONNS specific validation rule: Setting of *portClass* to INNI only possible, if service condition not OUTOFSERVICE

It shall not be allowed to change *portClass* to INNI, if servcond=OUTOFSERVICE.

Error code: `SNVS - Status, Not in Valid State, port in out of service state`

ONNS specific validation rule: Setting of *portClass* to INNI or EDGE only possible, if no test access session active

It shall not be allowed to change *portClass* of a port to INNI or EDGE when a tributary related to this port is used in a test access session either as tributary under test or as test access tributary.

Error code: `SNVS - Status, Not in Valid State, a test access session exists`

ONNS specific validation rule: Setting of *portClass* away from INNI only possible, if the port is not in use

For setting *portClass* from INNI to TRADITIONAL or EDGE the following must be fulfilled:

- No cross-connection may exist on any tributary of the port
- *portControl* must be LOCKOUT.

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

ONNS specific validation rule: Setting of *portClass* away from INNI only possible, if the port is not in se by M:N reservation

For setting *portClass* from INNI to TRADITIONAL or EDGE the following must be fulfilled:

- No reservation related to a protecting NN connection within an M:N protected connection group may exist on any tributary of the port

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

ONNS specific validation rule: Changing of *portClass* from INNI to EDGE or TRADITIONAL only possible, if no DCC for SCN is enabled on the port

For changing the value of the parameter *portClass* no DCC of the port must be enabled for the SCN.

Error Code: `SNVS - Status, DCC on SCN may not be enabled`

ONNS specific validation rule: Setting of *portClass* from EDGE to TRADITIONAL only possible, if the tributaries on the port are not in use by ONNS:

For setting *portClass* from EDGE to TRADITIONAL the following must be fulfilled:

- No cross-connections of xconcls=NN may exist on any tributary of the port
- *portControl* must be LOCKOUT.

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

ONNS specific validation rule: Setting of *portClass* from TRADITIONAL to EDGE

For setting *portClass* from TRADITIONAL to EDGE the port must not be the protection port of a 1+1 MSP group.

Error code: `SNVS - Status, Not in Valid State, Port must not be a 1+1 protection port`

ONNS specific validation rule: Setting of *portClass* from TRADITIONAL to EDGE

For setting *portClass* from TRADITIONAL to EDGE the port must not be the protection port of a 1:1 MSP group.

Error code: `SNVS - Status, Not in Valid State, Port must not be a 1:1 protection port`

ONNS specific validation rule: Setting of some INNI properties only possible, if no cross-connection existing

It is not allowed to change one of the following parameters (provided this parameter is supported in a particular release at all) on a port with *portClass*=INNI, if cross-connections on that port are existing:

- *link_IncludeID*, *neighborNodeID*, *neighborPortID*, *propagationDelay*, *srlgList, neighborASTNNodeID,maxNNXCRate,minNNXCRate*

Error code: `SNVS - Status, Not in Valid State, no XCs allowed for change of iNNI parameters`

ONNS specific validation rule: Setting of some INNI properties only possible, if no reservations wrt. M:N protecting connections existing

It shall not be allowed to change one of the following parameters on a port with portClass=INNI, if reservations wrt. M:N protecting NN connections on that port are existing:

- *link_IncludeID, neighborNodeID, neighborPortID, propagationDelay, srlgList, neighborASTNNodeID, maxNNXCRate, minNNXCRate*

Error Code: `SNVS - Status, Not in Valid State, no XC reservations allowed for change of iNNI parameters`

ONNS specific validation rule: Setting of INNI properties only possible if port control is LOCKOUT

The system shall allow to change the following parameters only under the conditions

- if the port control is LOCKOUT while port class is INNI
- together with the transition of port control from LOCKOUT to NORMAL while port class isINNI or
- together with the transition of port class to INNI.

adminCost, *link_IncludeID*, *maxNNXCRate, minNNXCRate, ndetmd, neighborASTNNodeID, neighborNodeID*, *neighborPortID*, *propagationDelay*, *srlgList.*

Error code: `SNVS - Status, Not in Valid State, only allowed for INNI port in lockout state`

ONNS specific validation rule: Some Parameters not settable for ports of *portClass*=INNI

The following parameters shall not be changeable for ports with *portClass*=INNI: *exprstrc*, *rstimca, rstimmon, strcfmt*, *strcout*, *strcwfmt.*

Error code: `SNVS - Status, Not in Valid State, J0 parameters can not be set for INNI ports`

ONNS specific validation rule: Port mode not settable for ports of *portClass* INNI

The system shall not allow to change the parameter pmode if portClass has been set to INNI prior to this command or if portClass is set to INNI with this command. The paramer pmode shall either be omitted or specified with the only allowed value MON.

Error Code: `SNVS - Status, Not in Valid State, port mode change not allowed for INNI ports`

ONNS specific validation rule: Some parameters not settable for ports of *ndetmd* AUTO

The following parameters shall not be changeable for ports with ndetmd AUTO: *neighborNodeID*, *neighborPortID, neighborASTNNodeID.*

Error Code: `SNVS - Status, Not in Valid State, ndetmd must not be AUTO`

ONNS specific validation rule: Additional parameters required when setting *ndetmd* to MAN

Values for the following parameters must be given, if *ndetmd* is changed to MAN: *neighborNodeID*, *neighborPortID, neighborASTNNodeID*

Error Code: `IDNV - Input, Data Not Va.lid, additional parameters required`

ONNS specific validation rule: No setting of duplicate *neighborASTNNodeID* and *neighborPortID* parameter combination

Setting of the parameters *neighborASTNNodeID* and *neighborPortID* shall only be possible, if the same combination of values does not already exists for a different INNI port in the system.

Error code: `IDNV - Input, Data Not Valid, duplicate neighbor port information`

ONNS specific validation rule: No setting of *neighborASTNNodeID* or *neighborNodeID* to corresponding IDs of local node

It shall not be allowed to configure parameters *neighborASTNNodeID* or *neighborNodeID* to corresponding values of the local node itself, i.e. it shall not be possible to configure a node to be its own ONNS neighbor.

Error code: `IDNV - Input, Data Not Valid, node itself is not a valid neighbor`

ONNS specific validation rule: Setting of neighbor information to UNKNOWN

In order to set neighbor information to UNKNOWN, zero values must be set for all parameters *neighborASTNNodeID*, *neighborNodeID* and *neighborPortID* consistently. It shall not be possible to set zero value for only one or two of them.

Error Code: `IDNV - Input, Data Not Valid, zero values can only be set for all neighbor information consistently`

ONNS specific validation rule: No setting of *minNNXCRate* to values larger than value of *maxNNXCRate* and vice versa

It shall not be allowed to configure parameters *maxNNXCRate* and *minNNXCRate* in a way, that the value of *minNNXCRate* is larger than the value of *maxNNXCRate*

Error code: `IDNV - Input, Data Not Valid, Min. and max. NN XC rates incompatible`

Related TL1 messages

"RTRV-STM4: Retrieve STM4 port" (p. 4-2086)

References

GR-199-CORE (ED-*rr*)

□

ED-STM4 autonomous notifications

LOS for transmission port STM4 clears

If LOS is cleared and current port mode is AUTO, then *pmode* is updated (new value: MON). This update is reported via ED-STM4 notification with parameter *pmode*.

Change of neighbor node and neighbor port Information

If *ndetmd*=AUTO a change of the attributes *neighborNodeID, neighborPortID* or *neighborASTNNodeID* is notified by the related ED-STM4 notification.

□

ED-STM4 notification

Output format

The ED-STM4 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ED-STM4`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID.
   Range: SPortAID of STM4 port.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
   Type: Numeric string.
   Range: 1(default).....65535
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the Tributary Input Rate Signal List.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 3, or 4 representing VC3 or VC4.

5. degthr – Signal Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
6. dexcthr – Excessive Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –3; –4; –5.
   Default: –3.
7. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
8. femspm – Far-end Multiplex Section Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
9. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU

10. fsflpbkstat – Far Side Facililiy Loopback Status
    This parameter specifies the current far-side facility loopback status of the considered output *aid.*
    A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
    Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
11. inputsig – Tributary Input Signal Rate List
    This parameter is a list of VCn rates across the port's bandwidth.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3, 4 or 4C representing VC3, VC4 or VC4-4C.
    Default: 44.
12. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET.
    Type: alphanumeric value set.
    Range:
    - SONET
    - SDH.

    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
13. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).

14. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. *maxNNXCRate* is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC44C (default), VC4, VC3.
15. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. *minNNXCRate* is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC3 (default), VC4, VC44C.
16. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
17. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of *portClass*=INNI to be used for ONNS application. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if *ndetmd*=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection. *neighborASTNNodeID* is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0. If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
18. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if *ndetmd*=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic

neighbor detection. *neighborNodeID* is introduced specifically for use by ONNS application.
Type: Four dot separated numeric string.
Range: Each numeric string: 0...255.
Default: 0.0.0.0
If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″

19. neighborPortID – Neighbor Port Id
This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if *ndetmd*=MAN.
If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection. *neighborPortID* is introduced specifically for use by ONNS application.
Type: Four dash separated numeric string.
Range: Each numeric string: 0...255.
Default: 0-0-0-0.
Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.

20. nemspm – MS Near-End PM Enable
Enable or disable near-end multiplex section (near-end line) performance monitoring.
Type: alphanumeric value set.
Range:
    - ENABLE
    - DISABLE (default).

21. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
Type: numeric value set.
Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-4/OC-12: 1 – 768000.

Default: The default values differ for SDH and SONET:
    - STM4: 115200
    - OC12: 615.

22. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-4/OC-12: 1 – 768000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM4: 115200
    - OC3: 615.

23. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.

24. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000.
    Default: The default values differ for SDH and SONET and the different rates:
    - STM4: 2400
    - OC12: 616.

25. portClass – Port Class
    This identifies the port class of the AID.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.

26. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd*. *portControl* is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.
27. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(default) ...255. The unit of this value is ″milliseconds″.
28. rsmstca – RS/MS TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
29. rspm – RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
30. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0). This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE (default): enable consequent action for TIM
    - DISABLE: disable consequent action for TIM.

31. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter *portClass* is set to INNI and *ndetmd* is set to AUTO, the parameter *rstimmon* shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
32. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET ASAP for the SONET ports of corresponding line rate (see definition of output parameter SONET in RTRV-OC12) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
33. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON.
34. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
35. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    srlgList is introduced specifically for use by ONNS application. The max. number of identities that can be provisioned per port may be release dependent. The order of the identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only less than the max. number of identities are provisioned, the remaing ones shall

be set to the default value 0, e.g. 3-2-1 given yields 3-2-1-0-0-0-0-0-0-0, if the max number that can be given is 10.
Type: Ten numeric strings separated by dashes.
Range: Each numeric string: 0...65535.
Default: 0-0-0-0-0-0-0-0-0-0.

36. strcfmt – Format of incoming J0
The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter *portClass* is set to INNI and *ndetmd* is set to AUTO, the parameter *strcfmt* shall be autonomously set by the neighbour detection mechanism.
Type: numeric string
Range:
    - 1 for specific repeating byte (SONET)
    - 2 (default) for non-specific repeating byte (ITU/ETSI mode 2)
    - 16 for 16 byte specific string (ITU/ETSI mode 1)
    - 64 for 64 byte string (SONET).
37. strcout – Value of outgoing J0
This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter. f ITU/ETSI mode 2 is selected (*strcwfmt* = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter *portClass* is set to INNI, the system shall autonomously set the parameter *strcout* according to the actually outgoing J0.
Type: Hexadecimal digits.
Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string dependent on the strcwfmt parameter.

    Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
38. strcwfmt – Format of outgoing J0
The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
Type: numeric string
Range:
    - 1 for specific repeating byte (SONET)
    - 2 (default) for non-specific repeating byte (ITU/ETSI mode 2)
    - 16 for 16 byte specific string (ITU/ETSI mode 1)
    - 64 for 64 byte string (SONET).

39. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable:
    - TR-only (lso known as the implicit reset method)
    - TR-RTR (lso known as the explicit reset method).

    Type: alphanumeric value set.
    Range: TR or TRRTR (default).
40. unequiposig – Unequipped Output Signal List
    This parameter is a list of VCn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need the identical setting. Mixed rates for tx and rx side of the port are allowed.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3, 4 or 4c representing VC3, VC4 or VC4-4C.
    Default: 44.

Example output

```
ED-STM4:UNITE-NE:1-1-#-#-1-1:123456:::INPUTSIG=14-33-24,UNEQUIPOSIG=14-
    33-24;
   UNITE-NE 00-11-28 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-STM4:1-1-#-#-1-1::inputsig=14-33-
    24,unequiposig=14-33-24:"
;
```

□

ED-STM16: Edit STM16 port

The ED-STM16 command is used to provision all parameters related to optical STM16 port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: no

Input format

Command Syntax: `ED-STM16`:*tid:aid:ctag:::spec_block*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   Description: Access Identifier of an STM16 port.
   Type: AID.
   Range: SPortAID of STM16 port.
   The keyword `all` is allowed up to shelf level.
   For changing the *portControl* parameter the ALL qualifier for the port aid shall be allowed.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....65535
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
   The setting of this parameter is allowed when the related STM16 port is created, it is used when *sdfsmode*=BURST.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
   The setting of this parameter is allowed when the related STM16 port is created, it is used when *sdfsmode*=BURST.
4. degthr – Signal Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
   The setting of this parameter is allowed when the related STM16 port is created, it is used when *sdfsmode*=POISSON.
5. dexcthr – Excessive Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –3; –4; –5.
   Default: –3.
   The setting of this parameter is allowed when the related STM16 port is created, it is used when *sdfsmode*=POISSON.

6. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
7. femspm – Far-end Multiplex Section Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
8. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU
9. inputsig – Tributary Input Signal Rate List
   This parameter is a list of VCn rates across the port's bandwidth.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 3, 4, 4C or 16C representing VC3, VC4, VC4-4C or VC4-16C.
   Default: The initial value of X is 4.
   Example:
   An STM-16 signal might be represented by 93-14-14C-243 which implies 9 VC3s, 1 VC4, 1 VC4-4C, 24 VC3s. The representation is not unique, for example it could also be 33-63-14-14C-243. Worst case of string length for STM16: 47 characters.
10. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET.
    Type: alphanumeric value set.

Range:

- SONET
- SDH.

Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).

11. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC416C (default), VC44C, VC4, VC3.
12. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC3 (default), VC4, VC44C, VC416C.
13. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
14. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.

15. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN. If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″
16. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborPortID is introduced specifically for use by NN application.
    Type: Four dash separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0-0-0-0.
    Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.
17. nemspm – MS Near-End PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
18. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.

Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

- STM-16/OC-48: 1 – 3072000
- STM-64/OC-192: 1 – 12288000
- STM-256/OC-768: 1 – 49152000.

Default: The default values differ for SDH and SONET and the different rates:

- STM16: 460800
- STM64: 1843200
- STM256: 7372800
- SONET OC48: 2459
- SONET OC192: 9835
- SONET OC768: 39340.

19. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.
20. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set

Range:

- AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
- MON indicates that alarm monitoring is taking place on the port.
- NMON means that alarm monitoring is not occurring on the port.

21. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
Type: numeric value set.
Range (superset of allowed ranges for SDH and SONET):1 – 64000
Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392
    - SONET OC192: 8554
    - SONET OC768: 22776.
22. portClass – Port Class
This identifies the port class of the AID.
portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
Type: alphanumeric value set.
Range: TRADITIONAL (default), INNI, EDGE.
23. portControl – Port Control (PortAdministrative Mode)
This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
portControl is introduced specifically for use by ONNS application.
Type: alphanumeric value set.
Range: NORMAL (default), LOCKOUT.
24. propagationDelay - Propagation Delay
This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
propagationDelay is introduced specifically for use by ONNS application.
Type: Numeric string
Range: 0(default) ...255.

25. rsmstca – RS/MS TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
26. rspm – RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
27. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0). This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimca shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE (default): enable consequent action for TIM
    - DISABLE: disable consequent action for TIM.
28. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0). This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
29. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET Alarm Severity Assignment Profile for the SONET ports (see definition of output parameter SONET in "RTRV-OC48: Retrieve OC48 port" (p. 4-1894)) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.

30. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON.
31. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
32. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    srlgList is introduced specifically for use by ONNS application. The order of the three identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only one or two identities are provisioned, the remaing one shall be set to the default value 0, e.g. 3-0-0.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0-0-0-0-0-0-0-0.
33. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).

34. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
35. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
36. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable:
    - TR-only (lso known as the implicit reset method)
    - TR-RTR (lso known as the explicit reset method).

    Type: alphanumeric value set.
    Range: TR or TRRTR (default).
37. unequiposig – Unequipped Output Signal List
    This parameter is a list of VCn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross connection. *unequiposig* and *inputsig* shall not need the identical setting. Mixed rates for tx and rx side of the port shall be allowed.

Type: numeric value set
Range: NX-NX-NX-...
N is the number of Xs. X can be 3, 4, 4C or 16C representing VC3, VC4, VC4-4C or VC4-16C.
Default: 164 = all VC4.

Output format

If the ED-STM16 command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

Behavior

The command modifies the attributes (listed in the *spec_block* parameters part of this command) of the addressed port entity according to the parameters given with this command.

The modification is reported by means of an ED-STM16 notification for port (except for parameter *istd;* see below).

Switching of interface standard – Ignore other parameters

If additional parameters beside *istd* are specified with the *ED-rr* command they will be ignored by the NE.

This simple approach has the advantage that all ambiguous situations are avoided and it is not necessary to implement an order or follow a certain sequence when evaluating the parameters.

Switching of interface standard – FM impact

The change of the interface standard of a port from SDH to SONET has the following impact related to fault management:

- all SDH alarms related to that port are cleared
- the corresponding SONET alarms are raised.

Supply outgoing J0 trace value and format together

When changing the format of the outgoing J0 trace *strcwfmt*, the parameter *strcout* specifying the outgoing J0 trace is always supplied within the same TL1-command to always have a consistent set of trace format and value.

When the format of the outgoing J0 trace *strcwfmt* is set to 2 (non-specific repeating byte) then the outgoing J0 trace (mandatory parameter strcout) specified in the command shall be ignored.

Supply outgoing J0 trace value according to format of outgoing J0

When changing the outgoing J0 trace value, the format must be according to the format parameter *strcwfmt* for the outgoing J0 trace.

Change of J0 expected format - FM impact

When the expected J0 format (strcfmt) is changed to 16 (16 byte specific string) while the TI Mismatch detection is enabled, then the TI Mismatch alarm shall be updated according to the provisioned ecpected J0 (expstrc) and the currently received J0 (strc).

When the expected J0 format is changed away from 16, while the TI Mismatch alarm is active, then the TI Mismatch alarm shall be cleared.

Switching of interface standard – Impact on port parameters

Switching of interface standard I:

In detail the following attributes are influenced by switching of the *istd* from SDH to SONET (see also the related RTRV-OC*n* command for SONET parameter description):

- *brstintvl* is set to the default value
- *brstthr* is set to the default value
- *crstat* may change according to its semantics (see description of *crstat*)
- *femspm* is mapped to *felpm* (no changes)
- *inputsig* is set to the default value
- *istd* is set to SONET
- *nemspm* is mapped to *nelpm* (no changes)
- *rspm* is mapped to *spm* (no changes)
- *rstimca* is set to the default value for a SONET port
- *rstimmon* is set to the default value for a SONET port
- *sdhpn* is mapped to SONET (no changes)
- *sdsfmode* is set to the default value for a SONET port
- *sdthr* is set to the default value for a SONET port
- *sfthr* is set to the default value for a SONET port
- *trbmd* is set to the default value for a SONET port
- *unequiposig* is set to its default value
- *z0outmode* is set to its default value for a SONET port.

All other port parameters remain unchanged.

Switching of interface standard II:

In addition to the list of attributes above the following attributes are influenced by switching of the *istd* from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *sltca* is set to the default value for a SONET port
- *tcamd* is set to the default value for a SONET port.

The attribute *tcamd* does not exist for SONET ports. SONET ports only support TR-only mode. Thus the mode must be internally set to TR-only.

Switching of interface standard III:

In addition to the list of attributes above the following attributes are influenced by switching of the *istd* from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *pmmsfeses* is set to the default value for a SONET port
- *pmmsneses* is set to the default value for a SONET port
- *pmrsneses* is set to the default value for a SONET port.

Switching of interface standard IV:

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *minNNXCrate* is set to the default value for a SONET tributary
- *maxNNXCrate* is set to the default value for a SONET tributary

Switching of interface standard – Side effects on tributaries

The switching of *istd* should not result in an deletion and recreation of the tributaries of a port. NE internally there are no differences between SDH and SONET.

In detail the following side-effects apply to the related tributary attributes when switching the *istd* from SDH to SONET (see also the related RTRV-OC*n* command for SONET parameter description):

- *brstintvl* is set to the default value for a SONET tributary
- *brstthr* is set to the default value for a SONET tributary
- *pse* (PDI-P parameter) is set to the default value for a SONET tributary
- *sdsfmode* is set to the default value for a SONET tributary.

Switching of interface standard – Side effects on tributaries II

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *degthr* is set to the default value for an SONET tributary
- *dexcthr* is set to the default value for an SONET tributary

- *ptca* shall be set to the default value for a SONET tributary
- *tcamd* is set to the default value for a SONET tributary.

The attribute tcamd does not exist for SONET ports. SONET ports only support ″TR-only″ mode. Thus the mode must be internally set to ″TR-only″.

Switching of interface standard – Side effects on tributaries III

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *pmhpneses* is set to the default value for an SONET tributary
- *pmhpfeses* is set to the default value for an SONET tributary.

The attribute tcamd does not exist for SONET ports. SONET ports only support ″TR-only″ mode. Thus the mode must be internally set to ″TR-only″.

Switching of interface standard – notification behavior for port attributes

When changing the interface standard *istd* using the ED-STMn command all resulting parameter changes are reported by ED-OCn notifications of the related port rate. This is valid for the parameter istd itself as well as for all other parameters which might change as a consequence of changing the interface standard.

Switching of interface standard – notification behavior for tributary attributes

When changing the interface standard *istd* using the ED-STMn command all resulting tributary parameter changes are reported by ED-STS1 notifications.

For efficiency reasons the ED-STS1 notifications shall be sent out as a single notification using a range over the aid which depends on the port rate of the associated port, i.e. the Simple_STS1NumAID field in the STS1NumAID is set to

- 1 - 3, in case of an STM1/OC3 port
- 1 - 12, in case of an STM4/OC12 port
- 1 - 48, in case of an STM16/OC48 port
- 1 - 192, in case of an STM64/OC192 port
- 1 - 768, in case of an STM256/OC768 port.

Switching of interface standard - notification behavior for active TCA events

If the changing of the interface standard *istd* to SONET includes an change of *tcamd* from TR-RTR to TR-only (SONET default value), then all active TCA events of the related entities must be cleared.

Switching of interface standard – PM impact

The change of interface standard has the following impacts w.r.t. existing PM registers:

1. all current bins related to the port will be reset
2. all history bins related to the port remain unchanged

3. all current bins related to tributaries being a member of the port will be reset
4. all history bins related to tributaries being a member of the port remain unchanged.

Retrieving the bins after switching the interface standard may result in a strange reporting behavior:

- When switching the interface standard to SONET the periods before the switch contain SDH-related parameters and values even though the port is addressed as a SONET port.
- When switching the interface standard to SDH the periods before the switch contain SONET-related parameters and values even though the port is addressed as a SDH port.

Disabling of PM monitor

The disabling of a PM monitor shall have the following impacts w.r.t. existing PM registers:

1. stop PM counting
2. all current bins related to the PM monitor shall be deleted
3. all history bins related to the PM monitor shall be deleted

The term PM monitor has the same semantics as the term PM package as used in SRD_PerformanceMonitoring. The number of PM monitors is determined by means of the number of *pm enable attributes*.

PM monitors can be disabled explicitly by means of the *pm enable* attribute or are implicitly disabled as part of a port/tributary deletion.

Additional to the above listed impacts (ID 52924) the disabling of a PM monitor shall have the following impacts: the system has to clear all active TCA events of the deleted PM monitor if TCA mode TR-RTR was selected.

Changing TCA mode from TR-RTR to TR-only

The change of tcamd from TR-RTR (also known as the explicit reset method) to TR-only (also known as the implicit reset method) has the impact, that all active TCA events of the related entity must be cleared.

ONNS specific behaviour - Impact on *portControl* when changing *portClass*

When *portClass* is changed to TRADITIONAL, *portControl* shall be set to NORMAL, if not set differently within the same command.

Such a change shall be reported by an ED-STM16 notification for the parameter *portControl*.

ONNS specific behaviour - Impact on tributary mode setting when *portClass* is set to INNI

When *portClass* is set to INNI for a port, the parameter trbmd shall be set to *adaptive*. This shall be reported by an ED-STM16 notification for the parameter *trbmd*.

ONNS specific behaviour - Impact on tributary mode setting when *portClass* is set to EDGE

When *portClass* is set to EDGE for a port, the parameter trbmd shall be set to FIXED. This shall be reported by an ED-STM16 notification for the parameter *trbmd*.

ONNS specific behaviour - Impact on *loca*, *locz* when setting *portClass* from EDGE to TRADITIONAL when port is involved in a 2F or 4F BLSR/MSSPRING protection group

For all tributaries of that port the *loca*, *locz* parameters shall be reset to their default values (empty string). This is reported by an ED-STS1 (*istd*=SONET for the port) or ED-VC3 (*istd*=SDH for the port) notification using a range over the port.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI and *ndetmd* is set to AUTO

When *portClass* is set to INNI and *ndetmd* is set to AUTO for a port, the parameter *pmode* shall be set to MONITORING. This is reported by an ED-STM16 notification for the parameter *pmode*.

ONNS specific behaviour - Impact on tributary parameter settings when *portClass* is set to INNI

When *portClass* is set to INNI, the parameter *hptimmon* shall be set to DISABLE for all tributaries located on this port.. This shall be reported by ED-VC3 notifications for the parameter *hptimmon*.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI

When *portClass* is set to INNI, each of the following parameters shall take its default value, unless a value is specified together with the transition of portClass to INNI:

- *ndetmd*
- *neighborASTNNodeID*
- *neighborNodeID*
- *neighborPortID*

ONNS specific behaviour - Impact on neighbour related parameters if *portClass* is changed away from INNI

When *portClass* is changed away from INNI, the following parameters shall be set to their default values: *neighborASTNNodeID*, *neighborNodeID*, *neighborPortID*.

ONNS specific behaviour - Impact on port parameter settings when *ndetmd* is set to AUTO

When *ndetmd* is set to AUTO for a port, the parameters *neighborNodeID, neighborPortID* or *neighborASTNNodeID* keeps their current values until automatic neighbor detection delivers new valid values.

ONNS specific behaviour - Impact on port parameter settings while *portClass* is INNI

When *portClass* has the value INNI for a port, setting of the following parameters shall be inhibited:

- *exprstrc*
- *rstimca*
- *rstimmon*
- *strcfmt*
- *strcout*
- *strcwfmt*

At the moment *portClass* is changed away from INNI the parameters are set back to their default values. This shall be reported by means of an ED-STM16 notification.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is different from INNI

When *portClass* has a value being different from INNI for a port, setting of the following parameters shall be accepted, but shall have no impact until *portClass* is changed to INNI:

- *propagationDelay*, *adminCost*, *srlgList,link_includeID,maxNNXCRate,minNNXCRate*.

At the moment the *portClass* is changed to INNI the current values of these parameters shall be considered as valid.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is different from INNI

When *portClass* has a value being different from INNI for a port, setting of the following parameters shall be accepted:

- *ndetmd*, *neighborASTNNodeID*, *neighborNodeID*, *neighborPortID*.

ONNS specific behaviour - Impact on port parameter settings while *portClass* is TRADITIONAL

When *portClass* has the value TRADITIONAL for a port, setting of the following parameters shall be accepted, but shall have no impact until *portClass* is changed away from TRADITIONAL: *portControl*.

At the moment the *portClass* is changed away from TRADITIONAL the current values of these parameters shall be considered as valid.

Example input/output

```
ED-STM16:UNITE-NE:1-1-#-#-1-1:123456:::INPUTSIG=74-33-84,UNEQUIPOSIG=74-
     33-84;
   UNITE-NE 00-11-28 08:00:00
```

```
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-STM16:1-1-#-#-1-1::inputsig=74-33-
     84,unequiposig=74-33-84:"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the ED-STM16 command.

Validation rule: Enough bandwidth reserved for 2F protection group

Check of the tributary rate (*inputsig/uneqiposig*) if the port is member of a 2f protection group. Then the assigned bandwidth will be max. half of the port's bandwidth.

Error code: `IDNV - Input, Data Not Valid, Assigned bandwidth exceeds half port's bandwidth`

Validation rule: ASAP profile exists

Check of the existence of the ASAP profile.

Error code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: *inputsig* consistent with existing cross-connections

Check of the consistency of the structure of the input signal (*inputsig*) with existing cross-connections.

Error code: `SNVS - Status, Not in Valid State, signal structure cannot be changed for connected parts of a fixed port`

Validation rule: *unequiposig* consistent with existing cross-connections

Check of the consistency of the structure of the output signal (*unequiposig*) with existing cross-connections.

Error code: `SNVS - Status, Not in Valid State, signal structure cannot be changed for connected parts of a fixed port`

Validation rule: No lower cross-connections for *istd* change

Check that the interface standard parameter (istd) is not changed when lower order cross-connections are still on this port. If lower order cross-connections exist, the following error message shall be returned:

Error code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

Validation rule: no cross-connections for *istd* change

Check that the interface standard parameter (*istd*) is not changed when cross-connections are still on this port.

Error code: `SNVS - Status, Not in Valid State, cross-connections are still existing`

Validation rule: no loopbacks for *istd* change

Check that the interface standard parameter (*istd*) is not changed when cross-connection loopback is still on this port.

Error code: `SNVS - Status, Not in Valid State, a loopback is existing`

Validation rule: no protection for *istd* change

Check that the interface standard parameter (*istd*) is not changed when this port is in an protection group

Error code: `SNVS - Status, Not in Valid State, a protection group is existing`

Validation rule: No ONNS for interface standard change

Check that the interface standard parameter (istd) is not changed if ONNS functionality is available.

This means:

- *portClass* must be TRADITIONAL or
- *portControl* must be LOCKOUT.

Error code: `SNVS - Status, Not in Valid State, SwiSS access possible`

Validation rule: *servcond* must be enabled when timing source

Check that the *servcond* is not disabled when the port is used as a timing source.

Error code: `SNVS - Status, Not in Valid State, Timing reference is assigned to this port`

Validation rule: *servcond* must be enabled when DCC enabled

Check that the *servcond* is not disabled when DCC channels are still existing for this port.

Error code: `SNVS - Status, Not in Valid State, DCC channels are active for this port`

Validation rule: *servcond* must be enabled when *portClass*=INNI

Check that the *servcond* is not OUTOFSERVICE when portClass=INNI.

Error code: `SNVS - Status, Not in Valid State, can not disable servcond for INNI ports.`

Validation role: *servcond* must be enabled for protection ports

Check that the servcond is not OUTOFSERVICE if the port is used as protection port.

Error code: `SNVS - Status, Not in Valid State, can not disable servcond for protection ports`

Validation rule: *servcond* must be disabled for facility loopback

Check that the *servcond* is not enabled when a facility loopback is existing for this port.

Error code: `SNVS - Status, Not in Valid State, Facility Loopback is active for this port`

Validation rule: Supply of outgoing J0 trace

Check that an outgoing J0 trace value (*strc* out) is supplied, too, if the format of the outgoing J0 trace (*strcwfmt*) is changed.

Error code: `IDNC - Input, Data Not Consistent, a new trace value must also be supplied for a trace format change.`

Validation rule: transmitted path trace length

Check that the length of the outgoing J0 trace value (*strcout*) fits to the length given by outgoing J0 trace mode, i.e. write format (*strcwfmt*).

Error code: `IDNC - Input, Data, Not Consistent, strcout length must match the given outgoing J0 trace mode.`

Validation rule: 'ALL' qualifier used for wrong parameters

The ALL qualifier for the port aid is only allowed for changing the *portControl* parameter.

Error Code: `IDNC - Input, Data Not Consistent, 'ALL' qualifier for port aid not allowed`

Check CCB against *ptype* and *istd*

Check wether the CCB fits to ptype and istd.

Error Code: `ICNV - Input, Command Not Valid, Interface Standard does not match`

Validation rule: TCA profile exists

Check of the existance of the TCA profile.

Error code: `IDNV - Input, Data Not Valid, TCA profile does not exist`

ONNS specific validation rule: *portClass* only settable when *xcsetup*=SWISS

Modification of the *portClass* parameter shall only be allowed when *xcsetup*=SWISS.

Error code: `SNVS - Status, Not in Valid State, SwiSS not enabled`

ONNS specific validation rule: Not allowed to change the *portClass* directly from INNI to EDGE or EDGE to INNI

It shall not be allowed to change the portClass of a port directly from INNI to EDGE or from EDGE to INNI.

Error Code: `SNVS - Status, Not in Valid State, Port Class must not be EDGE or INNI`

ONNS specific validation rule: Setting of *portClass* to INNI not possible for ports in protection groups

It shall not be allowed to change *portClass* of a port to INNI, if this port is member of a Line/MS protection scheme.

Error Code: `SNVS - Status, Not in Valid State, Port must not be member of a protection group`

ONNS specific validation rule: Setting of *portClass* to INNI only possible, if no cross-connection existing

It shall not be allowed to change *portClass* to INNI, if cross-connections on that port are still existing.

Error Code: `SNVS - Status, Not in Valid State, Cross-connections still existing`

ONNS specific validation rule: Setting of *portClass* to INNI only possible, if no lower order cross-connections exist

Check if lower order cross-connections exist which involve the port to be changed. If lower order cross-connections exist, the following error message shall be returned:

Error Code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

ONNS specific validation rule: Setting of *portClass* to INNI only possible, if service condition not OUTOFSERVICE

It shall not be allowed to change *portClass* to INNI, if servcond=OUTOFSERVICE.

Error code: `SNVS - Status, Not in Valid State, port in out of service state`

ONNS specific validation rule: Setting of *portClass* to INNI or EDGE only possible, if no test access session active

It shall not be allowed to change *portClass* of a port to INNI or EDGE when a tributary related to this port is used in a test access session either as tributary under test or as test access tributary.

Error code: `SNVS - Status, Not in Valid State, a test access session exists`

ONNS specific validation rule: Setting of *portClass* away from INNI only possible, if the port is not in use

For setting *portClass* from INNI to TRADITIONAL or EDGE the following must be fulfilled:

- No cross -connection may exist on any tributary of the port
- *portControl* must be LOCKOUT.

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

ONNS specific validation rule: Setting of *portClass* away from INNI only possible, if the port is not in use by M:N reservation

For setting *portClass* from INNI to TRADITIONAL or EDGE the following must be fulfilled:

- No reservation related to a protecting NN connection within an M:N protected connection group may exist on any tributary of the port

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

ONNS specific validation rule: Changing of *portClass* from INNI to EDGE or TRADITIONAL only possible, if no DCC for SCN is enabled on the port

For changing the value of the parameter *portClass* no DCC of the port must be enabled for the SCN.

Error Code: `SNVS - Status, Not in Valid State, DCC on SCN may not be enabled`

ONNS specific validation rule: Setting of *portClass* from EDGE to TRADITIONAL only possible, if the tributaries on the port are not in use by ONNS:

For setting *portClass* from EDGE to TRADITIONAL the following must be fulfilled:

- No cross-connections of xconcls=NN may exist on any tributary of the port
- *portControl* must be LOCKOUT.

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

ONNS specific validation rule: Setting of *portClass* from TRADITIONAL to EDGE

For setting *portClass* from TRADITIONAL to EDGE the port must not be the protection port of a 1+1 MSP group.

Error code: `SNVS - Status, Not in Valid State, Port must not be a 1+1 protection port`

For setting *portClass* from TRADITIONAL to EDGE the port must not be the protection port of a 1:1 MSP group.

Error code: `SNVS - Status, Not in Valid State, Port must not be a 1:1 protection port`

For setting portClass from TRADITIONAL to EDGE the port must not be the protection port of a 4f-MSSPRING group

Error code: `SNVS - Status, Not in Valid State, Port must not be a 4f-MSSPRING protection port`

ONNS specific validation rule: Setting of some INNI properties only possible, if no cross-connection existing

It shall not be allowed to change one of the following parameters (provided this parameter is supported in a particular release at all) on a port with *portClass*=INNI, if cross-connections on that port are existing:

- *link_IncludeID*, *neighborNodeID*, *neighborPortID*, *propagationDelay*, *srlgList*, *neighborASTNNodeID*, *maxNNXCRate,minNNXCRate*.

Error code: `SNVS - Status, Not in Valid State, no XCs allowed for change of iNNI parameters`

ONNS specific validation rule: Setting of some INNI properties only possible, if no reservations wrt. M:N protecting connections existing

It shall not be allowed to change one of the following parameters on a port with portClass=INNI, if reservations wrt. M:N protecting NN connections on that port are existing:

- *link_IncludeID, neighborNodeID, neighborPortID, propagationDelay, srlgList, neighborASTNNodeID, maxNNXCRate, minNNXCRate*

Error Code: `SNVS - Status, Not in Valid State, no XC reservations allowed for change of iNNI parameters`

ONNS specific validation rule: Setting of INNI properties only possible if *portControl* is LOCKOUT

The system shall allow to change the following parameters only under the conditions:

- if the port control is LOCKOUT while port class is INNI
- together with the transition of port control from LOCKOUT to NORMAL while port class is INNI or
- together with the transition of port class to INNI

adminCost, *link_IncludeID*, *maxNNXCRate, minNNXCRate,ndetmd,neighborNodeID*, *neighborPortID*, *propagationDelay*, *srlgList, neighborASTNNodeID.*

Error code: `SNVS - Status, Not in Valid State, only allowed for INNI port in lockout state`

ONNS specific validation rule: Some parameters not settable for ports of *portClass*=INNI

The following parameters shall not be changeable for ports with *portClass*=INNI: *exprstrc*, *rstimca, rstimmon, strcfmt*, *strcout*, *strcwfmt*.

Error code: `SNVS - Status, Not in Valid State, J0 parameters can not be set for INNI ports`

ONNS specific validation rule: Port mode not settable for ports of *portClass*=INNI

The system shall not allow to change the parameter pmode if portClass has been set to INNI prior to this command or if portClass is set to INNI with this command. The paramer pmode shall either be omitted or specified with the only allowed value MON..

Error Code: `SNVS - Status, Not in Valid State, port mode change not allowed for INNI ports`

ONNS specific validation rule: Some parameters not settable for ports of *ndetmd* AUTO

The following parameters shall not be changeable for ports with *ndetmd* AUTO: *neighborNodeID*, *neighborPortID*, *neighborASTNNodeID*.

Error Code: `SNVS - Status, Not in Valid State, ndetmd must not be AUTO`

ONNS specific validation rule: Additional parameters required when setting *ndetmd* to MAN

Values for the following parameters must be given, if *ndetmd* is changed to MAN: *neighborNodeID*, *neighborPortID*, *neighborASTNNodeID*.

Error Code: `IDNV - Input, Data Not Valid, additional parameter required`

ONNS specific validation rule: No setting of duplicate *neighborASTNNodeID* and *neighborPortID* parameter combination

Setting of the parameters *neighborASTNNodeID* and *neighborPortID* shall only be possible, if the same combination of values does not already exists for a different INNI port in the system.

Error code: `IDNV - Input, Data Not Valid, duplicate neighbor port information`

ONNS specific validation rule: No setting of *neighborASTNNodeID* or *neighborNodeID* to corresponding IDs of local node

It shall not be allowed to configure parameters *neighborASTNNodeID* or *neighborNodeID* to corresponding values of the local node itself, i.e. it shall not be possible to configure a node to be its own ONNS neighbor.

Error code: `IDNV - Input, Data Not Valid, node itself is not a valid neighbor`

ONNS specific validation rule: Setting of neighbor information to UNKNOWN

In order to set neighbor information to UNKNOWN, zero values must be set for all parameters *neighborASTNNodeID*, *neighborNodeID* and *neighborPortID* consistently. It shall not be possible to set zero value for only one or two of them.

Error Code: `IDNV - Input, Data Not Valid, zero values can only be set for all neighbor information consistently`

ONNS specific validation rule: No setting of minNNXCRate to values larger than value of *maxNNXCRate* and vice versa

It shall not be allowed to configure parameters *maxNNXCRate* and *minNNXCRate* in a way, that the value of *minNNXCRate* is larger than the value of *maxNNXCRate*

Error code: `IDNV - Input, Data Not Valid, Min. and max. NN XC rates incompatible`

Related TL1 messages

"RTRV-STM16: Retrieve STM16 port" (p. 4-2099)

References

GR-199-CORE (ED-*rr*)

□

ED-STM16 autonomous notifications

LOS for transmission port STM16 clears

If LOS is cleared and current port mode is AUTO, then *pmode* is updated (new value: MON). This update is reported via ED-STM16 notification with parameter *pmode*.

Change of neighbor node and neighbor port Information

If ndetmd=AUTO a change of the attributes *neighborNodeID*, *neighborPortID* or *neighborASTNNodeID* is notified by the related ED-STM16 notification.

□

ED-STM16 notification

Output format

The ED-STM16 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ED-STM16`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Description: Access Identifier of an STM16 port.
   Type: AID.
   Range: SPortAID of STM16 port.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
   Type: Numeric string.
   Range: 1(default).....65535
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. For fixed mode (trbmd = FIXED) this parameter is derived from the parameter *inputsig* showing the Tributary Input Rate Signal List .
   Type: numeric value set
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 3, 4, 4C or 16C representing VC3, VC4, VC4-4C or VC4-16C.

5. degthr – Signal Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
6. dexcthr – Excessive Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –3; –4; –5.
   Default: –3.
7. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
8. femspm – Far-end Multiplex Section Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
9. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU

10. fsflpbkstat – Far Side Facililiy Loopback Status
    This parameter specifies the current far-side facility loopback status of the considered output *aid.*
    A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
    Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
11. inputsig – Tributary Input Signal Rate List
    This parameter is a list of VCn rates across the port's bandwidth.
    Type: numeric value set.
    Range: NX-NX-NX-...
    N is the number of Xs. X can be 3, 4, 4C or 16C representing VC3, VC4, VC4-4C or VC4-16C.
    Default: The initial value of X is 4.
    Example:
    An STM-16 signal might be represented by 93-14-14C-243 which implies 9 VC3s, 1 VC4, 1 VC4-4C, 24 VC3s. The representation is not unique, for example it could also be 33-63-14-14C-243. Worst case of string length for STM16: 47 characters.
12. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET.
    Type: alphanumeric value set.
    Range:
    - SONET
    - SDH.

    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
13. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).

14. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    Type: alphanumeric value set.
    Range: VC416C (default), VC44C, VC4, VC3.
15. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    Type: alphanumeric value set.
    Range: VC3 (default), VC4, VC44C, VC416C.
16. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
17. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
18. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if *ndetmd*=MAN.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″

19. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    Type: Four dash separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0-0-0-0.
    Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.
20. nemspm – MS Near-End PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
21. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.

22. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.

23. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.

24. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000
    Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392
    - SONET OC192: 8554
    - SONET OC768: 22776.

25. portClass – Port Class
    This identifies the port class of the AID.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.
26. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.
27. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    Type: Numeric string
    Range: 0(default) ...255.
28. rsmstca – RS/MS TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
29. rspm – RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
30. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0). This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE (default): enable consequent action for TIM
    - DISABLE: disable consequent action for TIM.

31. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
32. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET Alarm Severity Assignment Profile for the SONET ports (see definition of output parameter SONET in "RTRV-OC48: Retrieve OC48 port" (p. 4-1894)) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
33. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON.
34. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
35. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0-0-0-0-0-0-0-0.

36. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc).
    Type: numeric string
    Default: 2
37. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string dependent on the strcwfmt parameter.

    Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
38. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout).
    Type: numeric string
    Default: 2
39. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable:
    - TR-only (lso known as the implicit reset method)
    - TR-RTR (lso known as the explicit reset method).

    Type: alphanumeric value set.
    Range: TR or TRRTR (default).
40. unequiposig – Unequipped Output Signal List
    This parameter is a list of VCn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross connection. *unequiposig* and *inputsig* shall not need the identical setting. Mixed rates for tx and rx side of the port shall be allowed.
    Type: numeric value set
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3, 4, 4C or 16C representing VC3, VC4, VC4-4C or VC4-16C.
    Default: 164 = all VC4.

Example output

```
ED-STM16:UNITE-NE:1-1-#-#-1-1:123456:::INPUTSIG=74-33-84,UNEQUIPOSIG=74-
    33-84;
   UNITE-NE 00-11-28 08:00:00
```

```
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-STM16:1-1-#-#-1-1::inputsig=74-33-
     84,unequiposig=74-33-84:"
;
```

ED-STM16T: Edit STM16T port

The ED-STM16T command is used to provision all parameters related to optical STM16T port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: no

Input format

Command Syntax: `ED-STM16T`:*tid:aid:ctag:::spec_block*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   aid – Access Identifier
   Access Identifier of STM16T port.
   Type: AID.
   Range: SPortAID of STM16T port.
   The keyword `all` is not allowed.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits

Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
Default: 89hex followed by 15 bytes 00hex
For ED-STM16T this parametr refers to the incoming (inress) direction.

2. exprstrcout - Value of Expected J0 in outgoing direction
   Expected regenerator section trace identifier in outgoing (egress) direction.
   The parameter expstrcout specifying the expected path trace is only relevant for the section trace supervision in outgoing direction when the related trace read format strcfmtout is set to 16 (16-byte-specific-string mode).
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte shall be expressed as two hexadecimal digits (example value: 6D). The first byte value shall be in the range from 80 to FF. The other byte values shall be in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
3. istd – Interface Standard
   Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter istddflt.
   Type: alphanumeric value set.
   Range: SDH.
   Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
4. pmode – Port Mode
   This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
   Type: alphanumeric value set
   Range:
   - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
   - MON indicates that alarm monitoring is taking place on the port.
   - NMON means that alarm monitoring is not occurring on the port.
5. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
   This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET.
   Type: numeric value set.
   Range (superset of allowed ranges for SDH and SONET):1 – 64000
   Default: The default values differ for SDH and SONET and the different rates:
   - SDH (all rates): 2400
   - SONET OC48: 2392

- SONET OC192: 8554
- SONET OC768: 22776.

6. pmrsnesesout - Performance Monitoring Section/RS Near-End SES Threshold in Outgoing Direction
   This parameter describes the Section/RS Near-End SES threshold value for the outgoing (egress) direction. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severly errored. The default value depends on the interface standard and may differ between SDH and SONET.
   Type: numeric value set
   Range (superset of allowed ranges for SDH and SONET): 1 - 64000
   Default:
   The default values differ for SDH and SONET and the different rates:
   - SDH (all rates): 2400
   - SONET OC48: 2392
7. rsmstca – RS/MS TCA Profile Pointer
   Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
   Type: alphanumeric string.
   Range: String with maximum of 24 characters.
   Default: DEFAULT0.
8. rspm - RS PM Enable
   Enable or disable regenerator section (section) performance monitoring.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).

   For ED-STM16T this parameter refers to the incoming (ingress) direction.
9. rspmout - RS PM Enable in Outgoing Direction
   Enable or disable regenerator section (section) performance monitoring for the outgoing (egress) direction.
   Type: alphanumeric value set.
   Range: ENABLE, DISABLE (default).
10. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.

Range:

- ENABLE: enable TIM Monitor
- DISABLE (default): disable TIM Monitor

For ED-STM16T this parameter refers to the incoming (Ingress) direction.

11. rstimmonout - RS TIM Monitor Enable in Outgoing direction
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0) in outgoing (egress) direction. This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set
    Range: ENABLE - enable TIM Monitor, DISABLE (default) - disable TIM Monitor
12. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET Alarm Severity Assignment Profile for the SONET ports (see definition of output parameter SONET in "RTRV-OC48: Retrieve OC48 port" (p. 4-1894)) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
13. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
14. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).

    For ED-STM16T this parameter refers to the incoming (Ingress) direction.

15. strcfmtout - Format of outgoing J0
    The read format of J0 in outgoing (egress) direction, the outgoing section trace (strcout) and the expected section trace (exprstrcout).
    Type: numeric string
    Range:
    - 1, for specific repeating byte (SONET)
    - 2 (default), for non-specific repeating byte (ITU/ETSI mode 2)
    - 16, for 16 byte specific string (ITU/ETSI mode 1)
    - 64, for 64 byte string (SONET).
16. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable:
    - TR-only (lso known as the implicit reset method)
    - TR-RTR (lso known as the explicit reset method).

    Type: alphanumeric value set.
    Range: TR or TRRTR (default).

Output format

If the ED-STM16T command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

Behavior

The command modifies the attributes (listed in the *spec_block* parameters part of this command) of the addressed port entity according to the parameters given with this command.

The modification is reported by means of an ED-STM16T notification for port (except for parameter *istd;* see below).

Change of J0 expected format - FM impact

When the expected J0 format (strcfmt/strcfmtout) is changed to 16 (16 byte specific string) while the TI Mismatch detection is enabled, then the TI Mismatch alarm shall be updated according to the provisioned ecpected J0 (expstrc/expstrcout) and the currently received J0 (strc/strcout).

When the expected J0 format is changed away from 16, while the TI Mismatch alarm is active, then the TI Mismatch alarm shall be cleared.

Switching of interface standard – Ignore other parameters

If additional parameters beside *istd* are specified with the *ED-STM16T* command they will be ignored by the NE.

This simple approach has the advantage that all ambiguous situations are avoided and it is not necessary to implement an order or follow a certain sequence when evaluating the parameters.

Switching of interface standard – FM impact

The change of the interface standard of a port from SDH to SONET has the following impact related to fault management:

- all SDH alarms related to that port are cleared
- the corresponding SONET alarms are raised.

Switching of interface standard – Impact on port parameters

Switching of interface standard:

The switching of *istd* should not result in a deletion and recreation of the port. NE internally there are no differences between SDH and SONET. In detail the following attributes are influenced by switching of the *istd* from SDH to SONET (see also the related RTRV-OC48T command for SONET parameter description):

- *istd* is set to SONET
- *rspm* is mapped to *spm* (no changes)
- *rspmout* is mapped to spmout (no changes)
- *pmrsneses* is set to the default value for a SONET port
- *pmrsnesesout* is set to the default value for a SONET port
- *rstimmon* is set to the default value for a SONET port
- *rstimmonout* is set to the default value for a SONET port
- *sdhpn* is mapped to SONET (no changes)
- *sltca* is set to the default value for a SONET port
- *tcamd* is set to the default value for a SONET port.

All other port parameters remain unchanged.

The attribute tcamd does not exist for SONET ports. SONET ports only support ″TR-only″ mode. Thus the mode must be internally set to ″TR-only″.

Switching of interface standard – notification behavior for port attributes

When changing the interface standard *istd* using the ED-STM16T command all resulting parameter changes are reported by ED-OC48T notifications of the related port

rate. This is valid for the parameter istd itself as well as for all other parameters which might change as a consequence of changing the interface standard.

Switching of interface standard - notification behavior for active TCA events

If the changing of the interface standard *istd* to SONET includes an change of *tcamd* from TR-RTR to TR-only (SONET default value), then all active TCA events of the related entities must be cleared.

Switching of interface standard – PM impact

The change of interface standard has the following impacts w.r.t. existing PM registers:

1. all current bins related to the port will be reset
2. all history bins related to the port remain unchanged
3. all current bins related to tributaries being a member of the port will be reset
4. all history bins related to tributaries being a member of the port remain unchanged.

Retrieving the bins after switching the interface standard may result in a strange reporting behavior:

- When switching the interface standard to SONET the periods before the switch contain SDH-related parameters and values even though the port is addressed as a SONET port.
- When switching the interface standard to SDH the periods before the switch contain SONET-related parameters and values even though the port is addressed as a SDH port.

Disabling of PM monitor

The disabling of a PM monitor shall have the following impacts w.r.t. existing PM registers:

1. stop PM counting
2. all current bins related to the PM monitor shall be deleted
3. all history bins related to the PM monitor shall be deleted

The term PM monitor has the same semantics as the term PM package as used in SRD_PerformanceMonitoring. The number of PM monitors is determined by means of the number of *pm enable attributes*.

PM monitors can be disabled explicitly by means of the *pm enable* attribute or are implicitly disabled as part of a port/tributary deletion.

Additional to the above listed impacts (ID 52924) the disabling of a PM monitor shall have the following impacts: the system has to clear all active TCA events of the deleted PM monitor if TCA mode TR-RTR was selected.

Changing TCA mode from TR-RTR to TR-only

The change of tcamd from TR-RTR (also known as the explicit reset method) to TR-only (also known as the implicit reset method) has the impact, that all active TCA events of the related entity must be cleared.

Example input/output

```
ED-STM16T:UNITE-NE:1-1-#-#-1-1:123456:::RSPM=ENABLE,
RSPMOUT=ENABLE;
   UNITE-NE 00-11-28 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-STM16T:1-1-#-#-1-1::
   rspm=ENABLE,rspmout=ENABLE:"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the ED-STM16T command.

Validation rule: ASAP profile exists

Check of the existence of the ASAP profile.

Error code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: *servcond* must be disabled for facility loopback

Check that the *servcond* is not enabled when a facility loopback is existing for this port.

Error code: `SNVS - Status, Not in Valid State, Facility Loopback is active for this port`

Check CCB against *ptype* and *istd*

Check wether the CCB fits to *ptype* and *istd*.

Error Code: `ICNV - Input, Command Not Valid, Interface Standard does not match`

Validation rule: TCA profile exists

Check of the existance of the TCA profile.

Error code: `IDNV - Input, Data Not Valid, TCA profile does not exist`

Related TL1 messages

"RTRV-STM16T: Retrieve STM16T port" (p. 4-2113)

References

GR-199-CORE (ED-*rr*)

□

ED-STM16T autonomous notification

LOS for Transmission port STM16T clears

If LOS is cleared and current port mode is AUTO, then *pmode* is updated (new value: MON). This update is reported via ED-STM16T notification with parameter *pmode*.

□

ED-STM16T notification

Output format

The ED-STM16T notification shall use the general format of a REPT DBCHG notification.

Syntax

`ED-STM16T`*:aid::spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Access Identifier of STM16 port.
   Type: AID.
   Range: SPortAID of STM16 port.
   The keyword `all` is not allowed.

Spec block parameters

1. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier. TThe parameter expstrc specifying the expected path trace is only relevant for the section trace supervision when the related trace read format strcfmt is set to 16 (16-byte-specific-string mode).
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte shall be expressed as two hexadecimal digits (example value: 6D). The first byte value shall be in the range from 80 to FF. The other byte values shall be in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
2. exprstrcout - Value of Expected J0 in outgoing direction
   Expected regenerator section trace identifier in outgoing (egress) direction. The parameter expstrcout specifying the expected path trace is only relevant for the section trace supervision in outgoing direction when the related trace read format strcfmtout is set to 16 (16-byte-specific-string mode).
   Type: Hexadecimal digits
   Range: 16 byte string Each byte shall be expressed as two hexadecimal digits (example value: 6D). The first byte value shall be in the range from 80 to FF. The other byte values shall be in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex.

3. fsflpbkstat - Far Side Facility Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output *aid.*
   A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
   Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).
4. istd – Interface Standard
   Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter *istddflt*.
   Type: alphanumeric value set
   Range: SDH
   Default: As specified via istddflt on system level, see definition in RTRV-EQPT (system).
5. lpbk - Loopback
   This parameter specifies the current near-side loopback status of the considered output *aid*.
   A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).
6. pmode – Port Mode
   This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
   Type: alphanumeric value set
   Range:
   - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
   - MON indicates that alarm monitoring is taking place on the port.
   - NMON means that alarm monitoring is not occurring on the port.

7. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
   This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET.
   Type: numeric value set.
   Range (superset of allowed ranges for SDH and SONET):1 – 64000
   Default: The default values differ for SDH and SONET and the different rates:
   - SDH (all rates): 2400
   - SONET OC48: 2392
   - SONET OC192: 8554
   - SONET OC768: 22776.
8. pmrsnesesout - Performance Monitoring Section/RS Near-End SES Threshold in Outgoing Direction
   This parameter describes the Section/RS Near-End SES threshold value for the outgoing (egress) direction. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severly errored. The default value depends on the interface standard and may differ between SDH and SONET.
   Type: numeric value set
   Range (superset of allowed ranges for SDH and SONET): 1 - 64000
   Default:
   The default values differ for SDH and SONET and the different rates:
   - SDH (all rates): 2400
   - SONET OC48: 2392
9. rsmstca – RS/MS TCA Profile Pointer
   Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
   Type: alphanumeric string.
   Range: String with maximum of 24 characters.
   Default: DEFAULT0.
10. rspm - RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).

    For ED-STM16T this parameter refers to the incoming (ingress) direction.

11. rspmout - RS PM Enable in Outgoing Direction
    Enable or disable regenerator section (section) performance monitoring for the outgoing (egress) direction.
    Type: alphanumeric value set.
    Range: ENABLE, DISABLE (default).
12. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
13. rstimmonout - RS TIM Monitor Enable in Outgoing direction
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0) in outgoing (egress) direction. This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set
    Range: ENABLE - enable TIM Monitor, DISABLE (default) - disable TIM Monitor
14. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET Alarm Severity Assignment Profile for the SONET ports (see definition of output parameter SONET in "RTRV-OC48: Retrieve OC48 port" (p. 4-1894)) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
15. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
16. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string

Range:

- 1: for specific repeating byte (SONET)
- 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
- 16: for 16 byte specific string (ITU/ETSI mode 1).
- 64: for 64 byte string (SONET).

For ED-STM16T this parameter refers to the incoming (Ingress) direction.

17. strcfmtout - Format of outgoing J0
    The read format of J0 in outgoing (egress) direction, the outgoing section trace (strcout) and the expected section trace (exprstrcout).
    Type: numeric string
    Range:
    - 1, for specific repeating byte (SONET)
    - 2 (default), for non-specific repeating byte (ITU/ETSI mode 2)
    - 16, for 16 byte specific string (ITU/ETSI mode 1)
    - 64, for 64 byte string (SONET).
18. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable:
    - TR-only (lso known as the implicit reset method)
    - TR-RTR (lso known as the explicit reset method).

    Type: alphanumeric value set.
    Range: TR or TRRTR (default).

Example output

```
ED-STM16T:UNITE-NE:1-1-#-#-1-1:123456:::RSPM=ENABLE,
RSPMOUT=ENABLE;
   UNITE-NE 00-11-28 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-STM16T:1-1-#-#-1-1::
   rspm=ENABLE,rspmout=ENABLE:"
;
```

□

ED-STM64: Edit STM64 port

The ED-STM64 command is used to provision all parameters related to optical STM64 port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: no

Input format

Command Syntax: `ED-STM64`:*tid:aid:ctag:::spec_block*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   Access Identifier of an STM64 port.
   Type: AID.
   Range: STM-64 port AID
   For changing the *portControl* parameter the ALL qualifier for the port aid shall be allowed.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....255
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
   The setting of this parameter is allowed when the related STM64 port is created, it is used when *sdfsmode*=BURST.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
   The setting of this parameter is allowed when the related STM64 port is created, it is used when *sdfsmode*=BURST.
4. degthr – Signal Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
   The setting of this parameter is allowed when the related STM64 port is created, it is used when *sdfsmode*=POISSON.
5. dexcthr – Excessive Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –3; –4; –5.
   Default: –3.
   The setting of this parameter is allowed when the related STM64 port is created, it is used when *sdfsmode*=POISSON.

6. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
7. fec – FEC Enable
   Forward Error Correction Enable. Enable to include the FEC information in the outgoing signal.
   Type: alphanumeric value set.
   Range:
   DISABLE (only) for:
   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics
   - OC192 / STM64 low cost intra office 1310nm optics
   - OC768 / STM256 basis low cost intra office 1.3µ optics.

   ENABLE / DISABLE for:
   - OC192 / STM64 OLS800G compatible 80 colour optics
   - OC768 / STM256 Long Reach / Long Haul 1.5µ optics (80km)
   - OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

   ENABLE (only) for:
   - OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G.

   Default:
   DISABLE for:
   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics
   - OC192 / STM64 low cost intra office 1310nm optics
   - OC768 / STM256 basis low cost intra office 1.3µ optics.

   ENABLE for:
   - OC192 / STM64 OLS800G compatible 80 colour optics
   - OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G

- OC768 / STM256 Long Reach / Long Haul 1.5µ optics (80km)
- OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

8. femspm – Far-end Multiplex Section Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
9. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE: (set a forced DUS/DNU)
   - DISABLE (default): (clear a forced DUS/DNU).
10. inputsig – Tributary Input Signal Rate List
    This parameter is a list of VCn rates across the port's bandwidth.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3, 4, 4C, 16C or C64 representing VC3, VC4, VC4-4C, VC4-16C or VC4-64C.
    Default: 644.
11. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET.
    Type: alphanumeric value set.
    Range:
    - SONET
    - SDH.

    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
12. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC464C (default), VC416C, VC44C, VC4, VC3.

13. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC3 (default), VC4, VC44C, VC416C, VC464C.
14. msrei – MS-REI mode
    Definition: An special extended MS REI mode is standardized for STM64/OC192 interfaces. To support the interworking with older STM64/OC192 interfaces the single byte mode (non-extended) should also be supported.
    Type: alphanumeric value set.
    Range:
    - SINGLE
    - EXTENDED (default).
15. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
16. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
17. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN. If ndetmd=MAN, this parameter shall indicate the value set by the operator. If

ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
neighborNodeID is introduced specifically for use by ONNS application.
Type: Four dot separated numeric string.
Range: Each numeric string: 0...255.
Default: 0.0.0.0
If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″

18. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if *ndetmd*=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborPortID is introduced specifically for use by NN application.
    Type: Four dash separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0-0-0-0.
    Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.
19. och – optical channel enable
    Enable or disable of the optical channel. If the optical channel is disabled the further optical channel parameters don’t have any impact on transmission.
    Type: alphanumeric value set.
    Range:
    - for OP10 packs, which support to enable or disable OCH: ENABLE: enable optical channel; DISABLE: disable optical channel
    - for OP10 and OP40 packs, which cannot support OCH: DISABLE: disable optical channel
    - for OP10 and OP40 packs, which only support OCH: ENABLE: enable optical channel.

    Default:
    - for OP10 and OP40 packs, which cannot support OCH: DISABLE
    - for OP10 packs, which cannot support OCH: ENABLE
    - for OP10 and OP40 packs, which only support OCH: ENABLE.

20. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.
21. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.

22. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
23. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000
    Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392
    - SONET OC192: 8554
    - SONET OC768: 22776.
24. polynomial - Optical Channel Scrambling Polynomial
    This parameter is used by the Wavewrapper scrambler on the optical channel. This parameter is relevant only if the optical channel is enabled (och == ENABLE).
    Type: numeric value set.
    Range: 1x7 + x + 1; 2x16 + x12 + x3 + x + 1.
    Default: 2.
25. portClass – Port Class
    This identifies the port class of the AID.
    portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.
26. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.

Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
portControl is introduced specifically for use by ONNS application.
Type: alphanumeric value set.
Range: NORMAL (default), LOCKOUT.

27. propagationDelay - Propagation Delay
This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
propagationDelay is introduced specifically for use by ONNS application.
Type: Numeric string
Range: 0(default) ...255.

28. rsmstca – RS/MS TCA Profile Pointer
Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
Type: alphanumeric string.
Range: String with maximum of 24 characters.
Default: DEFAULT0.

29. rspm – RS PM Enable
Enable or disable regenerator section (section) performance monitoring.
Type: alphanumeric value set.
Range:
    - ENABLE
    - DISABLE (default).

30. rstimca – RS TIM Consequent Action Enable
Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimca shall be autonomously set by the neighbour detection mechanism.
Type: alphanumeric value set.
Range:
    - ENABLE (default): enable consequent action for TIM
    - DISABLE: disable consequent action for TIM.

31. rstimmon – RS TIM Monitor Enable
Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
Type: alphanumeric value set.

Range:

- ENABLE: enable TIM Monitor
- DISABLE (default): disable TIM Monitor

32. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET Alarm Severity Assignment Profile for the SONET ports (see definition of output parameter SONET in "RTRV-OC192: Retrieve OC192 port" (p. 4-1916)) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
33. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON.
34. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
35. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    srlgList is introduced specifically for use by ONNS application. The order of the three identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only one or two identities are provisioned, the remaing one shall be set to the default value 0, e.g. 3-0-0.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0-0-0-0-0-0-0-0

36. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc).
    If the prameter *portClass* is set to INNI and *ndetmd* is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
37. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string dependent on the strcwfmt parameter.

    Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
38. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout).
    If the prameter *portClass* is set to INNI, the system shall autonomously set the parameter *strcwfmt* according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
39. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.

Two thresholding methods are applicable:

- TR-only (lso known as the implicit reset method)
- TR-RTR (lso known as the explicit reset method).

Type: alphanumeric value set.
Range: TR or TRRTR (default).

40. unequiposig – Unequipped Output Signal List
    This parameter is a list of VCn rates across the port's bandwidth. It determines the rate(s) of the *unequipped* signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need the identical setting. Mixed rates for *tx* and *rx* side of the port are allowed.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3, 4, 4C, 16C or C64 representing VC3, VC4, VC4-4C, VC4-16C or VC4-64C.
    Default: 644 = all VC4.

Output format

If the ED-STM64 command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

Behavior

The command modifies the attributes (listed in the *spec_block* parameters part of this command) of the addressed port entity according to the parameters given with this command.

The modification is reported by means of an ED-STM64 notification for port (except for parameter *istd*; see below).

Switching of interface standard – Ignore other parameters

If additional parameters beside *istd* are specified with the *ED-rr* command they will be ignored by the NE.

This simple approach has the advantage that all ambiguous situations are avoided and it is not necessary to implement an order or follow a certain sequence when evaluating the parameters.

Switching of interface standard – FM impact

The change of the interface standard of a port from SDH to SONET has the following impact related to fault management:

- all SDH alarms related to that port are cleared
- the corresponding SONET alarms are raised.

Supply outgoing J0 trace value and format together

When changing the format of the outgoing J0 trace *strcwfmt*, the parameter *strcout* specifying the outgoing J0 trace is always supplied within the same TL1-command to always have a consistent set of trace format and value.

When the format of the outgoing J0 trace *strcwfmt* is set to 2 (non-specific repeating byte) then the outgoing J0 trace (mandatory parameter strcout) specified in the command shall be ignored.

Supply outgoing J0 trace value according to format of outgoing J0

When changing the outgoing J0 trace value , the format must be according to the format parameter *strcwfmt* for the outgoing J0 trace.

Change of J0 expected format - FM impact

When the expected J0 format (strcfmt) is changed to 16 (16 byte specific string) while the TI Mismatch detection is enabled, then the TI Mismatch alarm shall be updated according to the provisioned ecpected J0 (expstrc) and the currently received J0 (strc).

When the expected J0 format is changed away from 16, while the TI Mismatch alarm is active, then the TI Mismatch alarm shall be cleared.

Switching of interface standard – Impact on port parameters

Switching of interface standard:

The switching of istd should not result in an deletion and recreation of the port. NE internally there are no differences between SDH and SONET.

Switching of interface standard I:

In detail the following attributes are influenced by switching of the *istd* from SDH to SONET (see also the related RTRV-OC*n* command for SONET parameter description):

- *brstintvl* is set to the default value
- *brstthr* is set to the default value
- *crstat* may change according to its semantics (see description of *crstat*)
- *femspm* is mapped to *felpm* (no changes)
- *inputsig* is set to the default value
- *istd* is set to SONET
- *nemspm* is mapped to *nelpm* (no changes)

- *rspm* is mapped to *spm* (no changes)
- *rstimca* is set to the default value for a SONET port
- *rstimmon* is set to the default value for a SONET port
- *sdhpn* is mapped to SONET (no changes)
- *sdsfmode* is set to the default value for a SONET port
- *sdthr* is set to the default value for a SONET port
- *sfthr* is set to the default value for a SONET port
- *trbmd* is set to the default value for a SONET port
- *unequiposig* is set to its default value
- *z0outmode* is set to its default value for a SONET port.

All other port parameters remain unchanged.

Switching of interface standard II:

In addition to the list of attributes above the following attributes are influenced by switching of the *istd* from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *sltca* is set to the default value for a SONET port
- *tcamd* is set to the default value for a SONET port.

The attribute *tcamd* does not exist for SONET ports. SONET ports only support TR-only mode. Thus the mode must be internally set to TR-only.

Switching of interface standard III:

In addition to the list of attributes above the following attributes are influenced by switching of the *istd* from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *pmmsfeses* is set to the default value for a SONET port
- *pmmsneses* is set to the default value for a SONET port
- *pmrsneses* is set to the default value for a SONET port.

Switching of interface standard IV:

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *minNNXCrate* is set to the default value for a SONET tributary
- *maxNNXCrate* is set to the default value for a SONET tributary

Switching of interface standard – Side effects on tributaries

The switching of *istd* should not result in an deletion and recreation of the tributaries of a port. NE internally there are no differences between SDH and SONET.

In detail the following side-effects apply to the related tributary attributes when switching the *istd* from SDH to SONET (see also the related RTRV-OC*n* command for SONET parameter description):

- *brstintvl* is set to the default value for a SONET tributary
- *brstthr* is set to the default value for a SONET tributary
- *pse* (PDI-P parameter) is set to the default value for a SONET tributary
- *sdsfmode* is set to the default value for a SONET tributary.

Switching of interface standard – Side effects on tributaries II

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *degthr* is set to the default value for an SONET tributary
- *dexcthr* is set to the default value for an SONET tributary
- *ptca* shall be set to the default value for a SONET tributary
- *tcamd* is set to the default value for a SONET tributary.

The attribute tcamd does not exist for SONET ports. SONET ports only support ″TR-only″ mode. Thus the mode must be internally set to ″TR-only″.

Switching of interface standard – Side effects on tributaries III

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *pmhpneses* is set to the default value for an SONET tributary
- *pmhpfeses* is set to the default value for an SONET tributary.

The attribute tcamd does not exist for SONET ports. SONET ports only support ″TR-only″ mode. Thus the mode must be internally set to ″TR-only″.

Switching of interface standard – notification behavior for port attributes

When changing the interface standard *istd* using the ED-STMn command all resulting parameter changes are reported by ED-OCn notifications of the related port rate. This is valid for the parameter istd itself as well as for all other parameters which might change as a consequence of changing the interface standard.

Switching of interface standard – notification behavior for tributary attributes

When changing the interface standard *istd* using the ED-STMn command all resulting tributary parameter changes are reported by ED-STS1 notifications.

For efficiency reasons the ED-STS1 notifications shall be sent out as a single notification using a range over the aid which depends on the port rate of the associated port, i.e. the Simple_STS1NumAID field in the STS1NumAID is set to

- 1 - 3, in case of an STM1/OC3 port
- 1 - 12, in case of an STM4/OC12 port
- 1 - 48, in case of an STM16/OC48 port
- 1 - 192, in case of an STM64/OC192 port
- 1 - 768, in case of an STM256/OC768 port.

Switching of interface standard - notification behavior for active TCA events

If the changing of the interface standard *istd* to SONET includes an change of *tcamd* from TR-RTR to TR-only (SONET default value), then all active TCA events of the related entities must be cleared.

Switching of interface standard – PM impact

The change of interface standard has the following impacts w.r.t. existing PM registers:

1. all current bins related to the port will be reset
2. all history bins related to the port remain unchanged
3. all current bins related to tributaries being a member of the port will be reset
4. all history bins related to tributaries being a member of the port remain unchanged.

Retrieving the bins after switching the interface standard may result in a strange reporting behavior:

- When switching the interface standard to SONET the periods before the switch contain SDH-related parameters and values even though the port is addressed as a SONET port.
- When switching the interface standard to SDH the periods before the switch contain SONET-related parameters and values even though the port is addressed as a SDH port.

Disabling of PM monitor

The disabling of a PM monitor shall have the following impacts w.r.t. existing PM registers:

1. stop PM counting
2. all current bins related to the PM monitor shall be deleted
3. all history bins related to the PM monitor shall be deleted

The term PM monitor has the same semantics as the term PM package as used in SRD_PerformanceMonitoring. The number of PM monitors is determined by means of the number of *pm enable attributes*.

PM monitors can be disabled explicitly by means of the *pm enable* attribute or are implicitly disabled as part of a port/tributary deletion.

Additional to the above listed impacts (ID 52924) the disabling of a PM monitor shall have the following impacts: the system has to clear all active TCA events of the deleted PM monitor if TCA mode TR-RTR was selected.

Changing TCA mode from TR-RTR to TR-only

The change of tcamd from TR-RTR (also known as the explicit reset method) to TR-only (also known as the implicit reset method) has the impact, that all active TCA events of the related entity must be cleared.

ONNS specific behaviour - Impact on *portControl* when changing *portClass*

When portClass is changed to TRADITIONAL, *portControl* shall be set to NORMAL, if not set differently within the same command.

Such a change shall be reported by an ED-STM64 notification for the parameter *portControl*.

ONNS specific behaviour - Impact on tributary mode setting when *portClass* is set to INNI

When *portClass* is set to INNI for a port, the parameter trbmd shall be set to *adaptive*. This shall be reported by an ED-STM64 notification for the parameter *trbmd*.

ONNS specific behaviour - Impact on tributary mode setting when *portClass* is set to EDGE

When *portClass* is set to EDGE for a port, the parameter trbmd shall be set to FIXED. This shall be reported by an ED-STM64 notification for the parameter *trbmd*.

ONNS specific behaviour - Impact on *loca*, *locz* when setting *portClass* from EDGE to TRADITIONAL when port is involved in a 2F or 4F BLSR/MSSPRING protection group

For all tributaries of that port the *loca*, *locz* parameters shall be reset to their default values (empty string). This is reported by an ED-STS1 (istd=SONET for the port) or ED-VC3 (istd=SDH for the port) notification using a range over the port.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI and *ndetmd* is set to AUTO

When *portClass* is set to INNI and *ndetmd* is set to AUTO for a port, the parameter *pmode* is set to MONITORING. This is reported by an ED-STM64 notification for the parameter *pmode*.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI and *ndetmd* is set to MAN

When *portClass* is set to INNI and ndetmd is set to MAN for a port, the parameters *rstimca* and *rstimmon* are set to DISABLE. This is reported by an ED-STM64 notification for the parameters *rstimca* and *rstimmon*.

ONNS specific behaviour - Impact on tributary parameter settings when *portClass* is set to INNI

When *portClass* is set to INNI, the parameter *hptimmon* is set to DISABLE for all tributaries located on this port. This is reported by ED-VC3 notifications for the parameter *hptimmon*.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is set to INNI

When *portClass* is set to INNI, each of the following parameters shall take its default value, unless a value is specified together with the transition of *portClass* o INNI:

- *ndetmd*
- *neighborASTNNodeID*
- *neighborNodeID*
- *neighborPortID*

ONNS specific behaviour - Impact on neighbour related parameters if *portClass* is changed away from INNI

When *portClass* is changed away from INNI, the following parameters shall be set to their default values: *neighborASTNNodeID*, *neighborNodeID*, *neighborPortID*.

ONNS specific behaviour - Impact on port parameter settings when *ndetmd* is set to AUTO

When *ndetmd* is set to AUTO for a port, the parameters *neighborNodeID*, *neighborPortID* or *neighborASTNNodeID* keeps their current values until automatic neighbor detection delivers new valid values.

ONNS specific behaviour - Impact on port parameter settings while *portClass* is INNI

When *portClass* has the value INNI for a port, setting of the following parameters will be accepted, but will have no impact until *portClass* is changed away from INNI:

- *exprstrc*
- *rstimca*
- *rstimmon*
- *strcfmt*
- *strcout*
- *strcwfmt*.

At the moment *portClass* is changed away from INNI the parameters are set back to their default values. This shall be reported by means of an ED-STM64 notification.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is different from INNI

When *portClass* has a value being different from INNI for a port, setting of the following parameters shall be accepted, but shall have no impact until *portClass* is changed to INNI:

- *propagationDelay*, *adminCost*, *srlgList*, *link_includeID,maxNNXCRate,minNNXCRate*.

At the moment the *portClass* is changed to INNI the current values of these parameters shall be considered as valid.

ONNS specific behaviour - Impact on port parameter settings when *portClass* is different from INNI

When *portClass* has a value being different from INNI for a port, setting of the following parameters shall be accepted:

- *ndetmd*, *neighborASTNNodeID, neighborNodeID*, *neighborPortID*.

ONNS specific behaviour - Impact on port parameter settings while *portClass* is TRADITIONAL

When *portClass* has the value TRADITIONAL for a port, setting of the following parameters shall be accepted, but shall have no impact until *portClass* is changed away from TRADITIONAL: *portControl*.

At the moment the *portClass* is changed away from TRADITIONAL the current values of these parameters shall be considered as valid.

Example input/output

```
ED-STM64:UNITE-NE:1-1-#-#-1-1:123456:::INPUTSIG=644,
UNEQUIPOSIG=644;
   UNITE-NE 00-11-28 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-STM16:1-1-#-#-1-1::
   inputsig=644,unequiposig=644:"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the ED-STM64 command.

Validation rule: Enough bandwidth reserved for 2F protection group

Check of the tributary rate (*inputsig/uneqiposig*) if the port is member of a 2f protection group. Then the assigned bandwidth will be max. half of the port's bandwidth.

Error code: `IDNV - Input, Data Not Valid, Assigned bandwidth exceeds half port's bandwidth`

Validation rule: ASAP profile exists

Check of the existence of the ASAP profile.

Error code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation Rule: TCA profile exists

Check of the existance of the TCA profile.

Error code: `IDNV - Input, Data Not Valid, TCA profile does not exist`

Validation rule: inputsig consistent with existing cross-connections

Check of the consistency of the structure of the input signal (*inputsig*) with existing cross-connections.

Error code: `SNVS - Status, Not in Valid State, signal structure cannot be changed for connected parts of a fixed port`

Validation rule: unequiposig consistent with existing cross-connections

Check of the consistency of the structure of the output signal (*unequiposig*) with existing cross-connections.

Error code: `SNVS - Status, Not in Valid State, signal structure cannot be changed for connected parts of a fixed port`

Validation rule: no lower order cross-connections for *istd* change

Check that the interface standard parameter (istd) is not changed when lower order cross-connections are still on this port. If lower order cross connections exist, the following error message shall be returned:

Error code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

Validation rule: no cross-connections for *istd* change

Check that the interface standard parameter (*istd*) is not changed when cross-connections are still on this port.

Error code: `SNVS - Status, Not in Valid State, cross-connections are still existing`

Validation rule: no loopbacks for *istd* change

Check that the interface standard parameter (*istd*) is not changed when loopback is still on this port.

Error code: `SNVS - Status, Not in Valid State, a loopback is existing`

Validation rule: no protection for *istd* change

Check that the interface standard parameter (*istd*) is not changed when this port is in an protection group.

Error code: `SNVS - Status, Not in Valid State, a protection group is existing`

Validation rule: no ONNS for interface standard change

Check that the interface standard parameter (istd) is not changed if ONNS functionality is available.

This means:

- *portClass* must be TRADITIONAL or
- *portControl* must be LOCKOUT.

Error code: `SNVS - Status, Not in Valid State, SwiSS access possible`

Validation rule: *servcond* must be enabled when timing source

Check that the *servcond* is not disabled when the port is used as a timing source.

Error code: `SNVS - Status, Not in Valid State, Timing reference is assigned to this port`

Validation rule: *servcond* must be enabled when DCC enabled

Check that the *servcond* is not disabled when DCC channels are still existing for this port.

Error code: `SNVS - Status, Not in Valid State, DCC channels are active for this port`

Validation rule: *servcond* must be enabled when *portClass*=INNI

Check that the servcond is not OUTOFSERVICE when portClass=INNI.

Error code: `SNVS - Status, Not in Valid State, can not disable servcond for INNI ports`

Validation rule: servcond must be enabled for protection ports

Check that the servcond is not OUTOFSERVICE if the port is used as protection port.

Error code: `SNVS - Status, Not in Valid State, can not disable servcond for protection ports`

Validation rule: *servcond* must be disabled for facility loopback

Check that the *servcond* is not enabled when a facility loopback is existing for this port.

Error code: `SNVS - Status, Not in Valid State, Facility Loopback is active for this port`

Validation rule: Supply of outgoing J0 trace

Check that an outgoing J0 trace value (*strc* out) is supplied, too, if the format of the outgoing J0 trace (*strcwfmt*) is changed.

Error code: `IDNC - Input, Data Not Consistent, a new trace value must also be supplied for a trace format change.`

Validation rule: transmitted path trace length

Check that the length of the outgoing J0 trace value (*strcout*) fits to the length given by outgoing J0 trace mode, i.e. write format (*strcwfmt*).

Error code: `IDNC - Input, Data, Not Consistent, strcout length must match the given outgoing J0 trace mode.`

Validation rule: Change of FEC parameters only if supported by the current circuit pack

When changing one of the FEC-related parameters *fec, feccor* and *fectype* it is checked, whether the currently provisioned circuit pack supports this. If it is not supported the following error code is used:

Error code: `IDNV - Input, Data Not Valid, Parameter not supported`

Validation rule: Enabling of optical channel only if supported by the current circuit pack

When enabling the optical channel via parameter *och* it will be checked, whether the currently provisioned circuit pack supports this. If it is not supported the following error code is used:

Error code: `IDNV - Input, Data Not Valid, Parameter not supported`

Validation rule: Enabling of FEC only while optical channel is enabled

The command is denied if FEC is enabled (*fec* = *ENABLE*) while the optical channel is disabled or if the optical channel is disabled enabled (*och* = *DISABLE*) while FEC is enabled. It shall be allowed to enable or disable FEC and the optical channel together in one command.

Error code: `SNVS - Status, Not in Valid State, Optical Channel must be enabled`

Validation rule: 'ALL' qualifier used for wrong parameters

The ALL qualifier for the port aid is only allowed for changing the *portControl* parameter.

Error Code: `IDNC - Input, Data Not Consistent, 'ALL' qualifier for port aid not allowed`

Check CCB against *ptype* and *istd*

Check wether the CCB fits to ptype and istd.

Error Code: `ICNV - Input, Command Not Valid, Interface Standard does not match`

ONNS specific validation rule: *portClass* only settable when *xcsetup*=SWISS

Modification of the *portClass* parameter shall only be allowed when *xcsetup*=SWISS.

Error code: `SNVS - Status, Not in Valid State, SwiSS not enabled`

ONNS specific validation rule: Not allowed to change the *portClass* directly from INNI to EDGE or EDGE to INNI

It shall not be allowed to change the *portClass* of a port directly from INNI to EDGE or from EDGE to INNI.

Error Code: `SNVS - Status, Not in Valid State, Port Class must not be EDGE or INNI`

ONNS specific validation rule: Setting of *portClass* to INNI not possible for ports in protection groups

It shall not be allowed to change *portClass* of a port to INNI, if this port is member of a Line/MS protection scheme.

Error Code: `SNVS - Status, Not in Valid State, Port must not be member of a protection group`

ONNS specific validation rule: Setting of *portClass* to INNI only possible, if no cross-connection existing

It shall not be allowed to change *portClass* to INNI, if cross-connections on that port are still existing.

Error Code: `SNVS - Status, Not in Valid State, Cross-connections still existing`

ONNS specific validation rule: Setting of *portClass* to INNI only possible, if no lower order cross-connections exist

Check if lower order cross connections exist which involve the port to be changed. If lower order cross-connections exist, the following error message shall be returned:

Error Code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

ONNS specific validation rule: Setting of *portClass* to INNI only possible, if service condition not OUTOFSERVICE

It shall not be allowed to change *portClass* to INNI, if servcond=OUTOFSERVICE.

Error code: `SNVS - Status, Not in Valid State, port in out of service state`

ONNS specific validation rule: Setting of *portClass* to INNI or EDGE only possible, if no test access session active

It shall not be allowed to change *portClass* of a port to INNI or EDGE when a tributary related to this port is used in a test access session either as tributary under test or as test access tributary.

Error code: `SNVS - Status, Not in Valid State, a test access session exists`

ONNS specific validation rule: Setting of *portClass* away from INNI only possible, if the port is not in use

For setting *portClass* from INNI to TRADITIONAL or EDGE the following must be fulfilled:

- No cross-connection may exist on any tributary of the port
- *portControl* must be LOCKOUT.

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

ONNS specific validation rule: Setting of *portClass* away from INNI only possible, if the port is not in use by M:N reservation

For setting *portClass* from INNI to TRADITIONAL or EDGE the following must be fulfilled:

- No reservation related to a protecting NN connection within an M:N protected connection group may exist on any tributary of the port

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

ONNS specific validation rule: Changing of *portClass* from INNI to EDGE or TRADITIONAL only possible, if no DCC for SCN is enabled on the port

For changing the value of the parameter *portClass* no DCC of the port must be enabled for the SCN.

Error Code: `SNVS - Status, Not in Valid State, DCC on SCN may not be enabled`

ONNS specific validation rule: Setting of *portClass* from EDGE to TRADITIONAL only possible, if the tributaries on the port are not in use by ONNS:

For setting *portClass* from EDGE to TRADITIONAL the following must be fulfilled:

- No cross-connections of xconcls=NN may exist on any tributary of the port
- *portControl* must be LOCKOUT.

Error Code: `SNVS - Status, Not in Valid State, Port is still in use`

ONNS specific validation rule: Setting of *portClass* from TRADITIONAL to EDGE

For setting *portClass* from TRADITIONAL to EDGE the port must not be the protection port of a 1+1 MSP group.

Error code: `SNVS - Status, Not in Valid State, Port must not be a 1+1 protection port`

For setting *portClass* from TRADITIONAL to EDGE the port must not be the protection port of a 1:1 MAP group.

Error code: `SNVS - Status, Not in Valid State, Port must not be a 1:1 protection port`

For setting *portClass* from TRADITIONAL to EDGE the port must not be the protection port of a 4f-MSSPRING group.

Error Code: `SNVS - Status, Not in Valid State, Port must not be a 4f-MSSPRING protection port`

ONNS specific validation rule: Setting of *portClass* to EDGE for TOP

If the port is part of a 4F MSSPRING group and protnmode equals SHORTENED or TOPEX (both are TOP), then setting the portClass to EDGE shall not be allowed.

Error code: `SNVS - Status, Not in Valid State, portClass must not be EDGE for TOP`

ONNS specific validation rule: Setting of some INNI properties only possible, if no cross-connection existing

It shall not be allowed to change one of the following parameters (provided this parameter is supported in a particular release at all) on a port with *portClass*=INNI, if cross-connections on that port are existing:

- *ink_IncludeID*, *neighborNodeID*, *neighborPortID*, *propagationDelay*, *srlgList*, *neighborASTNNodeID*, *maxNNXCRate,minNNXCRate*.

Error code: `SNVS - Status, Not in Valid State, no XCs allowed for change of iNNI parameters`

ONNS specific validation rule: Setting of some INNI properties only possible, if no reservations wrt. M:N protecting connections existing

It shall not be allowed to change one of the following parameters on a port with portClass=INNI, if reservations wrt. M:N protecting NN connections on that port are existing:

- *link_IncludeID, neighborNodeID, neighborPortID, propagationDelay, srlgList, neighborASTNNodeID, maxNNXCRate, minNNXCRate*

Error Code: `SNVS - Status, Not in Valid State, no XC reservations allowed for change of iNNI parameters`

ONNS specific validation rule: Setting of INNI properties only possible if *portControl* is LOCKOUT

The system shall allow to change the following parameters only under the conditions:

- if the port control is LOCKOUT while port class is INNI
- together with the transition of port control from LOCKOUT to NORMAL while port class is INNI or
- together with the transition of port class to INNI

adminCost, *link_IncludeID*, *maxNNXCRate, minNNXCRate, ndetmd, neighborASTNNodeID, neighborNodeID*, *neighborPortID*, *propagationDelay*, *srlgList.*

Error code: `SNVS - Status, Not in Valid State, only allowed for INNI port in lockout state`

ONNS specific validation rule: Some Parameters not settable for ports of *portClass*=INNI

The following parameters shall not be changeable for ports with *portClass*=INNI: *exprstrc*, *rstimca, rstimmon, strcfmt*, *strcout*, *strcwfmt*.

Error code: `SNVS - Status, Not in Valid State, J0 parameters can not be set for INNI ports`

ONNS specific validation rule: Port mode not settable for ports of *portClass* INNI

The system shall not allow to change the parameter pmode if portClass has been set to INNI prior to this command or if *portClass* is set to INNI with this command. The paramer *pmode* shall either be omitted or specified with the only allowed value MON.

Error Code: `SNVS - Status, Not in Valid State, port mode change not allowed for INNI ports`

ONNS specific validation rule: Some parameters not settable for ports of *ndetmd* AUTO

The following parameters shall not be changeable for ports with ndetmd AUTO: *neighborNodeID*, *neighborPortID, neighborASTNNodeID.*

Error Code: `SNVS - Status, Not in Valid State, ndetmd must not be AUTO`

ONNS specific validation rule: Additional parameters required when setting *ndetmd* to MAN

Values for the following parameters must be given, if *ndetmd* is changed to MAN: *neighborNodeID*, *neighborPortID, neighborASTNNodeID.*

Error Code: IDNV - `Input, Data Not Valid, additional parameter required`

ONNS specific validation rule: No setting of duplicate *neighborASTNNodeID* and *neighborPortID* parameter combination

Setting of the parameters *neighborASTNNodeID* and *neighborPortID* shall only be possible, if the same combination of values does not already exists for a different INNI port in the system.

Error code: `IDNV - Input, Data Not Valid, duplicate neighbor port information`

ONNS specific validation rule: No setting of *neighborASTNNodeID* or *neighborNodeID* to corresponding IDs of local node

It shall not be allowed to configure parameters *neighborASTNNodeID* or *neighborNodeID* to corresponding values of the local node itself, i.e. it shall not be possible to configure a node to be its own ONNS neighbor.

Error code: `IDNV - Input, Data Not Valid, node itself is not a valid neighbor`

ONNS specific validation rule: Setting of neighbor information to UNKNOWN

In order to set neighbor information to UNKNOWN, zero values must be set for all parameters *neighborASTNNodeID*, *neighborNodeID* and *neighborPortID* consistently. It shall not be possible to set zero value for only one or two of them.

Error Code: `IDNV - Input, Data Not Valid, zero values can only be set for all neighbor information consistently`

ONNS specific validation rule: No setting of *minNNXCRate* to values larger than value of *maxNNXCRate* and vice versa

It shall not be allowed to configure parameters *maxNNXCRate* and *minNNXCRate* in a way, that the value of *minNNXCRate* is larger than the value of *maxNNXCRate*

Error code: `IDNV - Input, Data Not Valid, Min. and max. NN XC rates incompatible`

Related TL1 messages

"RTRV-STM64: Retrieve STM64 port" (p. 4-2122)

References

GR-199-CORE (ED-*rr*)

□

ED-STM64 autonomous notifications

LOS for transmission port STM64 clears

If LOS is cleared and current port mode is AUTO, then *portmode* is updated (new value: MON). This update is reported via ED-STM64 notification with parameter pmode.

Change of neighbor node and neighbor port information

If *ndetmd*=AUTO a change of the attributes *neighborNodeID*, *neighborPortID* or *neighborASTNNodeID* is notified by the related ED-STM64 notification.

□

ED-STM64 notification

Output format

The ED-STM64 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ED-STM64`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID.
   Range: SPortAID of ST-64 port.
   The keyword `all` is allowed up to shelf level.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....65535
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
   The setting of this parameter is allowed when the related STM64 port is created, it is used when *sdfsmode*=BURST.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
   The setting of this parameter is allowed when the related STM64 port is created, it is used when *sdfsmode*=BURST.

4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the Tributary Input Rate Signal List.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 3, 4, 4C, 16C or C64 representing VC3, VC4, VC4-4C, VC4-16C or VC-64C.
5. degthr – Signal Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
   The setting of this parameter is allowed when the related STM64 port is created, it is used when *sdfsmode*=POISSON.
6. dexcthr – Excessive Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –3; –4; –5.
   Default: –3.
   The setting of this parameter is allowed when the related STM64 port is created, it is used when *sdfsmode*=POISSON.
7. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
8. fec – FEC Enable
   Forward Error Correction Enable. Enable to include the FEC information in the outgoing signal.
   Type: alphanumeric value set.
   Range:
   DISABLE (only) for:
   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH passive WDM compatible optics

- OC192 / STM64 Long Reach / Long Haul 1550 nm optics
- OC192 / STM64 low cost intra office 1310nm optics
- OC768 / STM256 basis low cost intra office 1.3µ optics.

ENABLE / DISABLE for:

- OC192 / STM64 OLS800G compatible 80 colour optics
- OC768 / STM256 Long Reach / Long Haul 1.5µ optics (80km)
- OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

ENABLE (only) for:

- OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G.

Default:

DISABLE for:

- OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
- OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
- OC192 / STM64 Long Reach / Long Haul 1550 nm optics
- OC192 / STM64 low cost intra office 1310nm optics
- OC768 / STM256 basis low cost intra office 1.3µ optics.

ENABLE for:

- OC192 / STM64 OLS800G compatible 80 colour optics
- OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G
- OC768 / STM256 Long Reach / Long Haul 1.5µ optics (80km)
- OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

9. femspm – Far-end Multiplex Section Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
10. frcdus – Force to DUS
    Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
    Type: alphanumeric value set.
    Range:
    - ENABLE: (set a forced DUS/DNU)
    - DISABLE (default): (clear a forced DUS/DNU).

11. fsflpbkstat – Far Side Facililiy Loopback Status
    This parameter specifies the current far-side facility loopback status of the considered output *aid.*
    A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
    Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
12. inputsig – Tributary Input Signal Rate List
    This parameter is a list of VCn rates across the port's bandwidth.
    Type: numeric value set.
    Range: NX-NX-NX-...
    N is the number of Xs. X can be 3, 4, 4C, 16C or C64 representing VC3, VC4, VC4-4C, VC4-16C or VC4-64C.
    Default: 644.
13. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET.
    Type: alphanumeric value set.
    Range:
    - SONET
    - SDH.

    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
14. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).

15. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC4 (default), VC3.
16. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC3 (default), VC4.
17. msrei – MS-REI mode
    Definition: An special extended MS REI mode is standardized for STM64/OC192 interfaces. To support the interworking with older STM64/OC192 interfaces the single byte mode (non-extended) should also be supported.
    Type: alphanumeric value set.
    Range:
    - SINGLE
    - EXTENDED (default).
18. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
19. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.

neighborASTNNodeID is introduced specifically for use by ONNS application.
Type: Four dot separated numeric string.
Range: Each numeric string: 0...255.
Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.

20. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN. If ndetmd=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″
21. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if *ndetmd*=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborPortID is introduced specifically for use by NN application.
    Type: Four dash separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0-0-0-0.
    Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.
22. nemspm – MS Near-End PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).

23. och – optical channel enable
    Enable or disable of the optical channel. If the optical channel is disabled the further optical channel parameters don't have any impact on transmission.
    Type: alphanumeric value set.
    Range:
    - for OP10 packs, which support to enable or disable OCH: ENABLE: enable optical channel; DISABLE: disable optical channel
    - for OP10 and OP40 packs, which cannot support OCH: DISABLE: disable optical channel
    - for OP10 and OP40 packs, which only support OCH: ENABLE: enable optical channel.

    Default:
    - for OP10 and OP40 packs, which cannot support OCH: DISABLE
    - for OP10 packs, which cannot support OCH: ENABLE
    - for OP10 and OP40 packs, which only support OCH: ENABLE.
24. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.

25. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.
26. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
27. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000
    Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392

- SONET OC192: 8554
- SONET OC768: 22776.

28. polynomial - Optical Channel Scrambling Polynomial
    This parameter is used by the Wavewrapper scrambler on the optical channel. This parameter is relevant only if the optical channel is enabled (och == ENABLE).
    Type: numeric value set.
    Range: 1x7 + x + 1; 2x16 + x12 + x3 + x + 1.
    Default: 2.
29. portClass – Port Class
    This identifies the port class of the AID.
    portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.
30. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
    portControl is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.
31. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(default) ...255.
32. rsmstca – RS/MS TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
33. rspm – RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.

Range:

- ENABLE
- DISABLE (default).

34. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimca shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE (default): enable consequent action for TIM
    - DISABLE: disable consequent action for TIM.
35. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
36. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET Alarm Severity Assignment Profile for the SONET ports (see definition of output parameter SONET in "RTRV-OC192: Retrieve OC192 port" (p. 4-1916)) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
37. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON.
38. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.

Range:

- INSERVICE (default): Provisioning values for service are accepted
- OUTOFSERVICE: Provisioning values for service are not accepted.

39. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    srlgList is introduced specifically for use by ONNS application. The order of the three identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only one or two identities are provisioned, the remaing one shall be set to the default value 0, e.g. 3-0-0.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0-0-0-0-0-0-0-0
40. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc).
    If the prameter *portClass* is set to INNI and *ndetmd* is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
41. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.

Range:

- 1 byte string
- 16 bytes string
- 64 bytes string dependent on the strcwfmt parameter.

Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
Default: 01Hex

42. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout).
    If the prameter *portClass* is set to INNI, the system shall autonomously set the parameter *strcwfmt* according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
43. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable:
    - TR-only (lso known as the implicit reset method)
    - TR-RTR (lso known as the explicit reset method).

    Type: alphanumeric value set.
    Range: TR or TRRTR (default).
44. unequiposig – Unequipped Output Signal List
    This parameter is a list of VCn rates across the port's bandwidth. It determines the rate(s) of the *unequipped* signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need the identical setting. Mixed rates for *tx* and *rx* side of the port are allowed.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3, 4, 4C, 16C or C64 representing VC3, VC4, VC4-4C, VC4-16C or VC4-64C.
    Default: 644 = all VC4.

Example output

```
ED-STM64:UNITE-NE:1-1-#-#-1-1:123456:::INPUTSIG=644,
UNEQUIPOSIG=644;
   UNITE-NE 00-11-28 08:00:00
M  123456 COMPLD
;
```

```
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-STM16:1-1-#-#-1-1::
   inputsig=644,unequiposig=644:"
;
```

ED-STM256: Edit STM256 port

The ED-STM256 command is used to provision all parameters related to optical STM256 port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: no

Input format

Command Syntax: `ED-STM256`:*tid:aid:ctag:::spec_block*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   Description: Access Identifier of an STM256 port.
   Type: AID.
   Range: SPortAID of STM256 port.
   The keyword `all` is allowed up to shelf level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
   The setting of this parameter is allowed when the related STM64 port is created, it is used when *sdfsmode*=BURST.
2. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
   The setting of this parameter is allowed when the related STM64 port is created, it is used when *sdfsmode*=BURST.
3. degthr – Signal Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
   The setting of this parameter is allowed when the related STM64 port is created, it is used when *sdfsmode*=POISSON.
4. dexcthr – Excessive Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –3; –4; –5.
   Default: –3.
   The setting of this parameter is allowed when the related STM64 port is created, it is used when *sdfsmode*=POISSON.
5. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier. The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
   Type: hexadecimal digits
   Range: 16 byte string Each byte shall be expressed as two hexadecimal digits (example value: 6D). The first byte value shall be in the range from 80 to FF. The other byte values shall be in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex

6. fec – FEC Enable
   Forward Error Correction Enable. Enable to include the FEC information in the outgoing signal.
   Type: alphanumeric value set.
   Range:
   DISABLE (only) for:
   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics
   - OC192 / STM64 low cost intra office 1310nm optics
   - OC768 / STM256 low cost intra office 1.3m optics.

   ENABLE / DISABLE for:
   - OC192 / STM64 OLS800G compatible 80 colour optics
   - OC768 / STM256 Long Reach / Long Haul 1.5m optics (80km)
   - OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)
   - OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G

   Default:
   DISABLE (only) for:
   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics
   - OC192 / STM64 low cost intra office 1310nm optics
   - OC768 / STM256 basis low cost intra office 1.3m optics.

   ENABLE for:
   - OC192 / STM64 OLS800G compatible 80 colour optics
   - OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G
   - OC768 / STM256 Long Reach / Long Haul 1.5æ optics with strong FEC (80km)
   - OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

7. femspm – Far-end Multiplex Section PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).

8. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU
9. inputsig – Tributary Input Signal Rate List
   This parameter is a list of VCn rates across the port's bandwidth.
   Type: numeric value set.
   Range: NX-NX-NX-...
   N is the number of Xs. X can be 3, 4, 4C, 16C, C64 representing VC3, VC4, VC4-4C, VC4-16C or VC64C.
   Default: 2564 (all VC4).
10. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET.
    Type: alphanumeric value set.
    Range:
    - SONET
    - SDH.

    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
11. nemspm – MS Near-End PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
12. och – optical channel enable
    Enable or disable of the optical channel. If the optical channel is disabled the further optical channel parameters don't have any impact on transmission.
    Type: alphanumeric value set.
    Range:
    - for OP10 packs, which support to enable or disable OCH: ENABLE: enable optical channel; DISABLE: disable optical channel
    - for OP40 packs, which cannot support OCH: DISABLE: disable optical channel
    - for OP40 packs, which only support OCH: ENABLE: enable optical channel.

Default:

- for OP10 and OP40 packs, which cannot support OCH: DISABLE
- for OP10 packs, which can support OCH: ENABLE
- for OP10 and OP40 packs, which only support OCH: ENABLE.

13. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
Type: numeric value set.

    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:

    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.

14. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
Type: numeric value set.

    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:

    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800

- SONET OC48: 2459
- SONET OC192: 9835
- SONET OC768: 39340.

15. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
16. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000
    Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392
    - SONET OC192: 8554
    - SONET OC768: 22776.
17. rsmstca – RS/MS TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
18. rspm – RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).

19. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimca shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE (default): enable consequent action for TIM
    - DISABLE: disable consequent action for TIM.
20. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
21. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET Alarm Severity Assignment Profile for the SONET ports (see definition of output parameter SONET in "RTRV-OC768: Retrieve OC768 port" (p. 4-1931)) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
22. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON.
23. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.

24. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc).
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
25. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string dependent on the strcwfmt parameter.

    Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
26. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
27. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.

Two thresholding methods are applicable:

- TR-only (lso known as the implicit reset method)
- TR-RTR (lso known as the explicit reset method).

Type: alphanumeric value set.
Range: TR or TRRTR (default).

28. unequiposig – Unequipped Output Signal List
    This parameter is a list of VCn rates across the port's bandwidth. It determines the rate(s) of the *unequipped* signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need the identical setting. Mixed rates for *tx* and *rx* side of the port are allowed.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3, 4, 4C, 16C, C64 representing VC3, VC4, VC4-4C, VC4-16C or VC4-64C.
    Default: 2564 = all VC4.

Output format

If the ED-STM256 command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The command modifies the attributes (listed in the *spec_block* parameters part of this command) of the addressed port entity according to the parameters given with this command.

The modification is reported by means of an ED-STM256 notification for port (except for parameter *istd;* see below).

Switching of interface standard – Ignore other parameters

If additional parameters beside *istd* are specified with the *ED-rr* command they will be ignored by the NE.

This simple approach has the advantage that all ambiguous situations are avoided and it is not necessary to implement an order or follow a certain sequence when evaluating the parameters.

Switching of interface standard – FM impact

The change of the interface standard of a port from SDH to SONET has the following impact related to Fault Management:

- all SDH alarms related to that port are cleared
- the corresponding SONET alarms are raised.

Supply outgoing J0 trace value and format together

When changing the format of the outgoing J0 trace *strcwfmt*, the parameter *strcout* specifying the outgoing J0 trace is always supplied within the same TL1-command to always have a consistent set of trace format and value.

When the format of the outgoing J0 trace *strcwfmt* is set to 2 (non-specific repeating byte) then the outgoing J0 trace (mandatory parameter strcout) specified in the command shall be ignored.

Supply outgoing J0 trace value according to format of outgoing J0

When changing the outgoing J0 trace value, the format must be according to the format parameter *strcwfmt* for the outgoing J0 trace.

Change of J0 expected format - FM impact

When the expected J0 format (strcfmt) is changed to 16 (16 byte specific string) while the TI Mismatch detection is enabled, then the TI Mismatch alarm shall be updated according to the provisioned ecpected J0 (expstrc) and the currently received J0 (strc).

When the expected J0 format is changed away from 16, while the TI Mismatch alarm is active, then the TI Mismatch alarm shall be cleared.

Switching of interface standard – Impact on port parameters

Switching of interface standard:

The switching of istd should not result in an deletion and recreation of the port. NE internally there are no differences between SDH and SONET.

Switching of interface standard I:

In detail the following attributes are influenced by switching of the *istd* from SDH to SONET (see also the related RTRV-OC*n* command for SONET parameter description):

- *brstintvl* is set to the default value
- *brstthr* is set to the default value
- *crstat* may change according to its semantics (see description of *crstat*)
- *femspm* is mapped to *felpm* (no changes)
- *inputsig* is set to the default value
- *istd* is set to SONET
- *nemspm* is mapped to *nelpm* (no changes)

- *rspm* is mapped to *spm* (no changes)
- *rstimca* is set to the default value for a SONET port
- *rstimmon* is set to the default value for a SONET port
- *sdhpn* is mapped to SONET (no changes)
- *sdsfmode* is set to the default value for a SONET port
- *sdthr* is set to the default value for a SONET port
- *sfthr* is set to the default value for a SONET port
- *trbmd* is set to the default value for a SONET port
- *unequiposig* is set to its default value
- *z0outmode* is set to its default value for a SONET port.

All other port parameters remain unchanged.

Switching of interface standard II:

In addition to the list of attributes above the following attributes are influenced by switching of the *istd* from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *sltca* is set to the default value for a SONET port
- *tcamd* is set to the default value for a SONET port.

The attribute *tcamd* does not exist for SONET ports. SONET ports only support TR-only mode. Thus the mode must be internally set to TR-only.

Switching of interface standard III:

In addition to the list of attributes above the following attributes are influenced by switching of the *istd* from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *pmmsfeses* is set to the default value for a SONET port
- *pmmsneses* is set to the default value for a SONET port
- *pmrsneses* is set to the default value for a SONET port.

Switching of interface standard IV:

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *minNNXCrate* is set to the default value for a SONET tributary
- *maxNNXCrate* is set to the default value for a SONET tributary

Switching of interface standard – Side effects on tributaries

The switching of *istd* should not result in an deletion and recreation of the tributaries of a port. NE internally there are no differences between SDH and SONET.

In detail the following side-effects apply to the related tributary attributes when switching the *istd* from SDH to SONET (see also the related RTRV-OC*n* command for SONET parameter description):

- *brstintvl* is set to the default value for a SONET tributary
- *brstthr* is set to the default value for a SONET tributary
- *pse* (PDI-P parameter) is set to the default value for a SONET tributary
- *sdsfmode* is set to the default value for a SONET tributary.

Switching of interface standard – Side effects on tributaries II

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *degthr* is set to the default value for an SONET tributary
- *dexcthr* is set to the default value for an SONET tributary
- *ptca* shall be set to the default value for a SONET tributary
- *tcamd* is set to the default value for a SONET tributary.

The attribute tcamd does not exist for SONET ports. SONET ports only support ″TR-only″ mode. Thus the mode must be internally set to ″TR-only″.

Switching of interface standard – Side effects on tributaries III

In addition to the list of attributes above the following side-effects apply to the related tributary attributes when switching the istd from SDH to SONET (see also the related RTRV-OCn command for SONET parameter description):

- *pmhpneses* is set to the default value for an SONET tributary
- *pmhpfeses* is set to the default value for an SONET tributary.

The attribute tcamd does not exist for SONET ports. SONET ports only support ″TR-only″ mode. Thus the mode must be internally set to ″TR-only″.

Switching of interface standard – notification behavior for port attributes

When changing the interface standard *istd* using the ED-STMn command all resulting parameter changes are reported by ED-OCn notifications of the related port rate. This is valid for the parameter istd itself as well as for all other parameters which might change as a consequence of changing the interface standard.

Switching of interface standard – notification behavior for tributary attributes

When changing the interface standard *istd* using the ED-STMn command all resulting tributary parameter changes are reported by ED-STS1 notifications.

Switching of interface standard - notification behavior for active TCA events

If the changing of the interface standard *istd* to SONET includes an change of *tcamd* from TR-RTR to TR-only (SONET default value), then all active TCA events of the related entities must be cleared.

Switching of interface standard – PM impact

The change of interface standard has the following impacts w.r.t. existing PM registers:

1. all current bins related to the port will be reset
2. all history bins related to the port remain unchanged
3. all current bins related to tributaries being a member of the port will be reset
4. all history bins related to tributaries being a member of the port remain unchanged.

Retrieving the bins after switching the interface standard may result in a strange reporting behavior:

- When switching the interface standard to SONET the periods before the switch contain SDH-related parameters and values even though the port is addressed as a SONET port.
- When switching the interface standard to SDH the periods before the switch contain SONET-related parameters and values even though the port is addressed as a SDH port.

Disabling of PM monitor

The disabling of a PM monitor shall have the following impacts w.r.t. existing PM registers:

1. stop PM counting
2. all current bins related to the PM monitor shall be deleted
3. all history bins related to the PM monitor shall be deleted

The term PM monitor has the same semantics as the term PM package as used in SRD_PerformanceMonitoring. The number of PM monitors is determined by means of the number of *pm enable attributes*.

PM monitors can be disabled explicitly by means of the *pm enable* attribute or are implicitly disabled as part of a port/tributary deletion.

Additional to the above listed impacts (ID 52924) the disabling of a PM monitor shall have the following impacts: the system has to clear all active TCA events of the deleted PM monitor if TCA mode TR-RTR was selected.

Changing TCA mode from TR-RTR to TR-only

The change of tcamd from TR-RTR (also known as the explicit reset method) to TR-only (also known as the implicit reset method) has the impact, that all active TCA events of the related entity must be cleared.

Example input/output

```
ED-STM256:UNITE-NE:1-1-#-#-us01-1:123456:::INPUTSIG=644,
UNEQUIPOSIG=644;
   UNITE-NE 00-11-28 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-STM256:1-1-#-#-1-1::
inputsig=644,unequiposig=644:"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the "ED-STM256: Edit STM256 port" (p. 4-796) command.

Validation rule: Enough bandwidth reserved for 2F protection group

Check of the tributary rate (*inputsig/uneqiposig*) if the port is member of a 2f protection group. Then the assigned bandwidth is max. half of the port's bandwidth.

Error code: `IDNV - Input, Data Not Valid, Assigned bandwidth exceeds half port's bandwidth`

Validation rule: ASAP profile exists

Check of the existence of the ASAP profile.

Error code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation Rule: TCA profile exists

Check of the existance of the TCA profile.

Error code: `IDNV - Input, Data Not Valid, TCA profile does not exist`

Validation rule: inputsig consistent with existing cross-connections

Check of the consistency of the structure of the input signal (*inputsig*) with existing cross-connections.

Error code: `SNVS - Status, Not in Valid State, signal structure cannot be changed for connected parts of a fixed port`

Validation rule: unequiposig consistent with existing cross-connections

Check of the consistency of the structure of the output signal (*unequiposig*) with existing cross-connections.

Error code: `SNVS - Status, Not in Valid State, signal structure cannot be changed for connected parts of a fixed port`

Validation rule: No lower order cross-connections for *istd* change

Check that the interface standard parameter (*istd*) is not changed when lower order cross-connections are still on this port. If lower order cross-connections exist, the following error message shall be returned:

Error code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

Validation rule: no cross-connections for *istd* change

Check that the interface standard parameter (*istd*) is not changed when cross-connections are still on this port.

Error code: `SNVS - Status, Not in Valid State, cross-connections are still existing`

Validation rule: no loopbacks for *istd* change

Check that the interface standard parameter (*istd*) is not changed when cross-connection loopback is still on this port.

Error code: `SNVS - Status, Not in Valid State, a loopback is existing`

Validation rule: no protection for *istd* change

Check that the interface standard parameter (*istd*) is not changed when this port is in an protection group.

Error code: `SNVS - Status, Not in Valid State, a protection group is existing`

Validation rule: no ONNS for interface standard change

Check that the interface standard parameter (istd) is not changed if ONNS functionality is available.

This means:

- *portClass* must be TRADITIONAL or
- *portControl* must be LOCKOUT.

Error code: `SNVS - Status, Not in Valid State, SwiSS access possible`

Validation rule: *servcond* must be enabled when timing source

Check that the *servcond* is not disabled when the port is used as a timing source.

Error code: `SNVS - Status, Not in Valid State, Timing reference is assigned to this port`

Validation rule: *servcond* must be enabled when DCC enabled

Check that the *servcond* is not disabled when DCC channels are still existing for this port.

Error code: `SNVS - Status, Not in Valid State, DCC channels are active for this port`

Validation rule: servcond must be enabled when portClass=INNI

Check that the servcond is not OUTOFSERVICE when *portClass*=INNI.

Error Code: `SNVS - Status, Not in Valid State, can not disable servcond for INNI ports`

Validation rule: *servcond* must be disabled for facility loopback

Check that the *servcond* is not enabled when a facility loopback is existing for this port.

Error code: `SNVS - Status, Not in Valid State, Facility Loopback is active for this port`

Validation rule: Supply of outgoing J0 trace

Check that an outgoing J0 trace value (*strc* out) is supplied, too, if the format of the outgoing J0 trace (*strcwfmt*) is changed.

Error code: `IDNC - Input, Data Not Consistent, a new trace value must also be supplied for a trace format change.`

Validation rule: transmitted path trace length

Check that the length of the outgoing J0 trace value (*strcout*) fits to the length given by outgoing J0 trace mode, i.e. write format (*strcwfmt*).

Error code: `IDNC - Input, Data, Not Consistent, strcout length must match the given outgoing J0 trace mode.`

Validation rule: Change of FEC parameters only if supported by the current circuit pack

When changing one of the FEC-related parameters *fec, feccor* and *fectype* it will be checked, whether the currently provisioned circuit pack supports this. If it is not supported the following error code is used:

Error code: `IDNV - Input, Data Not Valid, Parameter not supported`

Validation rule: Enabling of optical channel only if supported by the current circuit pack

When enabling the optical channel via parameter *och* it will be checked, whether the currently provisioned circuit pack supports this. If it is not supported the following error code is used:

Error code: `IDNV - Input, Data Not Valid, Parameter not supported`

Check CCB against *ptype* and *istd*

Check wether the CCB fits to ptype and istd.

Error Code: `ICNV - Input, Command Not Valid, Interface Standard does not match`

Related TL1 messages

"RTRV-STM256: Retrieve STM256 port" (p. 4-2137)

References

GR-199-CORE (ED-*rr*)

□

ED-STM256 autonomous notifications

LOS for transmission port STM256 clears

If LOS is cleared and current port mode is AUTO, then *pmode* is updated (new value: MON). This update is reported via ED-STM256 notification with parameter *pmode*.

□

ED-STM256 notification

Output format

The ED-STM256 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ED-STM256`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID.
   Range: STM256 port AID.
   The keyword `all` is allowed up to shelf level.

Spec block parameters

1. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
   The setting of this parameter is allowed when the related STM64 port is created, it is used when *sdfsmode*=BURST.
2. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
   The setting of this parameter is allowed when the related STM64 port is created, it is used when *sdfsmode*=BURST.
3. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the Tributary Input Rate Signal List.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 3, 4, 4C, 16C or C64 representing VC3, VC4, VC4-4C, VC4-16C or VC-64C.

4. degthr – Signal Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
   The setting of this parameter is allowed when the related STM64 port is created, it is used when *sdfsmode*=POISSON.
5. dexcthr – Excessive Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –3; –4; –5.
   Default: –3.
   The setting of this parameter is allowed when the related STM64 port is created, it is used when *sdfsmode*=POISSON.
6. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier. The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
   Type: hexadecimal digits
   Range: 16 byte string Each byte shall be expressed as two hexadecimal digits (example value: 6D). The first byte value shall be in the range from 80 to FF. The other byte values shall be in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
7. fec – FEC Enable
   Forward Error Correction Enable. Enable to include the FEC information in the outgoing signal.
   Type: alphanumeric value set.
   Range:
   DISABLE (only) for:
   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics
   - OC192 / STM64 low cost intra office 1310nm optics
   - OC768 / STM256 low cost intra office 1.3m optics.

   ENABLE / DISABLE for:
   - OC192 / STM64 OLS800G compatible 80 colour optics
   - OC768 / STM256 Long Reach / Long Haul 1.5m optics (80km)
   - OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)
   - OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G

   Default:

DISABLE (only) for:

- OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
- OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
- OC192 / STM64 Long Reach / Long Haul 1550 nm optics
- OC192 / STM64 low cost intra office 1310nm optics
- OC768 / STM256 basis low cost intra office 1.3m optics.

ENABLE for:

- OC192 / STM64 OLS800G compatible 80 colour optics
- OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G
- OC768 / STM256 Long Reach / Long Haul 1.5æ optics with strong FEC (80km)
- OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

8. femspm – Far-end Multiplex Section PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
9. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU
10. fsflpbkstat – Far Side Facililiy Loopback Status
    This parameter specifies the current far-side facility loopback status of the considered output *aid.*
    A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
    Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).

11. inputsig – Tributary Input Signal Rate List
    This parameter is a list of VCn rates across the port's bandwidth.
    Type: numeric value set.
    Range: NX-NX-NX-...
    N is the number of Xs. X can be 3, 4, 4C, 16C, C64 representing VC3, VC4, VC4-4C, VC4-16C or VC64C.
    Default: 2564 (all VC4).
12. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET.
    Type: alphanumeric value set.
    Range:
    - SONET
    - SDH.

    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
13. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
14. nemspm – MS Near-End PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
15. och – optical channel enable
    Enable or disable of the optical channel. If the optical channel is disabled the further optical channel parameters don't have any impact on transmission.
    Type: alphanumeric value set.

Range:

- for OP10 packs, which support to enable or disable OCH: ENABLE: enable optical channel; DISABLE: disable optical channel
- for OP10 and OP40 packs, which cannot support OCH: DISABLE: disable optical channel
- for OP10 and OP40 packs, which only support OCH: ENABLE: enable optical channel.

Default:

- for OP10 and OP40 packs, which cannot support OCH: DISABLE
- for OP10 packs, which can support OCH: ENABLE
- for OP10 and OP40 packs, which only support OCH: ENABLE.

16. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
Type: numeric value set.

    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:

    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.

17. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
Type: numeric value set.

Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

- STM-16/OC-48: 1 – 3072000
- STM-64/OC-192: 1 – 12288000
- STM-256/OC-768: 1 – 49152000.

Default: The default values differ for SDH and SONET and the different rates:

- STM16: 460800
- STM64: 1843200
- STM256: 7372800
- SONET OC48: 2459
- SONET OC192: 9835
- SONET OC768: 39340.

18. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
19. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000
    Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392
    - SONET OC192: 8554
    - SONET OC768: 22776.
20. rsmstca – RS/MS TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.

21. rspm – RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
22. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimca shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE (default): enable consequent action for TIM
    - DISABLE: disable consequent action for TIM.
23. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
24. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET Alarm Severity Assignment Profile for the SONET ports (see definition of output parameter SONET in "RTRV-OC768: Retrieve OC768 port" (p. 4-1931)) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
25. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON.

26. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
27. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc).
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
28. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string dependent on the strcwfmt parameter.

    Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
29. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)

- 16: for 16 byte specific string (ITU/ETSI mode 1).
- 64: for 64 byte string (SONET).

30. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable:
    - TR-only (lso known as the implicit reset method)
    - TR-RTR (lso known as the explicit reset method).

    Type: alphanumeric value set.
    Range: TR or TRRTR (default).
31. unequiposig – Unequipped Output Signal List
    This parameter is a list of VCn rates across the port's bandwidth. It determines the rate(s) of the *unequipped* signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need the identical setting. Mixed rates for *tx* and *rx* side of the port are allowed.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3, 4, 4C, 16C, C64 representing VC3, VC4, VC4-4C, VC4-16C or VC4-64C.
    Default: 2564 = all VC4.

Example output

```
ED-STM256:UNITE-NE:1-1-#-#-1-1:123456:::INPUTSIG=644,
UNEQUIPOSIG=644;
   UNITE-NE 00-11-28 08:00:00
M  123456 COMPLD
;
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-STM256:1-1-#-#-1-1::
   inputsig=644,unequiposig=644:"
;
```

□

ED-STS1: Edit STS1 tributary

The ED-STS1 command is used to provision all parameters related to the tributary STS1.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: no

Input format

Command Syntax: `ED-STS1`:*tid:aid:ctag:::spec_block*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   AID of an SONET tributary. The keyword `all` is allowed on slot, port and tributary level. The so called ″dynamic parameters″ shall be reported, if a `all` is used at the tributary level.
   The ″dynamic parameters″ are:
   - *ptrc*, *ptrcst*, *siglb*, *trailstate*.

   Type: AID
   Range: STS1NumAID.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. brstintvl – Bursty Interval
   Measurement period for determining bursty errors The setting of this parameter is used when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
2. brstthr – Bursty Error Threshold
   The values are set in percent for the degradation threshold. The setting of this parameter is used when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, 15, 20, 25, 30, … 50.
   Default: 30.
3. degthr – Signal Degrade Threshold
   The setting of this parameter are used when *sdsfmode*=POISSON
   Type: numeric value set.
   Range (as exponents of 10): –5; –6 (default); –7; –8; –9
4. dexcthr – Excessive Degrade Threshold
   The setting of this parameter are used when *sdsfmode*=POISSON. The values are set as exponent of 10.
   Type: numeric value set.
   Range (as exponent of 10) –3 (default); –4; –5.
   Limitation of STS1 related to EC1 ports: For STS1 tributaries related to EC1 ports, the only useful *dexcthr* value is -5. Only this value will lead to Excessive Bit Error alarms. The other values are kept for compatibility reasons.
5. exphptrc – Expected Path Trace (J1)
   The parameter *exphptrc* specifying the expected path trace is only relevant for the path trace supervision when the path trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex.
6. feppm – Far-End Path PM Enable
   It indicates whether this performance monitoring feature is enabled or disabled.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).

7. hptimmon – Path Trace Monitoring Enable (J1)
   Description: High order path trace (J1) identifier mismatch (TIM) monitor enable. This parameter is relevant only if the related trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
8. loca – Ring A-node TID
   This parameter specifies the TID of the node at which the service is added to the BLSR ring. This parameter is required for the input of tributaries to be used by ONNS on ports of *portClass* =EDGE being members in BLSR/MSSPRING protection groups. The *loca* parameter value shall be an empty string for all other tributaries.
   loca is introduced specifically for use related to ONNS application.
   Type: TID or empty-string.
   Range: Please refer to the TID definition in "RTRV-HDR: Retrieve header" (p. 4-1736) description.
   Default: empty string: ″″. This is displayed as \″\″ in output direction.
9. locz – Ring Z-node TID
   This parameter specifies the TID of the node at which the service is dropped from the BLSR ring. This parameter is required for the output of tributaries to be used by ONNS on ports of *portClass*=EDG E being members in BLSR/MSSPRING protection groups. The *locz* parameter value shall be an empty string for all other tributaries.
   locz is introduced specifically for use related to ONNS application.
   Type: TID or empty-string.
   Range: Please refer to the TID definition in the "RTRV-HDR: Retrieve header" (p. 4-1736) description.
   Default: empty string: ″″. This is displayed as \″\″ in output direction.
10. neppm – Near-End Path PM Enable
    It indicates whether this performance monitoring feature is enabled or disabled.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).

11. pmhpfeses – Performance Monitoring Path Far-End SES Threshold
    This parameter describes the Path Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. When the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of ranges for SDH and SONET): 1-64000.
    Default: 2400.
12. pmhpneses – Performance Monitoring Path Near-End SES Threshold
    This parameter describes the Path Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. When the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of ranges for SDH and SONET): 1-64000.
    Default: 2400.
13. pse – PDI-P Switching Enable
    The PDI-P Switching Enable parameter indicates if the PDI-P contributes to the automatic path protection switch criteria.
    Type: alphanumeric value set
    Range:
    - ENABLE
    - DISABLE (default).
14. ptca – Path TCA Profile Pointer
    Type: alphanumeric string.
    Range: string with up to 24 characters.
    Default: DEFAULT0.
15. ptrcrfmt – Path Trace Read Format (J1)
    The read format of J1, the incoming path trace (ptrc).
    Type: numeric string.
    Range:
    - 2: for non-specific repeating byte
    - 16: for 16 byte specific string.
    - 64: for 64 byte string.
      Default: 2.
16. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in BURST or POISSON mode.
    Type: alphanumeric value set.
    Range:
    - BURST
    - POISSON (default).

17. tmonmd – Tributary Monitoring Mode
    This parameter indicates the mode of the tributary.
    Type: alphanumeric value set.
    Range:
    - MON = alarm monitoring is taking place on the port.
    - NMON (default) = alarm monitoring is not occurring on the port.
18. tribsonetpn – Tributary Alarm Severity Assignment Profile
    This parameter points to a tributary ASAP profile name of type PATH for the designated AID.
    Type: Alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.

Output format

If the ED-STS1 command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The ED-STS1 command is also applicable to STS3c and other concatenated tributaries.

Even if the command is used for a concatenated signal, it can be applied to any of the tributaries (for example, to the second tributary of the concatenated signal). However, only the parameters pertaining to the first tributary of a concatenated signal are used by the software to determine system operation. If the signal were changed from a concatenated signal to non-concatenated, then the parameters for each of the tributaries would be used by the software.

The command allows to modify all attributes listed above as input spec-block parameters. The modification is reported by means of an ED-STS1 notification for tributary.

Change of J1 expected format - FM impact

When the expected J1 format (ptrcrfmt) is changed to 16 (16 byte specific string) while the TI Mismatch detection is enabled, then the TI Mismatch alarm shall be updated according to the provisioned ecpected J1 (exphptrc) and the currently received J1 (ptrc).

When the expected J1 format is changed away from 16, while the TI Mismatch alarm is active, then the TI Mismatch alarm shall be cleared.

Signal degrade/signal fail mode provisioning

Refer to the detailed behavior of the "ED-VC3: Edit VC3 tributary" (p. 4-956) command for details on Signal Degrade/Signal Fail Mode Provisioning for tributaries.

Disabling of PM monitor

The disabling of a PM monitor shall have the following impacts w.r.t. existing PM registers:

1. stop PM counting
2. all current bins related to the PM monitor shall be deleted
3. all history bins related to the PM monitor shall be deleted

The term PM monitor has the same semantics as the term PM package as used in SRD_PerformanceMonitoring. The number of PM monitors is determined by means of the number of *pm enable attributes*.

PM monitors can be disabled explicitly by means of the *pm enable* attribute or are implicitly disabled as part of a port/tributary deletion.

Additional to the above listed impacts) the disabling of a PM monitor shall have the following impacts: the system has to clear all active TCA events of the deleted PM monitor if TCA mode TR-RTR was selected.

Example input/output

```
ED-STS1:UNITE-NE:1-1-#-#-3-1-1:123456:::tmonmd=MON,
tribsonetpn=Default,degthr=-6,dexcthr=-3,ptrcrfmt=1,
ptca=Default0,neppm=ENABLE,pmhpneses=30,pmhpfeses=30;
   UNITE-NE 00-10-14 14:59:09
M  123456 COMPLD
;
   UNITE-NE 00-10-14 14:59:09
A  592 REPT DBCHG
   "TIME=14-59-09,DATE=00-10-14:ED-STS1:1-1-#-#-3-1-1::
   tmonmd=MON,tribsonetpn=Default,degthr=-6,dexcthr=-3,
   ptrcrfmt=1,ptca=Default0,neppm=ENABLE,pmhpneses=30,
   pmhpfeses=30:"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the ED-STS1 command.

Validation rule: ASAP profile exists

Check of the existence of the ASAP profile.

Error code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: TCA profile exists

Check of the existance of the TCA profile.

Error Code: `IDNV - Input, Data Not Valid, TCA profile does not exist`

Check CCB against *istd* of related port

Check wether the CCB fits to istd of the related port

Error Code: `ICNV - Input, Command Not Valid, Interface Standard does not match`

ONNS specific validation rule: *loca*, *locz* changes only allowed when *portClass*=EDGE and part of a BLSR/MS-SPRING group

Setting the *loca*, *locz* parameters away from the default value shall only be allowed when the related *portClass*=EDGE and the port is part of a BLSR/MS-SPRING protection group.

Error code: `IDNV - Input, Data Not Valid, related portClass not EDGE or port not in BLSR/MS-SPRING group`

ONNS specific validation rule: *loca*, *locz* changes only allowed when tributary not involved in a cross-connection

Setting the *loca*, *locz* parameters shall be inhibited when the tributary is already input or output tributary of a cross-connection.

Error code: `IDNV - Input, Data Not Valid, tributary already part of a cross-connection`

ONNS specific validation rule: Maximum number of tributaries with *loca*, *locz* entries must not exceed 100

It shall be checked that the maximum number of triburaries with loca, locz parameters set (i.e. having a value different from the default value) does not exceed 100.

Error code: `SSRE - Status, System Resources Exceeded, limit of tribs with loca, locz exceeded`

ONNS specific validation rule: *hptimmon* changes to ENABLE only allowed when corresponding port is not of *portClass* INNI

Setting the *hptimmon* parameter to ENABLE shall only be allowed when the port the VC-3 is located on does not have the port class INNI.

Error Code: `SNVS - Status, Not in Valid State, portClass must not be INNI`

Related TL1 messages

"RTRV-VC3: Retrieve VC3 tributary" (p. 4-2246)

References

GR-199-CORE (ED-*rr*)

□

ED-STS1 notification

Output format

The ED-STS1 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ED-STS1`*:aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   AID of an SONET tributary. The keyword `all` is allowed on slot, port and tributary level. The so called ″dynamic parameters″ shall be reported, if a `all` is used at the tributary level.
   The ″dynamic parameters″ are:
   - *ptrc*, *ptrcst*, *siglb*, *trailstate*.

   Type: AID
   Range: STS1NumAID.

Spec block parameters

1. brstintvl – Bursty Interval
   Measurement period for determining bursty errors The setting of this parameter is used when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
2. brstthr – Bursty Error Threshold
   The values are set in percent for the degradation threshold. The setting of this parameter is used when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, 15, 20, 25, 30, … 50.
   Default: 30.
3. crslpbkrate – Cross-connect loopback rate
   It is independent from the current interface standard and therefore both SDH and SONET values are allowed.
   The parameter *crslpbkrate* is not reported if the parameter *crlspbkstat* indicates that no loopback is set.
   Type: alphanumeric value set.
   Range:
   - VC3
   - VC4
   - VC44C

- VC416C
- VC464C
- STS1
- STS3
- STS12
- STS48
- STS192

4. crslpbkstat – Cross-connect loopback status
   State of cross- connect loopback.
   Type: alphanumeric value set.
   Range:
   - YES = Cross-connect loopback is provisioned
   - NO (default) = No cross-connect loopback is provisioned.
5. degthr – Signal Degrade Threshold
   The setting of this parameter are used when *sdsfmode*=POISSON
   Type: numeric value set.
   Range (as exponents of 10): –5; –6 (default); –7; –8; –9
6. dexcthr – Excessive Degrade Threshold
   The setting of this parameter are used when *sdsfmode*=POISSON. The values are set as exponent of 10.
   Type: numeric value set.
   Range (as exponent of 10) –3 (default); –4; –5.
7. exphptrc – Expected Path Trace (J1)
   The parameter *exphptrc* specifying the expected path trace is only relevant for the path trace supervision when the path trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex.
8. feppm – Far-End Path PM Enable
   It indicates whether this performance monitoring feature is enabled or disabled.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).

9. hptimmon – Path Trace Monitoring Enable (J1)
   Description: High order path trace (J1) identifier mismatch (TIM) monitor enable. This parameter is relevant only if the related trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
10. loca – Ring A-node TID
    This parameter specifies the TID of the node at which the service is added to the BLSR ring. This parameter is required for the input of tributaries to be used by ONNS on ports of *portClass* =EDGE being members in BLSR/MSSPRING protection groups. The *loca* parameter value shall be an empty string for all other tributaries.
    loca is introduced specifically for use related to ONNS application.
    Type: TID or empty-string.
    Range: Please refer to the TID definition in "RTRV-HDR: Retrieve header" (p. 4-1736) description.
    Default: empty string: "". This is displayed as \"\" in output direction.
11. locz – Ring Z-node TID
    This parameter specifies the TID of the node at which the service is dropped from the BLSR ring. This parameter is required for the output of tributaries to be used by ONNS on ports of *portClass*=EDG E being members in BLSR/MSSPRING protection groups. The *locz* parameter value shall be an empty string for all other tributaries.
    locz is introduced specifically for use related to ONNS application.
    Type: TID or empty-string.
    Range: Please refer to the TID definition in the "RTRV-HDR: Retrieve header" (p. 4-1736) description.
    Default: empty string: "". This is displayed as \"\" in output direction.
12. neppm – Near-End Path PM Enable
    It indicates whether this performance monitoring feature is enabled or disabled.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).

13. pmhpfeses – Performance Monitoring Path Far-End SES Threshold
    This parameter describes the Path Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. When the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of ranges for SDH and SONET): 1-64000.
    Default: 2400.
14. pmhpneses – Performance Monitoring Path Near-End SES Threshold
    This parameter describes the Path Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. When the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of ranges for SDH and SONET): 1-64000.
    Default: 2400.
15. pse – PDI-P Switching Enable
    The PDI-P Switching Enable parameter indicates if the PDI-P contributes to the automatic path protection switch criteria.
    Type: alphanumeric value set
    Range:
    - ENABLE
    - DISABLE (default).
16. ptca – Path TCA Profile Pointer
    Type: alphanumeric string.
    Range: string with up to 24 characters.
    Default: DEFAULT0.
17. ptrcrfmt – Path Trace Read Format (J1)
    The read format of J1, the incoming path trace (ptrc).
    Type: numeric string.
    Range:
    - 2: for non-specific repeating byte
    - 16: for 16 byte specific string.
    - 64: for 64 byte string.
      Default: 2.
18. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in BURST or POISSON mode.
    Type: alphanumeric value set.
    Range:
    - BURST
    - POISSON (default).

If the tributary is related to a EC1 port, then the range shall be limited to: POISSON

19. substr - Sub Structured
    The parameter substr indicates if the tributary is sub structured. A sub structured HO tributary has a HO path termination associated which provides LO tributaries to be used for LO cross-connections.
    The parameter substr is set autonomously when LO cross-connections are created or deleted with ENT-CRS or DLT-CRS commands. (See also the lower order cross-connection creation/deletion behaviour description for the commands ENT-CRS and DLT-CRS.) A sub structured HO tributary cannot be used to set up HO cross-connections.
    Type: alphanumeric value set.
    Range: YES, NO
20. tmonmd – Tributary Monitoring Mode
    This parameter indicates the mode of the tributary.
    Type: alphanumeric value set.
    Range:
    - MON = alarm monitoring is taking place on the port.
    - NMON (default) = alarm monitoring is not occurring on the port.
21. tribsonetpn – Tributary Alarm Severity Assignment Profile
    This parameter points to a tributary ASAP profile name of type PATH for the designated AID.
    Type: Alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.

Example output

```
ED-STS1:UNITE-NE:1-1-#-#-3-1-1:123456:::tmonmd=MON,
tribsonetpn=Default,degthr=-6,dexcthr=-3,ptrcrfmt=1,
ptca=Default0,neppm=ENABLE,pmhpneses=30,pmhpfeses=30;
   UNITE-NE 00-10-14 14:59:09
M  123456 COMPLD
;
   UNITE-NE 00-10-14 14:59:09
A  592 REPT DBCHG
   "TIME=14-59-09,DATE=00-10-14:ED-STS1:1-1-#-#-3-1-1::
   tmonmd=MON,tribsonetpn=Default,degthr=-6,dexcthr=-3,
   ptrcrfmt=1,ptca=Default0,neppm=ENABLE,pmhpneses=30,
   pmhpfeses=30:"
;
```

□

ED-SYNCDATA: Synchronization of NN data

Overview

The EDSyncData-mod command is used to have ONNS data to be synchronized based on the result of audit operation. AUD-mod command is assumed to precede this data-sync request. The modifier of the ED-SyncData-mod command indicates the scope of data to be synchronized.

EDSyncData-LOCAL

EDSyncData-LOCAL shall perform synchronization on ONNS data with the master data from local host NE. They are cross-connect map and port objects. Data-sync shall always be preceded by data-audit operation. Changes to ONNS data are made only if there is any discrepancy found via data-audit.

For mismatched port object cases, the following updates are made to NN data:

- port object exists only in NN data, but not in host NE data → the corresponding port object is removed from NN data.
- port object exists only in host NE data, but not in NN data → the corresponding port object is added to NN data.

For mismatched cross-connect cases, the following updates are made to NN data:

- NN owned cross-connect exists only in NN data, but not in host NE → the corresponding NN cross-connect and its associated path information are removed from NN data
- NN owned cross-connect exists only in host NE data, but not in NN data → the corresponding NN cross-connect is added to NN data with a dummy pathID
- non-NN owned cross-connect exists only in NN data, but not in host NE → the corresponding cross-connect is removed from NN data
- non-NN owned cross-connect exists only in host NE data, but not in NN data → the corresponding cross-connect is added to NN data with non-NN ownership.

NN should respond to the request in two steps: first, the result of data-audit with all the mismatched cases, and then a indication of the successfulness of the data-sync operation. The *dummy* pathID is an ID assigned by local node as a result of local data-sync operation (see EDSyncData-LOCAL command for details). It should be in pathID format and unique.

EDSyncData-PATH

EDSyncData-PATH shall perform modify an ONNS path ID associated with local cross-connect data with valid path ID. Note that CONN data repository is not affected by this operation.

Properties

Login Privilege Code (UCFC/UCAL): P3.

Abortable: No.

Input format

Command syntax of ED-SyncData-LOCAL: `ED-SyncData-LOCAL:`*srcTid:srcAid:ctag*;

Syntax of the ED-SyncData-PATH command to modify ONNS path ID with valid path ID in local ONNS path data such as SIG and NNDM. (Note that the CONN data repository is not affected.) Old path ID may be a dummy ID assigned as a result of local ONNS data synchronization (refer ED-SyncData-LOCAL command). New path ID must be valid and could be obtained as a result of path neighbor data audit (refer AUD-PATHNBR command).

Command syntax of ED-SyncData-PATH:
`ED-SyncData-PATH:`*srcTid:srcAid:ctag:oldPathID,newPathID*;

Input parameters

Command parameters

1. srcTid
   Target Identifier of the source node is the logical name of the Host NE. ONNS uses the same *tid* used by Host NE.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: The *srcTid* parameter is a case insensitive ASCII character string of up to 20 characters with the allowed character set as described above.
2. ctag
   This parameter is included in the command by the TL1 user and is repeated by the NE in the response to allow the TL1 user to associate the command and response messages.
   The *ctag* parameter is a character strings of up to 6 ASCII characters. The allowed ASCII character string is comprised of alphanumeric characters beginning with a letter, or decimal numerals (a decimal numeral is a string of decimal digits with an optional non-trailing “.”).
3. srcAid
   Source node ONNS application access identifier of the ONNS controller OS command interface port.
   Range: Source node Access IDentifier parameter of the source node controller ONNS command interface entity has the allowed values shown here: snn.

4. oldPathID
   Current Path Identifier from the local ONNS path data. Old path ID may be a dummy ID assigned as a result of local ONNS data synchronization.
   Type: character string of length up to 20.
   Range: nodeID-Index; nodeID (four dot separated numeric strings: each string 0..255) Index (Numeric string).
   Example: 135.13.196.203-432165
5. newPathID
   New Path Identifier which will replace the oldPathID.
   Type: character string of length up to 20.
   Range: nodeID-Index; nodeID (four dot separated numeric strings: each string 0..255) Index (Numeric string).
   Example: 135.13.196.203-432165

Output format

NN should respond to the request in two steps: first, if completed successfully, the result of data-audit with all the mismatched cases, and then a indication of the successfulness of the data-sync operation. The output format for the result of data-audit should be the same as the one for the response to AUD command.

```
   srcTid date time
M  ctag COMPLD
;
```

Whenever a modification is made to any ONNS path data as a consequence of ONNS data synchronization, autonomous TL1 notification message REPT-PTHCHG should be sent separately from a normal response to the request.

Output parameters

The output parameters *srcTid*, *date*, *time*, *ctag*, *completion code* and their syntax are included in the Output parameters section of the "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)command.

Example input/output

The following example shows a successful completion of a ED-SyncData command for local data synchronization operation by the NE:

```
   LT-ONNS-789 2003-01-01 08:00:00
M  123456 COMPLD
;
```

Note that data-sync is preceded by data-audit. The result of this data-audit will be stored at NN and retrievable via the command RTRV-Audlog-LOCAL. The result of

data-audit for this case (when the modifier LOCAL is used) should be in the same format as the output for the command AUD-LOCAL.

The following example shows a successful completion of a ED-SyncData command for path ID modification on local ONNS data by the NE. The command ED-SyncData-PATH:LT-ONNS-789:snn:123456:1351591:135.13.18.23-00000, 135.14.196.203-32165; produces the result shown below:

```
   LT-ONNS-789 2003-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Invalid *oldPathID*

If the network element receives an ED-SyncData-PATH command with an *oldPathID* parameter value that is invalid or does not match with any existing path ID in local ONNS path data, then the following error response is returned:

Error code: `"E620::\" Input, Data Invalid Old PathID \","`

Invalid *newPathID*

If the network element receives an ED-SyncData-PATH command with an invalid *newPathID* parameter value, then the following error response is returned:

Error code: `"E621::\" Input, Data Invalid, New PathID \","`

Missing *oldPathID* or *newPathID*

If the network element receives an ED-SyncData-PATH command without an *oldPathID* or *newPathID* parameter, then the following error response is returned:

Error code: `E622 -\" Input, Parameter MiSsing, missing <parameter>\"`

Related TL1 messages

- "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
- "AUD: Perform audit data" (p. 4-32)
- "RTRV-AudLog: Retrieve audit result log for ONNS connection data" (p. 4-1630)

□

ED-T3: Edit DS3 port

The ED-T3 command shall be used to retrieve all parameters related to the electrical DS3 port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: No.

Input format

Command Syntax:

ED-T3:*tid:aid:ctag:::spec_block;*

Input parameters

Command parameters

1. tid – Target Identifier
   See definition in "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   Access Identifier of a DS3 port.
   Type: AID
   Range: APortAID of DS3 port. The keyword ″all″ shall be allowed up to shelf level.
3. ctag – Correlation Tag
   See definition in "RTRV-HDR: Retrieve header" (p. 4-1736).

Spec block parameters

1. ds3pn - DS3 ASAP
   DS3 Alarm Severity Assignment Profile. This parameter retrieves the ASAP profile name of type DS3 to which the designated AID points.
   Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: String with a maximum of 24 characters.
   Default: DEFAULT.
2. eif - Electrical Interface Type
   This parameter specifies the type of input to which the port shall be provisioned.
   Type: alphanumeric value set.
   Range: DS3 (default), EC1
   The default vlaue DS3 leaves the interface type unchanged, if the parameter is omitted.

3. fmt - Signal Format
   This parameter shows the format for the DS3 signal
   Type: alphanumeric value set. A hyphen (-) is additionally allowed in the alphanumeric values.
   Range:
   - C-BIT (default): C-bit parity channelized DS3 format
   - M23: M23 channelized DS3 format
   - UNFRAMED-CC: UNFRAMED and CLEAR-CHANNEL format
4. infepm - Incoming DS3 Far End Path PM Enable
   This parameter enables/disables the incoming DS3 far end path performance monitoring.
   Type: alphanumeric value set.
   Range: ENABLE, DISABLE (default).
5. inlnpm - Incoming DS3 Line PM Enable
   This parameter enables/disables the incoming DS3 line performance monitoring.
   Type: alphanumeric value set.
   Range: ENABLE, DISABLE (default).
6. inpm - Incoming DS3 Near End Path PM Enable
   This parameter enables/disables the incoming DS3 near end path performance monitoring.
   Type: alphanumeric value set.
   Range: ENABLE, DISABLE (default).
7. lbo - Line Build Out
   This parameter defines the cable length applicable for the DS3 port.
   Type: alphanumeric value set.
   Range:
   - SHORT (default): 0 ... 68.5 m (0 ... 225 ft)
   - LONG: 68.5 ... 137 m (225 ... 450 ft).
8. outmntc - Outgoing Maintenance Signal
   This parameter determines whether an AIS, a DS3AIS or IDLE signal is transmitted in response to an unconnected input.
   Type: alphanumeric value set.
   Range: AIS (default), DS3AIS, IDLE
9. outfepm - Outgoing DS3 Far End Path PM Enable
   This parameter enables/disables the outgoing DS3 far end path performance monitoring.
   Type: alphanumeric value set.
   Range: ENABLE, DISABLE (default).

10. outpm - Outgoing DS3 Near End Path PM Enable
    This parameter enables/disables the outgoing DS3 near end path performance monitoring.
    Type: alphanumeric value set.
    Range: ENABLE, DISABLE (default).
11. pmode - Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
12. pmsesp - PM Threshold for SES - Path Incoming
    PM Threshold (errors in a second) for declaring SES - Path in incoming direction.
    Type: numeric value set.
    Range: 1 ... 8000
    Default: 44
13. pmsespfe - PM Threshold for Far-End SES - Path Incoming
    PM Threshold (errors in a second) for declaring Far-End SES - Path in incoming direction.
    Type: numeric value set.
    Range: 1 ... 8000
    Default: 44
14. pmsespfeout - PM Threshold (errors in a second) for declaring Far-End SES - Path in outgoing direction.
    Type: numeric value set.
    Range: 1 ... 8000
    Default: 44
15. pmsespout - PM Threshold for SES - Path Outgoing
    PM Threshold (errors in a second) for declaring SES - Path in outgoing direction.
    Type: numeric value set.
    Range: 1 ... 8000
    Default: 44
16. sdthr - Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-3 to 10exp-9.
    Type: numeric value set.
    Range: (as exponents of 10): -4, -5 -6 (default), -7, -8, -9
17. servcond - Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.

Range:

- INSERVICE (default): Provisioning values for service are accepted
- OUTOFSERVICE: Provisioning values for service are not accepted.

18. tca - DS3 PM TCA
    The parameter tca assigns an DS3 PM TCA profile name to the designated AID.
    Type: alphanumeric value set. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters, DEFAULT, DEFAULT0 (default).
19. vmr - Violation Monitoring Mode
    This parameter indicates the status of the DS3 P-bit parity violation monitoring and removal.
    Type: alphanumeric value set. A hyphen (-) is additionally allowed in the alphanumeric values.
    Range: VMR, VM, NO-VM (default)
    .

Output format

If the ED-T3 command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section for the RTRV-HDR command.

Detailed behavior description

The command shall modify the attributes (listed in the spec_block parameters part of this command) of the addressed port entitiy according to the parameters given with this command. The modification shall be reported by means of an ED-T3 notification for port (except for parameter eif; see below).

Switching of interface type - Ignore other parameters

If additional parameters beside eif are specified with the ED-T3 command they will be ignored by the NE.

Switching of interface type - Impact on port and Tributary Entities

Setting *eif* to EC1 shall

- delete the STS-1 path termination entity related to the T3 port,
- delete the T3 port entity,
- create one EC1 port entity with the defined default values for the port parameters,
- create one STS-1 tributary with the defined default values for the tributary parameters.

The deletion and creation of ports and tributaries shall be notified via the appropriate DLT and ENT notifications.

Switching of interface type - Impact on Fault Management

Setting *eif* to EC1 shall

- clear all active alarms for the T3 port and the related path termination
- re-evaluate the alarm status after the creation of the EC1 port and the tributary
- raise all active alarms for the EC1 port and the tributary.

The clearing and raising of alarms shall be notified with the appropriate notifications.

Switching of interface type - Impact on Performance Monitoring

Setting *eif* to EC1 shall

- disable all active PM monitoring points for the T3 port and the path termination
- clear all current and history bins for the T3 port and the path termination.

Example input/output

The following example shows the successful execution of a RTRV-T3 command. Not all output parameters are listed (missing ones indicated by ...).

```
ED-T3:UNITE:1-1-#-#-21-1:123456:::
FMT=UNFRAMED-CC,INPM=DISABLE,OUTPM=DISABLE;
   UNITE 00-11-13 12:00:00
M  123456 COMPLD
;
   UNITE 00-11-13 12:00:00
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-T3:1-1-#-#-21-1::
   fmt=unframedcc,inpm=disable,outpm=disable:"
;
```

Error responses

See definition in "RTRV-HDR: Retrieve header" (p. 4-1736) command error responses section for general validation rules. The error responses listed there also apply to the ED-T3 command.

Validation rule: Check CCB against *ptype* and *eif*

Check wether the CCB fits to *ptype* and *eif*.

Error Code: `IENE - Input, Entity Not Exists`

Validation rule: ASAP profile exists

Check of the existance of the ASAP profile.

Error Code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: TCA profile exists

Check of the existance of the TCA profile.

Error Code: `IDNV - Input, Data Not Valid, TCA profile does not exist`

Validation rule: *servcond* must be disabled for facility loopback

Check that the servcond is not enabled when a facility loobackp is existing for this port.

Error Code: `SNVS - Status, Not in Valid State, Facility Loopback is active for this port`

Validation rule: maximum number of enabled PM monitors

Check that the number of enabled PM monitors is less than the maximum number of supported enabled PM monitors before a new PM monitor is enabled.

Error Code: `SSRE - Status, System Resources Exceeded, limit of PM monitors exceeded`

Validation rule: unframed clear-channel format not allowed with P-bit parity violation monitoring

Setting the DS3 signal format to Unframed Clear-Channel shall only be allowed, if the DS3 Violation Monitoring Mode parameter vmr has been set to NO-VM prior to this command or the parameter vmr is specified in this command with the value NO-VM.

Error Code: `SNVS - Status, Not in Valid State, Unframed Clear-Channel not allowed with P-bit parity violation monitoring`

Validation rule: P-bit parity violation monitoring not allowed with unframed clear-channel

Setting the DS3 Violation Monitoring Mode parameter vmr away from NO-VM shall only be allowed if the DS3 signal format has been set away from Unframed Clear-Channel prior to this command or if the parameter fmt is specified in this command with another value than UNFRAMED-CC.

Error Code: `SNVS - Status, Not in Valid State, P-bit parity violation monitoring not allowed with Unframed Clear-Channel`

Validation rule: DS3 path PM not allowed with unframed clear-channel

Setting the parameters *inpm* and *outpm* to ENABLE shall only be alowed if the DS3 signal format has been set away from Unframed Clear-Channel prior to this command or if the parameter *fmt* is specified in this command with another value than UNFRAMED-CC.

Error Code: `SNVS - Status, Not in Valid State, DS3 path PM not allowed with Unframed Clear-Channel`

Validation rule: unframed clear-channel not allowed with DS3 path PM

Setting the DS3 signal format to Unframed Clear-Channel shall only be allowed, if the DS3 path PM has been disabled prior to this command of if both parameters *inpm* and *outpm* are specified in this command with the value DISABLE.

Error Code: `SNVS - Status, Not in Valid State, Unframed Clear-Channel not allowed with DS3 path PM`

Validation rule: DS3AIS or IDLE not allowed with unframed clear-channel

Setting the parameter *outmntc* to DS3AIS or IDLE shall not be allowed if the DS3 signal format has been set to Unframed Clear-Channel prior to this command or if the parameter *fmt* is specified in this command with UNFRAMED-CC.

Error Code: `SNVS - Status, Not in Valid State, DS3AIS or IDLE not allowed with Unframed Clear-Channel`

Validation rule: no cross-connections for interface type change

Check that eif is not changed when a facility loopback is still on this port.

Error Code: `SNVS - Status, Not in Valid State, cross-connections are still existing`

Validation rule: No facility loopbacks for interface type change

Check that *eif* is not changed when cross-connections are still on this port.

Error Code: `SNVS - Status, Not in Valid State, facility loopbacks still exist`

Validation rule: no XC loopbacks for interface type change

Check that *eif* is not changed when cross-connections loopback is still on this port.

Error Code: `SNVS - Status, Not in Valid State, XC loopbacks still exist`

Validation rule: no test access session for interface type change

Check that *eif* is not changed when a tributary related to this port is used in a test access session either as tributary under test or as test access tributary.

Error Code: `SNVS - Status, Not in Valid State, a test access session exists`

Validation rule: Check whether system is in maintenance condition

Check that eif is not changed when the system in is maintenance condition.

Error Code: `SNVS - Status, Not in Valid State, maintenance condition`

Related TL1 messages

"RTRV-T3: Retrieve DS3 port" (p. 4-2170)

References

GR-199-CORE (RTRV-*rr*)

ED-T3 notification

Output format

The ED-T3 notification shall use the general format of a REPT DBCHG Report Database Change notification.

Syntax

`ED-T3`:*aid::spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID
   Range: APortAID of DS3 port

Spec block parameters

1. ds3pn - DS3 ASAP
   DS3 Alarm Severity Assignment Profile. This parameter retrieves the ASAP profile name of type DS3 to which the designated AID points.
   Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: String with a maximum of 24 characters.
   Default: DEFAULT.
2. eif - Electrical Interface Type
   The parameter eif indicates the type of input the port has been provisioned to receive.
   Type: alphanumeric value set.
   Range: DS3
3. fmt - Signal Format
   This parameter shows the format for the DS3 signal
   Type: alphanumeric value set. A hyphen (-) is additionally allowed in the alphanumeric values.
   Range:
   - C-BIT (default): C-bit parity channelized DS3 format
   - M23: M23 channelized DS3 format
   - UNFRAMED-CC: UNFRAMED and CLEAR-CHANNEL format

4. fsflpbkstat - Far Side Facility Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output *aid.*
   A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
   Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).
5. infepm - Incoming DS3 Far End Path PM Enable
   This parameter enables/disables the incoming DS3 far end path performance monitoring.
   Type: alphanumeric value set.
   Range: ENABLE, DISABLE (default).
6. inlnpm - Incoming DS3 Line PM Enable
   This parameter enables/disables the incoming DS3 line performance monitoring.
   Type: alphanumeric value set.
   Range: ENABLE, DISABLE (default).
7. inpm - Incoming DS3 Near End Path PM Enable
   This parameter enables/disables the incoming DS3 near end path performance monitoring.
   Type: alphanumeric value set.
   Range: ENABLE, DISABLE (default).
8. lbo - Line Build Out
   This parameter defines the cable length applicable for the DS3 port.
   Type: alphanumeric value set.
   Range:
   - SHORT (default): 0 ... 68.5 m (0 ... 225 ft)
   - LONG: 68.5 ... 137 m (225 ... 450 ft).
9. lpbk - Loopback
   This parameter specifies the current near-side loopback status of the considered output *aid*.
   A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).

10. outmntc - Outgoing Maintenance Signal
    This parameter determines whether an AIS, a DS3AIS or IDLE signal is transmitted in response to an unconnected input.
    Type: alphanumeric value set.
    Range: AIS (default), DS3AIS, IDLE
11. outfepm - Outgoing DS3 Far End Path PM Enable
    This parameter enables/disables the outgoing DS3 far end path performance monitoring.
    Type: alphanumeric value set.
    Range: ENABLE, DISABLE (default).
12. outpm - Outgoing DS3 Near End Path PM Enable
    This parameter enables/disables the outgoing DS3 near end path performance monitoring.
    Type: alphanumeric value set.
    Range: ENABLE, DISABLE (default).
13. pmode - Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
14. pmsesl - PM Threshold for SES - Line
    PM Threshold (errors in a second) for declaring SES - Line
    Type: numeric value set.
    Range: 1 ... 8000
    Default: 44
15. pmsesp - PM Threshold for SES - Path Incoming
    PM Threshold (errors in a second) for declaring SES - Path in incoming direction.
    Type: numeric value set.
    Range: 1 ... 8000
    Default: 44
16. pmsespfe - PM Threshold for Far-End SES - Path Incoming
    PM Threshold (errors in a second) for declaring Far-End SES - Path in incoming direction.
    Type: numeric value set.
    Range: 1 ... 8000
    Default: 44

17. pmsespfeout - PM Threshold (errors in a second) for declaring Far-End SES - Path in outgoing direction.
    Type: numeric value set.
    Range: 1 ... 8000
    Default: 44
18. pmsespout - PM Threshold for SES - Path Outgoing
    PM Threshold (errors in a second) for declaring SES - Path in outgoing direction.
    Type: numeric value set.
    Range: 1 ... 8000
    Default: 44
19. sdthr - Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-3 to 10exp-9.
    Type: numeric value set.
    Range: (as exponents of 10): -4, -5 -6 (default), -7, -8, -9
20. servcond - Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
21. tca - DS3 PM TCA
    The parameter tca assigns an DS3 PM TCA profile name to the designated AID.
    Type: alphanumeric value set. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters, DEFAULT, DEFAULT0 (default).
22. vmr - Violation Monitoring Mode
    This parameter indicates the status of the DS3 P-bit parity violation monitoring and removal.
    Type: alphanumeric value set. A hyphen (-) is additionally allowed in the alphanumeric values.
    Range: VMR, VM, NO-VM (default)
    .

Example input/output

```
ED-T3:UNITE:1-1-#-#-21-1:123456:::
FMT=UNFRAMED-CC,INPM=DISABLE,OUTPM=DISABLE;
   UNITE 00-11-13 12:00:00
M  123456 COMPLD
;
   UNITE 00-11-13 12:00:00
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ED-T3:1-1-#-#-21-1::
   fmt=unframedcc,inpm=disable,outpm=disable:"
;
```

ED-TCA-PROF: Edit TCA profile

General

The ED-TCA-PROF command allows the user to modify the existing performance monitoring threshold crossing alert (TCA) profile contents or the profile name. The system default profile names (Default and Default0) cannot be changed. For a general description of TCA profiles, refer to the RTRV-TCA-PROF command.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): PM3

Priority: 1

Abortable: No

Input format

Command Syntax: `ED-TCA-PROF:`*tid::ctag::pftype,pfname:spec_block;*

Input parameters

Command parameters

1. tid – Target Identifier
   See definition in "RTRV-HDR: Retrieve header" (p. 4-1736).
2. ctag – Correlation Tag
   See definition in "RTRV-HDR: Retrieve header" (p. 4-1736).
3. pftype – Profile Type
   This indicates the type of PM TCA profile for the selected facility.
   Type: value set.
   Range: SECTION-LINE, RS-MS, HOVC, PATH, ENET, ODU, LOVC, LOPATH, DS3.
4. pfname – Profile Name
   This indicates the name of the PM TCA profile which was already established by the command ENT-TCA-PROF. If this field is NULL, the output will only consist of a list of all profile names for the specific profile type that was requested. If a valid profile name is inserted in this field, the output will display the parameters within the profile with their values. A *pfname* value will always uniquely identify an existing profile for a specified *pftype* value.
   NULL means, that the Profile Name is omitted.
   Type: alphanumeric string.
   Range: This is an alphanumeric character string with a maximum of 24 characters.
   Default: If this field is NULL, the output will only consist of a list of all profile names for the specific profile type that was requested.

Spec block parameter

1. newname
   This parameter allows a new name to be assigned to the already established profile.
   Type: alphanumeric string.
   Range: This is a alphanumeric character string with a maximum of 24 characters. Empty string is not allowed.

Spec block parameters - profile parameters of type SECTION-LINE

1. qhcvsoc3
   15-minute threshold for CV-S bin for OC-3.
   Type: integer
   Range: 0-57599100
   Default: 140.
2. daycvsoc3
   Day threshold for CV-S bin of OC-3.
   Type: integer
   Range: 0-4294967295
   Default: 1344.
3. qhcvsoc12
   15-minute threshold for CV-S bin for OC-12.
   Type: integer
   Range: 0-57599100
   Default: 560.
4. daycvsoc12
   Day threshold for CV-S bin for OC-12.
   Type: integer
   Range: 0-4294967295
   Default: 5376.
5. qhcvsoc48
   15-minute threshold for CV-S bin for OC-48.
   Type: integer
   Range: 0-57599100
   Default: 2240.
6. daycvsoc48
   Day threshold for CV-S bin for OC-48.
   Type: integer
   Range: 0-4294967295
   Default: 21504.
7. qhcvsoc192
   15-minute threshold for CV-S bin for OC-192.
   Type: integer
   Range: 0-57599100
   Default: 8960.

8. daycvsoc192
   Day threshold for CV-S bin for OC-192.
   Type: integer
   Range: 0-4294967295
   Default: 86016.
9. qhcvsoc768
   15-minute threshold for CV-S bin for OC-768.
   Type: integer
   Range: 0-57599100
   Default: 35840.
10. daycvsoc768
    Day threshold for CV-S bin for OC-768.
    Type: integer
    Range: 0-4294967295
    Default: 344064.
11. qhcvsec1
    15-minute threshold for CV-S bin for EC-1.
    Type: integer
    Range: 0-57599100
    Default: 47
12. daycvsec1
    Day threshold for CV-S bin of EC-1.
    Type: integer
    Range: 0-4294967295
    Default: 448
13. qhess
    15-minute threshold for ES-S bin.
    Type: integer
    Range: 0-900
    Default: 25.
14. dayess
    Day threshold for ES-S bin.
    Type: integer
    Range: 0-86400
    Default: 250.
15. qhsess
    15-minute threshold for SES-S bin.
    Type: integer
    Range: 0-810
    Default: 10.

16. daysess
    Day threshold for ES-S bin.
    Type: integer
    Range: 0-77760
    Default: 40.
17. qhsefss
    15-minute threshold for SEFS-S bin.
    Type: integer
    Range: 0-900
    Default: 5.
18. daysefss
    Day threshold for SEFS-S bin.
    Type: integer
    Range: 0-86400
    Default: 10.
19. qhcvloc3
    15-minute threshold for CV-L and CV-LFE bin for OC-3.
    Type: integer
    Range: 0-172799100
    Default: 140.
20. daycvloc3
    Day threshold for CV-L bin and CV-LFE for OC-3.
    Type: integer
    Range: 0-4294967295
    Default: 1344.
21. qhcvloc12
    15-minute threshold for CV-L and CV-LFE bin for OC-12.
    Type: integer
    Range: 0-691199100
    Default: 560.
22. daycvloc12
    Day threshold for CV-L bin and CV-LFE for OC-12.
    Type: integer
    Range: 0-4294967295
    Default: 5376.
23. qhcvloc48
    15-minute threshold for CV-L and CV-LFE bin for OC-48.
    Type: integer
    Range: 0-4294967295
    Default: 2240.

24. daycvloc48
    Day threshold for CV-L and CV-LFE bin for OC-48.
    Type: integer
    Range: 0-4294967295
    Default: 21504.
25. qhcvloc192
    15-minute threshold for CV-L and CV-LFE bin for OC-192.
    Type: integer
    Range: 0-4294967295
    Default: 8960.
26. daycvloc192
    Day threshold for CV-L and CV-LFE bin for OC-192.
    Type: integer
    Range: 0-4294967295
    Default: 86016.
27. qhcvloc768
    15-minute threshold for CV-L and CV-LFE bin for OC-768.
    Type: integer
    Range: 0-4294967295
    Default: 35840.
28. daycvloc768
    Day threshold for CV-L and CV-LFE bin for OC-768.
    Type: integer
    Range: 0-4294967295
    Default: 344064.
29. qhcvlec1
    15-minute threshold for CV-L and CV-LFE bin for EC-1.
    Type: integer
    Range: 0-57599100
    Default: 47
30. daycvlec1
    Day threshold for CV-L bin and CV-LFE for EC-1.
    Type: integer
    Range: 0-4294967295
    Default: 448
31. qhesl
    15-minute threshold for ES-L and ES-LFE bin.
    Type: integer
    Range: 0-900
    Default: 25.

32. dayesl
    Day threshold for ES-L and ES-LFE bin.
    Type: integer
    Range: 0-86400
    Default: 250.
33. qhfeccloc192
    15-minute threshold for FECC-L bin for OC-192.
    Type: integer
    Range: 0 - 4294967295
    Default: 5184.
34. dayfeccloc192
    Day threshold for FECC-L bin for OC-192.
    Type: integer
    Range: 0 - 4294967295
    Default: 497644.
35. qhfeccloc768
    15-minute threshold for FECC-L bin for OC-768.
    Type: integer
    Range: 0 - 4294967295
    Default: 20736.
36. dayfeccloc768
    Day threshold for FECC-L bin for OC-768.
    Type: integer
    Range: 0 - 4294967295
    Default: 1990656.
37. qhsesl
    15-minute threshold for SES-L and SES-LFE bin.
    Type: integer
    Range: 0-810
    Default: 10.
38. daysesl
    Day threshold for SES-L and SES-LFE bin.
    Type: integer
    Range: 0-77760
    Default: 40.

39. qhuasl
    15-minute threshold for UAS-L and UAS-LFE bin.
    Type: integer
    Range: 0-900
    Default: 10.
40. dayuasl
    Day threshold for UAS-L and UAS-LFE bin.
    Type: integer
    Range: 0-86400
    Default: 10.

Spec block parameters - profile parameters of type RS-MS

1. qhrsnbbe
   15-minute threshold for RS_N_BBE bin.
   Type: integer
   Range: 0-7199100
   Default: 9000.
2. dayrsnbbe
   Day threshold for RS_N_BBE bin.
   Type: integer
   Range: 0-691113600
   Default: 48000.
3. qhrsnes
   15-minute threshold for RS_N_ES bin.
   Type: integer
   Range: 0-900
   Default: 180.
4. dayrsnes
   Day threshold for RS_N_ES bin.
   Type: integer
   Range: 0-86400
   Default: 1500.
5. qhrsnses
   15-minute threshold for RS_N_SES bin.
   Type: integer
   Range: 0-810
   Default: 15.
6. dayrsnses
   Day threshold for RS_N_SES bin.
   Type: integer
   Range: 0-77760
   Default: 20.

7. qhrsnuas
   15-minute threshold for RS_N_UAS bin.
   Type: integer
   Range: 0-900
   Default: 15.
8. dayrsnuas
   Day threshold for RS_N_UAS bin.
   Type: integer
   Range: 0-86400
   Default: 20.
9. qhmsbbestm1
   15-min threshold for MS_N_BBE and MS_F_BBE for stm1 bin.
   Type: integer
   Range: 0-172799100
   Default: 228000.
10. daymsbbestm1
    Day threshold for MS_N_BBE and MS_F_BBE for stm1 bin.
    Type: integer
    Range: 0-4294967295
    Default: 432000.
11. qhmsbbestm4
    15-min threshold for MS_N_BBE and MS_F_BBE for stm4 bin.
    Type: integer
    Range: 0-691199100
    Default: 912000.
12. daymsbbestm4
    Day threshold for MS_N_BBE and MS_F_BBE for stm4 bin.
    Type: integer
    Range: 00-4294967295
    Default: 1728000.
13. qhmsbbestm16
    15-min threshold for MS_N_BBE and MS_F_BBE for stm16 bin.
    Type: integer
    Range: 0-2764799100
    Default: 3648000.
14. daymsbbestm16
    Day threshold for MS_N_BBE and MS_F_BBE for stm16 bin.
    Type: integer
    Range: 0-4294967295
    Default: 6912000.

15. qhmsbbestm64
    15-min threshold for MS_N_BBE and MS_F_BBE for stm64 bin.
    Type: integer
    Range: 0-4294967295
    Default: 14592000.
16. daymsbbestm64
    Day threshold for MS_N_BBE and MS_F_BBE for stm64 bin.
    Type: integer
    Range: 0-4294967295
    Default: 27648000.
17. qhmsbbestm256
    15-min threshold for MS_N_BBE and MS_F_BBE for stm256 bin.
    Type: integer
    Range: 0-4294967295
    Default: 58368000.
18. daymsbbestm256
    Day threshold for MS_N_BBE and MS_F_BBE for stm256 bin.
    Type: integer
    Range: 0-4294967295
    Default: 110592000.
19. qhmses
    15-minute threshold for MS_N_ES and MS_F_ES bin.
    Type: integer
    Range: 0-900
    Default: 50.
20. daymses
    Day threshold for MS_N_ES and MS_F_ES bin.
    Type: integer
    Range: 0-86400
    Default: 150.
21. qhmsnfeccstm64
    15-minute threshold for MS-N-FECC bin forSTM-64.
    Type: integer
    Range: 0 - 4294967295
    Default: 5184.
22. daymsnfeccstm64
    Day threshold for MS-N-FECC bin forSTM-64.
    Type: integer
    Range: 0 - 4294967295
    Default: 497644.

23. qhmsnfeccstm256
    15-minute threshold for MS-N-FECC bin forSTM-256.
    Type: integer
    Range: 0 - 4294967295
    Default: 20736.
24. daymsnfeccstm256
    Day threshold for MS-N-FECC bin forSTM-256.
    Type: integer
    Range: 0 - 4294967295
    Default: 1990656.
25. qhmsses
    15-minute threshold for MS_N_SES and MS_F_SES bin.
    Type: integer
    Range: 0-810
    Default: 10.
26. daymsses
    Day threshold for MS_N_SES and MS_F_SES bin.
    Type: integer
    Range: 0-77760
    Default: 15.
27. qhmsuas
    15-min threshold for MS_N_UAS and MS_F_UAS for stm64 bin.
    Type: integer
    Range: 0-900
    Default: 15.
28. daymsuas
    Day threshold for MS_N_UAS and MS_F_UAS for stm64 bin.
    Type: integer
    Range: 0-86400
    Default: 20.

Spec block parameters - reset profile parameters of type RS-MS

1. qhrtrrsnbbe
   15-minute reset threshold for RS_N_BBE bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
2. dayrtrrsnbbe
   Day reset threshold for RS_N_BBE bin.
   Type: integer
   Range: 0-691113600
   Default: 4800.

3. qhrtrrsnes
   15-minute reset threshold for RS_N_ES bin.
   Type: integer
   Range: 0-900
   Default: 20.
4. dayrtrrsnes
   Day reset threshold for RS_N_ES bin.
   Type: integer
   Range: 0-86400
   Default: 150.
5. qhrtrrsnses
   15-minute reset threshold for RS_N_SES bin.
   Type: integer
   Range: 0-810
   Default: 0.
6. dayrtrrsnses
   Day reset threshold for RS_N_SES bin.
   Type: integer
   Range: 0-77760
   Default: 0.
7. qhrtrrsnuas
   15-minute reset threshold for RS_N_UAS bin.
   Type: integer
   Range: 0-900
   Default: 0.
8. dayrtrrsnuas
   Day reset threshold for RS_N_UAS bin.
   Type: integer
   Range: 0-86400
   Default: 0.
9. qhrtrmsbbestm1
   15-min threshold for MS_N_BBE and MS_F_BBE for stm1 bin.
   Type: integer
   Range: 0-172799100
   Default: 2400.
10. dayrtrmsbbestm1
    Day reset threshold for MS_N_BBE and MS_F_BBE for stm1 bin.
    Type: integer
    Range: 0-4294967295
    Default: 43200.

11. qhrtrmsbbestm4
    15-min threshold for MS_N_BBE and MS_F_BBE for stm4 bin.
    Type: integer
    Range: 0-691199100
    Default: 9600.
12. dayrtrmsbbestm4
    Day reset threshold for MS_N_BBE and MS_F_BBE for stm4 bin.
    Type: integer
    Range: 0-4294967295
    Default: 172800.
13. qhrtrmsbbestm16
    15-min threshold for MS_N_BBE and MS_F_BBE for stm16 bin.
    Type: integer
    Range: 0-2764799100
    Default: 38400.
14. dayrtrmsbbestm16
    Day reset threshold for MS_N_BBE and MS_F_BBE for stm16 bin.
    Type: integer
    Range: 0-4294967295
    Default: 691200.
15. qhrtrmsbbestm64
    15-min threshold for MS_N_BBE and MS_F_BBE for stm64 bin.
    Type: integer
    Range: 0-4294967295
    Default: 153600.
16. dayrtrmsbbestm64
    Day reset threshold for MS_N_BBE and MS_F_BBE for stm64 bin.
    Type: integer
    Range: 0-4294967295
    Default: 2764800.
17. qhrtrmsbbestm256
    15-min threshold for MS_N_BBE and MS_F_BBE for stm256 bin.
    Type: integer
    Range: 0-4294967295
    Default: 614400.
18. dayrtrmsbbestm256
    Day reset threshold for MS_N_BBE and MS_F_BBE for stm256 bin.
    Type: integer
    Range: 0-4294967295
    Default: 11059200.

19. qhrtrmses
    15-minute reset threshold for MS_N_ES and MS_F_ES bin.
    Type: integer
    Range: 0-900
    Default: 5.
20. dayrtrmses
    Day reset threshold for MS_N_ES and MS_F_ES bin.
    Type: integer
    Range: 0-86400
    Default: 15.
21. qhrtrmsnfeccstm64
    15-minute reset threshold for MS-N-FECC bin forSTM-64.
    Type: integer
    Range: 0 - 4294967295
    Default: 0.
22. dayrtrmsnfeccstm64
    Day reset threshold for MS-N-FECC bin forSTM-64.
    Type: integer
    Range: 0 - 4294967295
    Default: 0.
23. qhrtrmsnfeccstm256
    15-minute reset threshold for MS-N-FECC bin forSTM-256.
    Type: integer
    Range: 0 - 4294967295
    Default: 0.
24. dayrtrmsnfeccstm256
    Day reset threshold for MS-N-FECC bin forSTM-256.
    Type: integer
    Range: 0 - 4294967295
    Default: 0.
25. qhrtrmsses
    15-minute reset threshold for MS_N_SES and MS_F_SES bin.
    Type: integer
    Range: 0-810
    Default: 0.
26. dayrtrmsses
    Day reset threshold for MS_N_SES and MS_F_SES bin.
    Type: integer
    Range: 0-77760
    Default: 0.

27. qhrtrmsuas
    15-min reset threshold for MS_N_UAS and MS_F_UAS.
    Type: integer
    Range: 0-900
    Default: 0.
28. dayrtrmsuas
    Day reset threshold for MS_N_UAS and MS_F_UAS.
    Type: integer
    Range: 0-86400
    Default: 0.

Spec block parameters - profile parameters of type ODU

1. qhodupbbeodu1
   15-minute threshold for ODU_N_BBE bin and ODU_F_BBE for ODU1P.
   Type: integer
   Range: 0-18377100
   Default: 32000.
2. dayodupbbeodu1
   Day threshold for ODU_N_BBE bin and ODU_F_BBE for ODU1P.
   Type: integer
   Range: 0-1764201600
   Default: 61000.
3. qhodupes
   15-minute threshold for ODU_N_ES and ODU_F_ES bin for ODU1P.
   Type: integer
   Range: 0-900
   Default: 50.
4. dayodupes
   Day threshold for ODU_N_ES and ODU_F_ES bin for ODU1P..
   Type: integer
   Range: 0-86400
   Default: 150.
5. qhodupses
   15-minute threshold for ODU_N_SES and ODU_F_SES bin for ODU1P.
   Type: integer
   Range: 0-810
   Default: 10.
6. dayodupses
   Day threshold for ODU_N_SES and ODU_F_SES bin for ODU1P.
   Type: integer
   Range: 0-77760
   Default: 15.

7. qhodupuas
   15-minute threshold for ODU_N_UAS and ODU_F_UAS bin for ODU1P.
   Type: integer
   Range: 0-900
   Default: 15.
8. dayodupuas
   Day threshold for ODU_N_UAS and ODU_F_UAS bin for ODU1P.
   Type: integer
   Range: 0-86400
   Default: 20.

Spec block parameters - reset profile parameters of type ODU

1. qhrtrodupbbeodu1
   15-minute threshold for ODU_N_BBE bin and ODU_F_BBE for ODU1P.
   Type: integer
   Range: 0-18377100
   Default: 200.
2. dayrtrodupbbeodu1
   Day threshold for ODU_N_BBE bin and ODU_F_BBE for ODU1P.
   Type: integer
   Range: 0-1764201600
   Default: 4800.
3. qhrtrodupes
   15-minute threshold for ODU_N_ES and ODU_F_ES bin for ODU1P.
   Type: integer
   Range: 0-900
   Default: 5.
4. dayrtrodupes
   Day threshold for ODU_N_ES and ODU_F_ES bin for ODU1P.
   Type: integer
   Range: 0-86400
   Default: 15.
5. qhrtrodupses
   15-minute threshold for ODU_N_SES and ODU_F_SES bin for ODU1P.
   Type: integer
   Range: 0-810
   Default: 0.
6. dayrtrodupses
   Day threshold for ODU_N_SES and ODU_F_SES bin for ODU1P.
   Type: integer
   Range: 0-77760
   Default: 0.

7. qhrtrodupuas
   15-minute threshold for ODU_N_UAS and ODU_F_UAS bin for ODU1P.
   Type: integer
   Range: 0-900
   Default: 0.
8. dayrtrodupuas
   Day threshold for ODU_N_UAS and ODU_F_UAS bin for ODU1P.
   Type: integer
   Range: 0-86400
   Default: 0.

Spec block parameters - profile parameters of type HO-VC

1. qhvcbbevc3
   15-minute threshold for VC_N_BBE and VC_F_BBE for VC3 bin.
   Type: integer
   Range: 0-7199100
   Default: 36000.
2. dayvcbbevc3
   Day threshold for VC_N_BBE and VC_F_BBE for VC3 bin.
   Type: integer
   Range: 0-691113600
   Default: 48000.
3. qhvcbbevc4
   15-minute threshold for VC_N_BBE and VC_F_BBE for VC4 bin.
   Type: integer
   Range: 0-7199100
   Default: 36000.
4. dayvcbbevc4
   Day threshold for VC_N_BBE and VC_F_BBE for VC4 bin.
   Type: integer
   Range: 0-691113600
   Default: 48000.
5. qhvcbbevc44c
   15-minute threshold for VC_N_BBE and VC_F_BBE for VC44C bin.
   Type: integer
   Range: 0-7199100
   Default: 36000.
6. dayvcbbevc44c
   Day threshold for VC_N_BBE and VC_F_BBE for VC44C bin.
   Type: integer
   Range: 0-691113600
   Default: 48000.

7. qhvcbbevc416c
   15-minute threshold for VC_N_BBE and VC_F_BBE for VC416C bin.
   Type: integer
   Range: 0-7199100
   Default: 36000.
8. dayvcbbevc416c
   Day threshold for VC_N_BBE and VC_F_BBE for VC416C bin.
   Type: integer
   Range: 0-691113600
   Default: 48000.
9. qhvcbbevc464c
   15-minute threshold for VC_N_BBE and VC_F_BBE for VC464C bin.
   Type: integer
   Range: 0-7199100
   Default: 36000.
10. dayvcbbevc464c
    Day threshold for VC_N_BBE and VC_F_BBE for VC464C bin.
    Type: integer
    Range: 0-691113600
    Default: 48000.
11. qhvcesvc3
    15-minute threshold for VC_N_ES and VC_F_ES VC3 bin.
    Type: integer
    Range: 0-900
    Default: 150.
12. dayvcesvc3
    Day threshold for VC_N_ES and VC_F_ES VC3 bin.
    Type: integer
    Range: 0-86400
    Default: 600.
13. qhvcesvc4
    15-minute threshold for VC_N_ES and VC_F_ES for VC4 bin.
    Type: integer
    Range: 0-900
    Default: 180.
14. dayvcesvc4
    Day threshold for VC_N_ES and VC_F_ES for VC4 bin.
    Type: integer
    Range: 0-86400
    Default: 1500.

15. qhvcesvc44c
    15-minute threshold for VC_N_ES and VC_F_ES for VC4-4C bin.
    Type: integer
    Range: 0-900
    Default: 180.
16. dayvcesvc44c
    Day threshold for VC_N_ES and VC_F_ES for VC4-4C bin.
    Type: integer
    Range: 0-86400
    Default: 1500.
17. qhvcesvc416c
    15-minute threshold for VC_N_ES and VC_F_ES for VC4-16C bin.
    Type: integer
    Range: 0-900
    Default: 180.
18. dayvcesvc416c
    Day threshold for VC_N_ES and VC_F_ES for VC4-16C bin.
    Type: integer
    Range: 0-86400
    Default: 1500.
19. qhvcesvc464c
    15-minute threshold for VC_N_ES and VC_F_ES for VC4-64C bin.
    Type: integer
    Range: 0-900
    Default: 180.
20. dayvcesvc464c
    Day threshold for VC_N_ES and VC_F_ES for VC4-64C bin.
    Type: integer
    Range: 0-86400
    Default: 1500.
21. qhvcsesvc3
    15-minute threshold for VC_N_SES and VC_F_SES for VC3 bin.
    Type: integer
    Range: 0-810
    Default: 15.
22. dayvcsesvc3
    Day threshold for VC_N_SES and VC_F_SES for VC3 bin.
    Type: integer
    Range: 0-77760
    Default: 20.

23. qhvcsesvc4
    15-minute threshold for VC_N_SES and VC_F_SES for VC4 bin.
    Type: integer
    Range: 0-810
    Default: 15.
24. dayvcsesvc4
    Day threshold for VC_N_SES and VC_F_SES for VC4 bin.
    Type: integer
    Range: 0-77760
    Default: 20.
25. qhvcsesvc44c
    15-minute threshold for VC_N_SES and VC_F_SES for VC44C bin.
    Type: integer
    Range: 0-810
    Default: 15.
26. dayvcsesvc44c
    Day threshold for VC_N_SES and VC_F_SES for VC44C bin.
    Range: 0-77760
    Default: 20.
27. qhvcsesvc416c
    15-minute threshold for VC_N_SES and VC_F_SES for VC416C bin.
    Type: integer
    Range: 0-810
    Default: 15.
28. dayvcsesvc416c
    Day threshold for VC_N_SES and VC_F_SES for VC416C bin.
    Type: integer
    Range: 0-77760
    Default: 20.
29. qhvcsesvc464c
    15-minute threshold for VC_N_SES and VC_F_SES for VC464C bin.
    Type: integer
    Range: 0-810
    Default: 15.
30. dayvcsesvc464c
    Day threshold for VC_N_SES and VC_F_SES for VC464C bin.
    Type: integer
    Range: 0-77760
    Default: 20.

31. qhvcuasvc3
    15-minute threshold for VC_N_UAS and VC_F_UAS for VC3 bin.
    Type: integer
    Range: 0-900
    Default: 15.
32. dayvcuasvc3
    Day threshold for VC_N_UAS and VC_F_UAS for VC3 bin.
    Type: integer
    Range: 0-86400
    Default: 20.
33. qhvcuasvc4
    15-minute threshold for VC_N_UAS and VC_F_UAS for VC4 bin.
    Type: integer
    Range: 0-900
    Default: 15.
34. dayvcuasvc4
    Day threshold for VC_N_UAS and VC_F_UAS for VC4 bin.
    Type: integer
    Range: 0-86400
    Default: 20.
35. qhvcuasvc44c
    15-minute threshold for VC_N_UAS and VC_F_UAS for VC44C bin.
    Type: integer
    Range: 0-900
    Default: 15.
36. dayvcuasvc44c
    Day threshold for VC_N_UAS and VC_F_UAS for VC44C bin.
    Type: integer
    Range: 0-86400
    Default: 20.
37. qhvcuasvc416c
    15-minute threshold for VC_N_UAS and VC_F_UAS for VC416C bin.
    Type: integer
    Range: 0-900
    Default: 15.
38. dayvcuasvc416c
    Day threshold for VC_N_UAS and VC_F_UAS for VC416C bin.
    Type: integer
    Range: 0-86400
    Default: 20.

39. qhvcuasvc464c
    15-minute threshold for VC_N_UAS and VC_F_UAS for VC464C bin.
    Type: integer
    Range: 0-900
    Default: 15.
40. dayvcuasvc464c
    Day threshold for VC_N_UAS and VC_F_UAS for VC464C bin.
    Type: integer
    Range: 0-86400
    Default: 20.

Spec block parameters - reset profile parameters of type HO-VC

1. qhrtrvcbbevc3
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for VC3 bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
2. dayrtrvcbbevc3
   Day reset threshold for VC_N_BBE and VC_F_BBE for VC3 bin.
   Type: integer
   Range: 0-691113600
   Default: 4800.
3. qhrtrvcbbevc4
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for VC4 bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
4. dayrtrvcbbevc4
   Day reset threshold for VC_N_BBE and VC_F_BBE for VC4 bin.
   Type: integer
   Range: 0-691113600
   Default: 4800.
5. qhrtrvcbbevc44c
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for VC44C bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
6. dayrtrvcbbevc44c
   Day reset threshold for VC_N_BBE and VC_F_BBE for VC44C bin.
   Type: integer
   Range: 0-691113600
   Default: 4800.

7. qhrtrvcbbevc416c
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for VC416C bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
8. dayrtrvcbbevc416c
   Day reset threshold for VC_N_BBE and VC_F_BBE for VC416C bin.
   Type: integer
   Range: 0-691113600
   Default: 4800.
9. qhrtrvcbbevc464c
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for VC464C bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
10. dayrtrvcbbevc464c
    Day reset threshold for VC_N_BBE and VC_F_BBE for VC464C bin.
    Type: integer
    Range: 0-691113600
    Default: 4800.
11. qhrtrvcesvc3
    15-minute reset threshold for VC_N_ES and VC_F_ES VC3 bin.
    Type: integer
    Range: 0-900
    Default: 10.
12. dayrtrvcesvc3
    Day reset threshold for VC_N_ES and VC_F_ES VC3 bin.
    Type: integer
    Range: 0-86400
    Default: 60.
13. qhrtrvcesvc4
    15-minute reset threshold for VC_N_ES and VC_F_ES for VC4 bin.
    Type: integer
    Range: 0-900
    Default: 20.
14. dayrtrvcesvc4
    Day reset threshold for VC_N_ES and VC_F_ES for VC4 bin.
    Type: integer
    Range: 0-86400
    Default: 150.

15. qhrtrvcesvc44c
    15-minute reset threshold for VC_N_ES and VC_F_ES for VC4-4C bin.
    Type: integer
    Range: 0-900
    Default: 20.
16. dayrtrvcesvc44c
    Day reset threshold for VC_N_ES and VC_F_ES for VC4-4C bin.
    Type: integer
    Range: 0-86400
    Default: 150.
17. qhrtrvcesvc416c
    15-minute reset threshold for VC_N_ES and VC_F_ES for VC4-16C bin.
    Type: integer
    Range: 0-900
    Default: 20.
18. dayrtrvcesvc416c
    Day reset threshold for VC_N_ES and VC_F_ES for VC4-16C bin.
    Type: integer
    Range: 0-86400
    Default: 150.
19. qhrtrvcesvc464c
    15-minute reset threshold for VC_N_ES and VC_F_ES for VC4-64C bin.
    Type: integer
    Range: 0-900
    Default: 20.
20. dayrtrvcesvc464c
    Day reset threshold for VC_N_ES and VC_F_ES for VC4-64C bin.
    Type: integer
    Range: 0-86400
    Default: 150.
21. qhrtrvcsesvc3
    15-minute reset threshold for VC_N_SES and VC_F_SES for VC3 bin.
    Type: integer
    Range: 0-810
    Default: 0.
22. dayrtrvcsesvc3
    Day reset threshold for VC_N_SES and VC_F_SES for VC3 bin.
    Type: integer
    Range: 0-77760
    Default: 0.

23. qhrtrvcsesvc4
    15-minute reset threshold for VC_N_SES and VC_F_SES for VC4 bin.
    Type: integer
    Range: 0-810
    Default: 0.
24. dayrtrvcsesvc4
    Day reset threshold for VC_N_SES and VC_F_SES for VC4 bin.
    Type: integer
    Range: 0-77760
    Default: 0.
25. qhrtrvcsesvc44c
    15-minute reset threshold for VC_N_SES and VC_F_SES for VC44C bin.
    Type: integer
    Range: 0-810
    Default: 0.
26. dayrtrvcsesvc44c
    Day reset threshold for VC_N_SES and VC_F_SES for VC44C bin.
    Type: integer
    Range: 0-77760
    Default: 0.
27. qhrtrvcsesvc416c
    15-minute reset threshold for VC_N_SES and VC_F_SES for VC416C bin.
    Type: integer
    Range: 0-810
    Default: 0.
28. dayrtrvcsesvc416c
    Day reset threshold for VC_N_SES and VC_F_SES for VC416C bin.
    Type: integer
    Range: 0-77760
    Default: 0.
29. qhrtrvcsesvc464c
    15-minute reset threshold for VC_N_SES and VC_F_SES for VC464C bin.
    Type: integer
    Range: 0-810
    Default: 0.
30. dayrtrvcsesvc464c
    Day reset threshold for VC_N_SES and VC_F_SES for VC464C bin.
    Type: integer
    Range: 0-77760
    Default: 0.

31. qhrtrvcuasvc3
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for VC3 bin.
    Type: integer
    Range: 0-900
    Default: 0.
32. dayrtrvcuasvc3
    Day reset threshold for VC_N_UAS and VC_F_UAS for VC3 bin.
    Type: integer
    Range: 0-86400
    Default: 0.
33. qhrtrvcuasvc4
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for VC4 bin.
    Type: integer
    Range: 0-900
    Default: 0.
34. dayrtrvcuasvc4
    Day reset threshold for VC_N_UAS and VC_F_UAS for VC4 bin.
    Type: integer
    Range: 0-86400
    Default: 0.
35. qhrtrvcuasvc44c
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for VC44C bin.
    Type: integer
    Range: 0-900
    Default: 0.
36. dayrtrvcuasvc44c
    Day reset threshold for VC_N_UAS and VC_F_UAS for VC44C bin.
    Type: integer
    Range: 0-86400
    Default: 0.
37. qhrtrvcuasvc416c
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for VC416C bin.
    Type: integer
    Range: 0-900
    Default: 0.
38. dayrtrvcuasvc416c
    Day reset threshold for VC_N_UAS and VC_F_UAS for VC416C bin.
    Type: integer
    Range: 0-86400
    Default: 0.

39. qhrtrvcuasvc464c
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for VC464C bin.
    Type: integer
    Range: 0-900
    Default: 0.
40. dayrtrvcuasvc464c
    Day reset threshold for VC_N_UAS and VC_F_UAS for VC464C bin.
    Type: integer
    Range: 0-86400
    Default: 0.

Spec block parameters - profile parameters of type PATH

1. qhcvpsts1
   15-minute threshold for CV-P and CV-PFE bin for STS1.
   Type: integer
   Range: 0-57599100
   Default: 15.
2. daycvpsts1
   Day threshold for CV-P and CV-PFE bin for STS1.
   Type: integer
   Range: 0-4294967295
   Default: 125.
3. qhcvpsts3c
   15-minute threshold for CV-P and CV-PFE bin for STS3C.
   Type: integer
   Range: 0-57599100
   Default: 25.
4. daycvpsts3c
   Day threshold for CV-P and CV-PFE bin for STS3C.
   Type: integer
   Range: 4294967295
   Default: 250.
5. qhcvpsts12c
   15-minute threshold for CV-P and CV-PFE bin for STS12C.
   Type: integer
   Range: 0-57599100
   Default: 75.
6. daycvpsts12c
   Day threshold for threshold for CV-P and CV-PFE bin for STS12C.
   Type: integer
   Range: 4294967295
   Default: 750.

7. qhcvpsts48c
   15-minute threshold for CV-P and CV-PFE bin for STS48C.
   Type: integer
   Range: 0-57599100
   Default: 300.
8. daycvpsts48c
   Day threshold for CV-P and CV-PFE bin for STS48C.
   Type: integer
   Range: 4294967295
   Default: 3000.
9. qhcvpsts192c
   Day threshold for CV-P and CV-PFE bin for STS192C.
   Type: integer
   Range: 0-57599100
   Default: 1200.
10. daycvpsts192c
    Day threshold for CV-P and CV-PFE bin for STS192C.
    Type: integer
    Range: 0-4294967295
    Default: 12000.
11. qhespsts1
    15-minute threshold for ES-P and ES-PFE bin for STS1.
    Type: integer
    Range: 0-900
    Default: 12.
12. dayespsts1
    Day threshold for ES-P and ES-PFE bin for STS1.
    Type: integer
    Range: 0-86400
    Default: 100.
13. qhespsts3c
    15-minute threshold for ES-P and ES-PFE bin for STS3C.
    Type: integer
    Range: 0-900
    Default: 20.
14. dayespsts3c
    Day threshold for ES-P and ES-PFE bin for STS3C.
    Type: integer
    Range: 0-86400
    Default: 200.

15. qhespsts12c
    15-minute threshold for ES-P and ES-PFE bin for STS12C.
    Type: integer
    Range: 0-900
    Default: 60.
16. dayespsts12c
    Day threshold for ES-P and ES-PFE bin for STS12C.
    Type: integer
    Range: 0-86400
    Default: 600.
17. qhespsts48c
    15-minute threshold for ES-P and ES-PFE bin for STS48C.
    Type: integer
    Range: 0-900
    Default: 240.
18. dayespsts48c
    Day threshold for ES-P and ES-PFE bin for STS48C.
    Type: integer
    Range: 0-86400
    Default: 2400.
19. qhespsts192c
    Day threshold for ES-P and ES-PFE bin for STS192C.
    Type: integer
    Range: 0-900
    Default: 240.
20. dayespsts192c
    Day threshold for ES-P and ES-PFE bin for STS192C.
    Type: integer
    Range: 0-86400
    Default: 9600.
21. qhsesp
    15-minute threshold for SES-P and SES-PFE bin.
    Type: integer
    Range: 0-810
    Default: 3.
22. daysesp
    Day threshold for SES-P and SES-PFE bin.
    Type: integer
    Range: 0-77760
    Default: 7.

23. qhuasp
    15-minute threshold for UAS-P and UAS-PFE bin.
    Type: integer
    Range: 0-900
    Default: 10.
24. dayuasp
    Day threshold for UAS-P and UAS-PFE bin.
    Type: integer
    Range: 0-86400
    Default: 10.

Spec block parameters - profile parameters of type ENET

1. qhpdege
   15-minute threshold for PDE bin for GE.
   Type: integer
   Range: 0-183000000
   Default: 187500.
2. daypdege
   Day threshold for PDE bin for GE.
   Type: integer
   Range: 0-4294967295
   Default: 9000000.
3. qhpdevcg
   15-minute threshold for PDE bin for VCG.
   Type: integer
   Range: 0-183000000
   Default: 10.
4. daypdevcg
   Day threshold for PDE bin for VCG.
   Type: integer
   Range: 0-4294967295
   Default: 50.

Spec block parameters - reset profile parameters of type ENET

1. qhrtrpdege
   15-minute reset threshold for PDE bin for GE.
   Type: integer
   Range: 0-183000000
   Default: 937500.
2. dayrtrpdege
   Day reset threshold for PDE bin for GE.
   Type: integer
   Range: 0-4294967295
   Default: 4500000.

3. qhrtrpdevcg
   15-minute reset threshold for PDE bin for VCG.
   Type: integer
   Range: 0-183000000
   Default: 2.
4. dayrtrpdevcg
   Day reset threshold for PDE bin for VCG.
   Type: integer
   Range: 0-4294967295
   Default: 5.

Spec block parameters- profile parameters of type LOVC

1. qhvcbbevc12
   15-minute threshold for VC_N_BBE and VC_F_BBE for VC12 bin.
   Type: integer
   Range: 0-1799100
   Default: 9000.
2. dayvcbbevc12
   Day threshold for VC_N_BBE and VC_F_BBE for VC12 bin.
   Type: integer
   Range: 0-172713600
   Default: 12000.
3. qhvcbbelovc3
   15-minute threshold for VC_N_BBE and VC_F_BBE for lower order VC3 bin.
   Type: integer
   Range: 0-7199100
   Default: 36000.
4. dayvcbbelovc3
   Day threshold for VC_N_BBE and VC_F_BBE for lower order VC3 bin.
   Type: integer
   Range: 0-691113600
   Default: 48000.
5. qhvcesvc12
   15-minute threshold for VC_N_ES and VC_F_ES for VC12 bin.
   Type: integer
   Range: 0-900
   Default: 120.
6. dayvcesvc12
   Day threshold for VC_N_ES and VC_F_ES for VC12 bin.
   Type: integer
   Range: 0-86400
   Default: 350.

7. qhvceslovc3
   15-minute threshold for VC_N_ES and VC_F_ES for lower order VC3 bin.
   Type: integer
   Range: 0-900
   Default: 150.
8. dayvceslovc3
   Day threshold for VC_N_ES and VC_F_ES for lower order VC3 bin.
   Type: integer
   Range: 0-86400
   Default: 600.
9. qhvcsesvc12
   15-minute threshold for VC_N_SES and VC_F_SES for VC12 bin.
   Type: integer
   Range: 0-810
   Default: 15.
10. dayvcsesvc12
    Day threshold for VC_N_SES and VC_F_SES for VC12 bin.
    Type: integer
    Range: 0-77760
    Default: 20.
11. qhvcseslovc3
    15-minute threshold for VC_N_SES and VC_F_SES for lower order VC3 bin.
    Type: integer
    Range: 0-810
    Default: 15.
12. dayvcseslovc3
    Day threshold for VC_N_SES and VC_F_SES for lower order VC3 bin.
    Type: integer
    Range: 0-77760
    Default: 20.
13. qhvcuasvc12
    15-minute threshold for VC_N_UAS and VC_F_UAS for VC12 bin.
    Type: integer
    Range: 0-900
    Default: 15.
14. dayvcuasvc12
    Day threshold for VC_N_UAS and VC_F_UAS for VC12 bin.
    Type: integer
    Range: 0-86400
    Default: 20.

15. qhvcuaslovc3
    15-minute threshold for VC_N_UAS and VC_F_UAS for lower order VC3 bin.
    Type: integer
    Range: 0-900
    Default: 15.
16. dayvcuaslovc3
    Day threshold for VC_N_UAS and VC_F_UAS for lower order VC3 bin.
    Type: integer
    Range: 0-86400
    Default: 20.

Spec block parameters- reset profile parameters of type LOVC

1. qhrtrvcbbevc12
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for VC12 bin.
   Type: integer
   Range: 0-1799100
   Default: 50.
2. dayrtrvcbbevc12
   Day reset threshold for VC_N_BBE and VC_F_BBE for VC12 bin.
   Type: integer
   Range: 0-172713600
   Default: 1200.
3. qhrtrvcbbelovc3
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for lower order VC3 bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
4. dayrtrvcbbelovc3
   Day reset threshold for VC_N_BBE and VC_F_BBE for lower order VC3 bin.
   Type: integer
   Range: 0-691113600
   Default: 4800.
5. qhrtrvcesvc12
   15-minute reset threshold for VC_N_ES and VC_F_ES for VC12 bin.
   Type: integer
   Range: 0-900
   Default: 5.
6. dayrtrvcesvc12
   Day reset threshold for VC_N_ES and VC_F_ES for VC12 bin.
   Type: integer
   Range: 0-86400
   Default: 35.

7. qhrtrvceslovc3
   15-minute reset threshold for VC_N_ES and VC_F_ES for lower order VC3 bin.
   Type: integer
   Range: 0-900
   Default: 10.
8. dayrtrvceslovc3
   Day reset threshold for VC_N_ES and VC_F_ES for lower order VC3 bin.
   Type: integer
   Range: 0-86400
   Default: 60.
9. qhrtrvcsesvc12
   15-minute reset threshold for VC_N_SES and VC_F_SES for VC12 bin.
   Type: integer
   Range: 0-810
   Default: 0.
10. dayrtrvcsesvc12
    Day reset threshold for VC_N_SES and VC_F_SES for VC12 bin.
    Type: integer
    Range: 0-77760
    Default: 0.
11. qhrtrvcseslovc3
    15-minute reset threshold for VC_N_SES and VC_F_SES for lower order VC3 bin.
    Type: integer
    Range: 0-810
    Default: 0.
12. dayrtrvcseslovc3
    Day reset threshold for VC_N_SES and VC_F_SES for lower order VC3 bin.
    Type: integer
    Range: 0-77760
    Default: 0.
13. qhrtrvcuasvc12
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for VC12 bin.
    Type: integer
    Range: 0-900
    Default: 0.
14. dayrtrvcuasvc12
    Day reset threshold for VC_N_UAS and VC_F_UAS for VC12 bin.
    Type: integer
    Range: 0-86400
    Default: 0.

15. qhrtrvcuaslovc3
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for lower order VC3 bin.
    Type: integer
    Range: 0-900
    Default: 0.
16. dayrtrvcuaslovc3
    Day reset threshold for VC_N_UAS and VC_F_UAS for lower order VC3 bin.
    Type: integer
    Range: 0-86400
    Default: 0.

Spec block parameters.- Profile Parameters of Type LOPATH

1. qhcvvt1
   15-minute threshold for CV-P and CV-PFE bin for VT1.
   Type: integer
   Range: 0-14399100
   Default: 75.
2. daycvvt1
   Day threshold for CV-P and CV-PFE bin for VT1.
   Type: integer
   Range: 0-1382313600
   Default: 750.
3. qhesvt1
   15-minute threshold for ES-P and ES-PFE bin for VT1.
   Type: integer
   Range: 0-900
   Default: 40.
4. dayesvt1
   Day threshold for ES-P and ES-PFE bin for VT1.
   Type: integer
   Range: 0-86400
   Default: 900.
5. qhsesvt1
   15-minute threshold for SES-P and SES-PFE bin for VT1.
   Type: integer
   Range: 0-810
   Default: 40.
6. daysesvt1
   Day threshold for SES-P and SES-PFE bin for VT1.
   Type: integer
   Range: 0-77760
   Default: 900.

7. qhuasvt1
   15-minute threshold for UAS-P and UAS-PFE bin for VT1.
   Type: integer
   Range: 0-900
   Default: 40.
8. dayuasvt1
   Day threshold for UAS-P and UAS-PFE bin for VT1.
   Type: integer
   Range: 0-86400
   Default: 900.

Command parameters - profile parameters of type DS3

1. qhcvl
   15-minute threshold for CV-L bin of DS3 Line.
   Type: integer
   Range: 0-7200000
   Default: 387.
2. daycvl
   Day threshold for CV-L bin of DS3 Line.
   Type: integer
   Range: 0- 691200000
   Default: 3865.
3. qhesl
   15-minute threshold for Es-L bin of DS3 Line.
   Type: integer
   Range: 0-900
   Default: 25.
4. dayesl
   Day threshold for ES-L bin of DS3 Line.
   Type: integer
   Range: 0-86400
   Default: 250.
5. qhesal
   15-minute threshold for ESA-L bin of DS3 Line.
   Type: integer
   Range: 0-900
   Default: 25.
6. dayesal
   Day threshold for ESB-L bin of DS3 Line.
   Type: integer
   Range: 0-86400
   Default: 250.

7. qhesbl
   15-minute threshold for ESB-L bin of DS3 Line.
   Type: integer
   Range: 0-900
   Default: 25.
8. dayesbl
   Day threshold for ESB-L bin of DS3 Line.
   Type: integer
   Range: 0-86400
   Default: 250.
9. qhsesl
   15-minute threshold for SES-L bin of DS3 Line.
   Type: integer
   Range: 0-810
   Default: 4.
10. daysesl
    Day threshold for SES-L bin of DS3 Line.
    Type: integer
    Range: 0-77760
    Default: 40.
11. qhcvp
    15-minute threshold for CV-P and CV-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-7200000
    Default: 382.
12. daycvp
    Day threshold for CV-P and CV-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-691200000
    Default: 3820.
13. qhesp
    15-minute threshold for ES-P and ES-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-900
    Default: 25.
14. dayesp
    Day threshold for ES-P and ES-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-86400
    Default: 250.

15. qhesap
    15-minute threshold for ESA-P and ESA-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-900
    Default: 25.
16. dayesap
    Day threshold for ESA-P and ESA-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-86400
    Default: 250.
17. qhesbp
    15-minute threshold for ESB-P and ESB-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-900
    Default: 25.
18. dayesbp
    Day threshold for ESB-P and ESB-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-86400
    Default: 250.
19. qhsesp
    15-minute threshold for SES-P and SES-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-810
    Default: 4.
20. daysesp
    Day threshold for SES-P and SES-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-77760
    Default: 40.
21. qhuasp
    15-minute threshold for UAS-P and UAS-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-900
    Default: 10.

22. dayuasp
    Day threshold for UAS-P and UAS-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-86400
    Default: 10.
23. qhsasp
    15-minute threshold for SAS-P and SAS-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-900
    Default: 2.
24. daysasp
    Day threshold for SAS-P and SAS-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-86400
    Default: 8.

Output format

If the NE fully complies with the ED-TCA-PROF request, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

Output parameters

The output parameters *sid, date, time* and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behaviour description

TCA Profile modification

The command shall modify the existing performance monitoring Threshold Crossing Alert (TCA) profile content or the profile name.

The modification of the TCA profile shall be reported by means of an ED-TCA-PROF notification.

Example input/output

The following example shows the successful completion of a ED-TCA-PROF command by the NE:

```
ED-TCA-PROF:UNITE-NE::123456::rs-ms,ATT:qhrsnes=10,qhrsnbbe=6;
   UNITE-NE 00-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the ED-TCA-PROF command.

Validation rule: profile name does not exist

If the profile name specified does not exist.

Error code: `IDNV - Input, Data Not Valid, profile name does not exist`

Validation rule: profile name already exists

If the system receives a new profile name that already exists for that profile type, the following error response is returned.

Error code: `IEAE - Input, Entity Already Exists, duplicate profile name`

Validation rule: rename default profile name

If a user tries to change the system default profile name (Default / Default0), the following error response is returned.

Error code: `IDNC - Input, Data Not Consistent, new name for default profile`

Validation rule: value change of default profile Default0

If a user tries to change values of the system default profile ″Default0″, the following error response is returned.

Error code: `IDNC - Input, Data Not Consistent, value change not allowed for profile Default0`

Related TL1 messages

- "DLT-TCA-PROF: Delete TCA Profile" (p. 4-186)
- "RTRV-TCA-PROF: Retrieve TCA Profile" (p. 4-2184)
- "ENT-TCA-PROF: Enter TCA Profile" (p. 4-1345)

References

GR-833-CORE

ED-TCA-PROF notification

Output format

The ED-TCA-PROF notification shall use the general format of a REPT DBCHG (Report Database Change) notification.

Command syntax: `ED-TCA-PROF`*::pftype,pfname:spec_block*

Output parameter

Command parameters

1. pftype – Profile Type
   This indicates the type of PM TCA profile for the selected facility.
   Type: value set.
   Range: SECTION-LINE, RS-MS, HOVC, PATH, ENET, ODU, LOVC, LOPATH, DS3.
2. pfname – Profile Name
   This indicates the name of the PM TCA profile which was already established by the command ENT-TCA-PROF. If this field is NULL, the output will only consist of a list of all profile names for the specific profile type that was requested. If a valid profile name is inserted in this field, the output will display the parameters within the profile with their values. A *pfname* value will always uniquely identify an existing profile for a specified *pftype* value.
   NULL means, that the Profile Name is omitted.
   Type: alphanumeric string.
   Range: This is an alphanumeric character string with a maximum of 24 characters.
   Default: If this field is NULL, the output will only consist of a list of all profile names for the specific profile type that was requested.

Spec block parameter

1. newname
   This parameter allows a new name to be assigned to the already established profile.
   Type: alphanumeric string.
   Range: This is a alphanumeric character string with a maximum of 24 characters. Empty string is not allowed.

Spec block parameters - profile parameters of type SECTION-LINE

1. qhcvsoc3
   15-minute threshold for CV-S bin for OC-3.
   Type: integer
   Range: 0-57599100
   Default: 140.
2. daycvsoc3
   Day threshold for CV-S bin of OC-3.
   Type: integer
   Range: 0-4294967295
   Default: 1344.
3. qhcvsoc12
   15-minute threshold for CV-S bin for OC-12.
   Type: integer
   Range: 0-57599100
   Default: 560.
4. daycvsoc12
   Day threshold for CV-S bin for OC-12.
   Type: integer
   Range: 0-4294967295
   Default: 5376.
5. qhcvsoc48
   15-minute threshold for CV-S bin for OC-48.
   Type: integer
   Range: 0-57599100
   Default: 2240.
6. daycvsoc48
   Day threshold for CV-S bin for OC-48.
   Type: integer
   Range: 0-4294967295
   Default: 21504.
7. qhcvsoc192
   15-minute threshold for CV-S bin for OC-192.
   Type: integer
   Range: 0-57599100
   Default: 8960.
8. daycvsoc192
   Day threshold for CV-S bin for OC-192.
   Type: integer
   Range: 0-4294967295
   Default: 86016.

9. qhcvsoc768
   15-minute threshold for CV-S bin for OC-768.
   Type: integer
   Range: 0-57599100
   Default: 35840.
10. daycvsoc768
    Day threshold for CV-S bin for OC-768.
    Type: integer
    Range: 0-4294967295
    Default: 344064.
11. qhcvsec1
    15-minute threshold for CV-S bin for EC-1.
    Type: integer
    Range: 0-57599100
    Default: 47
12. daycvsec1
    Day threshold for CV-S bin of EC-1.
    Type: integer
    Range: 0-4294967295
    Default. 448
13. qhess
    15-minute threshold for ES-S bin.
    Type: integer
    Range: 0-900
    Default: 25.
14. dayess
    Day threshold for ES-S bin.
    Type: integer
    Range: 0-86400
    Default: 250.
15. qhsess
    15-minute threshold for SES-S bin.
    Type: integer
    Range: 0-810
    Default: 10.
16. daysess
    Day threshold for ES-S bin.
    Type: integer
    Range: 0-77760
    Default: 40.

17. qhsefss
    15-minute threshold for SEFS-S bin.
    Type: integer
    Range: 0-900
    Default: 5.
18. daysefss
    Day threshold for SEFS-S bin.
    Type: integer
    Range: 0-86400
    Default: 10.
19. qhcvloc3
    15-minute threshold for CV-L and CV-LFE bin for OC-3.
    Type: integer
    Range: 0-172799100
    Default: 140.
20. daycvloc3
    Day threshold for CV-L bin and CV-LFE for OC-3.
    Type: integer
    Range: 0-4294967295
    Default: 1344.
21. qhcvloc12
    15-minute threshold for CV-L and CV-LFE bin for OC-12.
    Type: integer
    Range: 0-691199100
    Default: 560.
22. daycvloc12
    Day threshold for CV-L bin and CV-LFE for OC-12.
    Type: integer
    Range: 0-4294967295
    Default: 5376.
23. qhcvloc48
    15-minute threshold for CV-L and CV-LFE bin for OC-48.
    Type: integer
    Range: 0-2764799100
    Default: 2240.
24. daycvloc48
    Day threshold for CV-L and CV-LFE bin for OC-48.
    Type: integer
    Range: 0-4294967295
    Default: 21504.

25. qhcvloc192
    15-minute threshold for CV-L and CV-LFE bin for OC-192.
    Type: integer
    Range: 0-4294967295
    Default: 8960.
26. daycvloc192
    Day threshold for CV-L and CV-LFE bin for OC-192.
    Type: integer
    Range: 0-4294967295
    Default: 86016.
27. qhcvloc768
    15-minute threshold for CV-L and CV-LFE bin for OC-768.
    Type: integer
    Range: 0-4294967295
    Default: 35840.
28. daycvloc768
    Day threshold for CV-L and CV-LFE bin for OC-768.
    Type: integer
    Range: 0-4294967295
    Default: 344064.
29. qhcvlec1
    15-minute threshold for CV-L and CV-LFE bin for EC-1.
    Type: integer
    Range: 0-57599100
    Default: 47
30. daycvlec1
    Day threshold for CV-L bin and CV-LFE for EC-1.
    Type: integer
    Range: 0-4294967295
    Default: 448
31. qhesl
    15-minute threshold for ES-L and ES-LFE bin.
    Type: integer
    Range: 0-900
    Default: 25.
32. dayesl
    Day threshold for ES-L and ES-LFE bin.
    Type: integer
    Range: 0-86400
    Default: 250.

33. qhfeccloc192
    15-minute threshold for FECC-L bin for OC-192.
    Type: integer
    Range: 0 - 4294967295
    Default: 5184.
34. dayfeccloc192
    Day threshold for FECC-L bin for OC-192.
    Type: integer
    Range: 0 - 4294967295
    Default: 497644.
35. qhfeccloc768
    15-minute threshold for FECC-L bin for OC-768.
    Type: integer
    Range: 0 - 4294967295
    Default: 20736.
36. dayfeccloc768
    Day threshold for FECC-L bin for OC-768.
    Type: integer
    Range: 0 - 4294967295
    Default: 1990656.
37. qhsesl
    15-minute threshold for SES-L and SES-LFE bin.
    Type: integer
    Range: 0-810
    Default: 10.
38. daysesl
    Day threshold for SES-L and SES-LFE bin.
    Type: integer
    Range: 0-77760
    Default: 40.
39. qhuasl
    15-minute threshold for UAS-L and UAS-LFE bin.
    Type: integer
    Range: 0-900
    Default: 10.
40. dayuasl
    Day threshold for UAS-L and UAS-LFE bin.
    Type: integer
    Range: 0-86400
    Default: 10.

Spec block parameters - profile parameters of type RS-MS

1. qhrsnbbe
   15-minute threshold for RS_N_BBE bin.
   Type: integer
   Range: 0-7199100
   Default: 9000.
2. dayrsnbbe
   Day threshold for RS_N_BBE bin.
   Type: integer
   Range: 0-691113600
   Default: 48000.
3. qhrsnes
   15-minute threshold for RS_N_ES bin.
   Type: integer
   Range: 0-900
   Default: 180.
4. dayrsnes
   Day threshold for RS_N_ES bin.
   Type: integer
   Range: 0-86400
   Default: 1500.
5. qhrsnses
   15-minute threshold for RS_N_SES bin.
   Type: integer
   Range: 0-810
   Default: 15.
6. dayrsnses
   Day threshold for RS_N_SES bin.
   Type: integer
   Range: 0-77760
   Default: 20.
7. qhrsnuas
   15-minute threshold for RS_N_UAS bin.
   Type: integer
   Range: 0-900
   Default: 15.
8. dayrsnuas
   Day threshold for RS_N_UAS bin.
   Type: integer
   Range: 0-86400
   Default: 20.

9. qhmsbbestm1
   15-min threshold for MS_N_BBE and MS_F_BBE for stm1 bin.
   Type: integer
   Range: 0-172799100
   Default: 228000.
10. daymsbbestm1
    Day threshold for MS_N_BBE and MS_F_BBE for stm1 bin.
    Type: integer
    Range: 0-4294967295
    Default: 432000.
11. qhmsbbestm4
    15-min threshold for MS_N_BBE and MS_F_BBE for stm4 bin.
    Type: integer
    Range: 0-691199100
    Default: 912000.
12. daymsbbestm4
    Day threshold for MS_N_BBE and MS_F_BBE for stm4 bin.
    Type: integer
    Range: 00-4294967295
    Default: 1728000.
13. qhmsbbestm16
    15-min threshold for MS_N_BBE and MS_F_BBE for stm16 bin.
    Type: integer
    Range: 0-2764799100
    Default: 3648000.
14. daymsbbestm16
    Day threshold for MS_N_BBE and MS_F_BBE for stm16 bin.
    Type: integer
    Range: 0-4294967295
    Default: 6912000.
15. qhmsbbestm64
    15-min threshold for MS_N_BBE and MS_F_BBE for stm64 bin.
    Type: integer
    Range: 0-4294967295
    Default: 14592000.
16. daymsbbestm64
    Day threshold for MS_N_BBE and MS_F_BBE for stm64 bin.
    Type: integer
    Range: 0-4294967295
    Default: 27648000.

17. qhmsbbestm256
    15-min threshold for MS_N_BBE and MS_F_BBE for stm256 bin.
    Type: integer
    Range: 0-4294967295
    Default: 58368000.
18. daymsbbestm256
    Day threshold for MS_N_BBE and MS_F_BBE for stm256 bin.
    Type: integer
    Range: 0-4294967295
    Default: 110592000.
19. qhmses
    15-minute threshold for MS_N_ES and MS_F_ES bin.
    Type: integer
    Range: 0-900
    Default: 50.
20. daymses
    Day threshold for MS_N_ES and MS_F_ES bin.
    Type: integer
    Range: 0-86400
    Default: 150.
21. qhmsnfeccstm64
    15-minute threshold for MS-N-FECC bin forSTM-64.
    Type: integer
    Range: 0 - 4294967295
    Default: 5184.
22. daymsnfeccstm64
    Day threshold for MS-N-FECC bin forSTM-64.
    Type: integer
    Range: 0 - 4294967295
    Default: 497644.
23. qhmsnfeccstm256
    15-minute threshold for MS-N-FECC bin forSTM-256.
    Type: integer
    Range: 0 - 4294967295
    Default: 20736.
24. daymsnfeccstm256
    Day threshold for MS-N-FECC bin forSTM-256.
    Type: integer
    Range: 0 - 4294967295
    Default: 1990656.

25. qhmsses
    15-minute threshold for MS_N_SES and MS_F_SES bin.
    Type: integer
    Range: 0-810
    Default: 10.
26. daymsses
    Day threshold for MS_N_SES and MS_F_SES bin.
    Type: integer
    Range: 0-77760
    Default: 15.
27. qhmsuas
    15-min threshold for MS_N_UAS and MS_F_UAS for stm64 bin.
    Type: integer
    Range: 0-900
    Default: 15.
28. daymsuas
    Day threshold for MS_N_UAS and MS_F_UAS for stm64 bin.
    Type: integer
    Range: 0-86400
    Default: 20.

Spec block parameters - reset profile parameters of type RS-MS

1. qhrtrrsnbbe
   15-minute reset threshold for RS_N_BBE bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
2. dayrtrrsnbbe
   Day reset threshold for RS_N_BBE bin.
   Type: integer
   Range: 0-691113600
   Default: 4800.
3. qhrtrrsnes
   15-minute reset threshold for RS_N_ES bin.
   Type: integer
   Range: 0-900
   Default: 20.
4. dayrtrrsnes
   Day reset threshold for RS_N_ES bin.
   Type: integer
   Range: 0-86400
   Default: 150.

5. qhrtrrsnses
   15-minute reset threshold for RS_N_SES bin.
   Type: integer
   Range: 0-810
   Default: 0.
6. dayrtrrsnses
   Day reset threshold for RS_N_SES bin.
   Type: integer
   Range: 0-77760
   Default: 0.
7. qhrtrrsnuas
   15-minute reset threshold for RS_N_UAS bin.
   Type: integer
   Range: 0-900
   Default: 0.
8. dayrtrrsnuas
   Day reset threshold for RS_N_UAS bin.
   Type: integer
   Range: 0-86400
   Default: 0.
9. qhrtrmsbbestm1
   15-min threshold for MS_N_BBE and MS_F_BBE for stm1 bin.
   Type: integer
   Range: 0-172799100
   Default: 2400.
10. dayrtrmsbbestm1
    Day reset threshold for MS_N_BBE and MS_F_BBE for stm1 bin.
    Type: integer
    Range: 0-4294967295
    Default: 43200.
11. qhrtrmsbbestm4
    15-min threshold for MS_N_BBE and MS_F_BBE for stm4 bin.
    Type: integer
    Range: 0-691199100
    Default: 9600.
12. dayrtrmsbbestm4
    Day reset threshold for MS_N_BBE and MS_F_BBE for stm4 bin.
    Type: integer
    Range: 0-4294967295
    Default: 172800.

13. qhrtrmsbbestm16
    15-min threshold for MS_N_BBE and MS_F_BBE for stm16 bin.
    Type: integer
    Range: 0-2764799100
    Default: 38400.
14. dayrtrmsbbestm16
    Day reset threshold for MS_N_BBE and MS_F_BBE for stm16 bin.
    Type: integer
    Range: 0-4294967295
    Default: 691200.
15. qhrtrmsbbestm64
    15-min threshold for MS_N_BBE and MS_F_BBE for stm64 bin.
    Type: integer
    Range: 0-4294967295
    Default: 153600.
16. dayrtrmsbbestm64
    Day reset threshold for MS_N_BBE and MS_F_BBE for stm64 bin.
    Type: integer
    Range: 0-4294967295
    Default: 2764800.
17. qhrtrmsbbestm256
    15-min threshold for MS_N_BBE and MS_F_BBE for stm256 bin.
    Type: integer
    Range: 0-4294967295
    Default: 614400.
18. dayrtrmsbbestm256
    Day reset threshold for MS_N_BBE and MS_F_BBE for stm256 bin.
    Type: integer
    Range: 0-4294967295
    Default: 11059200.
19. qhrtrmses
    15-minute reset threshold for MS_N_ES and MS_F_ES bin.
    Type: integer
    Range: 0-900
    Default: 5.
20. dayrtrmses
    Day reset threshold for MS_N_ES and MS_F_ES bin.
    Type: integer
    Range: 0-86400
    Default: 15.

21. qhrtrmsnfeccstm64
    15-minute reset threshold for MS-N-FECC bin forSTM-64.
    Type: integer
    Range: 0 - 4294967295
    Default: 0.
22. dayrtrmsnfeccstm64
    Day reset threshold for MS-N-FECC bin forSTM-64.
    Type: integer
    Range: 0 - 4294967295
    Default: 0.
23. qhrtrmsnfeccstm256
    15-minute reset threshold for MS-N-FECC bin forSTM-256.
    Type: integer
    Range: 0 - 4294967295
    Default: 0.
24. dayrtrmsnfeccstm256
    Day reset threshold for MS-N-FECC bin forSTM-256.
    Type: integer
    Range: 0 - 4294967295
    Default: 0.
25. qhrtrmsses
    15-minute reset threshold for MS_N_SES and MS_F_SES bin.
    Type: integer
    Range: 0-810
    Default: 0.
26. dayrtrmsses
    Day reset threshold for MS_N_SES and MS_F_SES bin.
    Type: integer
    Range: 0-77760
    Default: 0.
27. qhrtrmsuas
    15-min reset threshold for MS_N_UAS and MS_F_UAS.
    Type: integer
    Range: 0-900
    Default: 0.
28. dayrtrmsuas
    Day reset threshold for MS_N_UAS and MS_F_UAS.
    Type: integer
    Range: 0-86400
    Default: 0.

Spec block parameters - profile parameters of type ODU

1. qhodupbbeodu1
   15-minute threshold for ODU_N_BBE bin and ODU_F_BBE for ODU1P.
   Type: integer
   Range: 0-18377100
   Default: 32000.
2. dayodupbbeodu1
   Day threshold for ODU_N_BBE bin and ODU_F_BBE for ODU1P.
   Type: integer
   Range: 0-1764201600
   Default: 61000.
3. qhodupes
   15-minute threshold for ODU_N_ES and ODU_F_ES bin for ODU1P.
   Type: integer
   Range: 0-900
   Default: 50.
4. dayodupes
   Day threshold for ODU_N_ES and ODU_F_ES bin for ODU1P..
   Type: integer
   Range: 0-86400
   Default: 150.
5. qhodupses
   15-minute threshold for ODU_N_SES and ODU_F_SES bin for ODU1P.
   Type: integer
   Range: 0-810
   Default: 10.
6. dayodupses
   Day threshold for ODU_N_SES and ODU_F_SES bin for ODU1P.
   Type: integer
   Range: 0-77760
   Default: 15.
7. qhodupuas
   15-minute threshold for ODU_N_UAS and ODU_F_UAS bin for ODU1P.
   Type: integer
   Range: 0-900
   Default: 15.
8. dayodupuas
   Day threshold for ODU_N_UAS and ODU_F_UAS bin for ODU1P.
   Type: integer
   Range: 0-86400
   Default: 20.

Spec block parameters - reset profile parameters of type ODU

1. qhrtrodupbbeodu1
   15-minute threshold for ODU_N_BBE bin and ODU_F_BBE for ODU1P.
   Type: integer
   Range: 0-18377100
   Default: 200.
2. dayrtrodupbbeodu1
   Day threshold for ODU_N_BBE bin and ODU_F_BBE for ODU1P.
   Type: integer
   Range: 0-1764201600
   Default: 4800.
3. qhrtrodupes
   15-minute threshold for ODU_N_ES and ODU_F_ES bin for ODU1P.
   Type: integer
   Range: 0-900
   Default: 5.
4. dayrtrodupes
   Day threshold for ODU_N_ES and ODU_F_ES bin for ODU1P.
   Type: integer
   Range: 0-86400
   Default: 15.
5. qhrtrodupses
   15-minute threshold for ODU_N_SES and ODU_F_SES bin for ODU1P.
   Type: integer
   Range: 0-810
   Default: 0.
6. dayrtrodupses
   Day threshold for ODU_N_SES and ODU_F_SES bin for ODU1P.
   Type: integer
   Range: 0-77760
   Default: 0.
7. qhrtrodupuas
   15-minute threshold for ODU_N_UAS and ODU_F_UAS bin for ODU1P.
   Type: integer
   Range: 0-900
   Default: 0.
8. dayrtrodupuas
   Day threshold for ODU_N_UAS and ODU_F_UAS bin for ODU1P.
   Type: integer
   Range: 0-86400
   Default: 0.

Spec block parameters - profile parameters of type HO-VC

1. qhvcbbevc3
   15-minute threshold for VC_N_BBE and VC_F_BBE for VC3 bin.
   Type: integer
   Range: 0-7199100
   Default: 36000.
2. dayvcbbevc3
   Day threshold for VC_N_BBE and VC_F_BBE for VC3 bin.
   Type: integer
   Range: 0-691113600
   Default: 48000.
3. qhvcbbevc4
   15-minute threshold for VC_N_BBE and VC_F_BBE for VC4 bin.
   Type: integer
   Range: 0-7199100
   Default: 36000.
4. dayvcbbevc4
   Day threshold for VC_N_BBE and VC_F_BBE for VC4 bin.
   Type: integer
   Range: 0-691113600
   Default: 48000.
5. qhvcbbevc44c
   15-minute threshold for VC_N_BBE and VC_F_BBE for VC44C bin.
   Type: integer
   Range: 0-7199100
   Default: 36000.
6. dayvcbbevc44c
   Day threshold for VC_N_BBE and VC_F_BBE for VC44C bin.
   Type: integer
   Range: 0-691113600
   Default: 48000.
7. qhvcbbevc416c
   15-minute threshold for VC_N_BBE and VC_F_BBE for VC416C bin.
   Type: integer
   Range: 0-7199100
   Default: 36000.
8. dayvcbbevc416c
   Day threshold for VC_N_BBE and VC_F_BBE for VC416C bin.
   Type: integer
   Range: 0-691113600
   Default: 48000.

9. qhvcbbevc464c
   15-minute threshold for VC_N_BBE and VC_F_BBE for VC464C bin.
   Type: integer
   Range: 0-7199100
   Default: 36000.
10. dayvcbbevc464c
    Day threshold for VC_N_BBE and VC_F_BBE for VC464C bin.
    Type: integer
    Range: 0-691113600
    Default: 48000.
11. qhvcesvc3
    15-minute threshold for VC_N_ES and VC_F_ES VC3 bin.
    Type: integer
    Range: 0-900
    Default: 150.
12. dayvcesvc3
    Day threshold for VC_N_ES and VC_F_ES VC3 bin.
    Type: integer
    Range: 0-86400
    Default: 600.
13. qhvcesvc4
    15-minute threshold for VC_N_ES and VC_F_ES for VC4 bin.
    Type: integer
    Range: 0-900
    Default: 180.
14. dayvcesvc4
    Day threshold for VC_N_ES and VC_F_ES for VC4 bin.
    Type: integer
    Range: 0-86400
    Default: 1500.
15. qhvcesvc44c
    15-minute threshold for VC_N_ES and VC_F_ES for VC4-4C bin.
    Type: integer
    Range: 0-900
    Default: 180.
16. dayvcesvc44c
    Day threshold for VC_N_ES and VC_F_ES for VC4-4C bin.
    Type: integer
    Range: 0-86400
    Default: 1500.

17. qhvcesvc416c
    15-minute threshold for VC_N_ES and VC_F_ES for VC4-16C bin.
    Type: integer
    Range: 0-900
    Default: 180.
18. dayvcesvc416c
    Day threshold for VC_N_ES and VC_F_ES for VC4-16C bin.
    Type: integer
    Range: 0-86400
    Default: 1500.
19. qhvcesvc464c
    15-minute threshold for VC_N_ES and VC_F_ES for VC4-64C bin.
    Type: integer
    Range: 0-900
    Default: 180.
20. dayvcesvc464c
    Day threshold for VC_N_ES and VC_F_ES for VC4-64C bin.
    Type: integer
    Range: 0-86400
    Default: 1500.
21. qhvcsesvc3
    15-minute threshold for VC_N_SES and VC_F_SES for VC3 bin.
    Type: integer
    Range: 0-810
    Default: 15.
22. dayvcsesvc3
    Day threshold for VC_N_SES and VC_F_SES for VC3 bin.
    Type: integer
    Range: 0-77760
    Default: 20.
23. qhvcsesvc4
    15-minute threshold for VC_N_SES and VC_F_SES for VC4 bin.
    Type: integer
    Range: 0-810
    Default: 15.
24. dayvcsesvc4
    Day threshold for VC_N_SES and VC_F_SES for VC4 bin.
    Type: integer
    Range: 0-77760
    Default: 20.

25. qhvcsesvc44c
    15-minute threshold for VC_N_SES and VC_F_SES for VC44C bin.
    Type: integer
    Range: 0-810
    Default: 15.
26. dayvcsesvc44c
    Day threshold for VC_N_SES and VC_F_SES for VC44C bin.
    Range: 0-77760
    Default: 20.
27. qhvcsesvc416c
    15-minute threshold for VC_N_SES and VC_F_SES for VC416C bin.
    Type: integer
    Range: 0-810
    Default: 15.
28. dayvcsesvc416c
    Day threshold for VC_N_SES and VC_F_SES for VC416C bin.
    Type: integer
    Range: 0-77760
    Default: 20.
29. qhvcsesvc464c
    15-minute threshold for VC_N_SES and VC_F_SES for VC464C bin.
    Type: integer
    Range: 0-810
    Default: 15.
30. dayvcsesvc464c
    Day threshold for VC_N_SES and VC_F_SES for VC464C bin.
    Type: integer
    Range: 0-77760
    Default: 20.
31. qhvcuasvc3
    15-minute threshold for VC_N_UAS and VC_F_UAS for VC3 bin.
    Type: integer
    Range: 0-900
    Default: 15.
32. dayvcuasvc3
    Day threshold for VC_N_UAS and VC_F_UAS for VC3 bin.
    Type: integer
    Range: 0-86400
    Default: 20.

33. qhvcuasvc4
    15-minute threshold for VC_N_UAS and VC_F_UAS for VC4 bin.
    Type: integer
    Range: 0-900
    Default: 15.
34. dayvcuasvc4
    Day threshold for VC_N_UAS and VC_F_UAS for VC4 bin.
    Type: integer
    Range: 0-86400
    Default: 20.
35. qhvcuasvc44c
    15-minute threshold for VC_N_UAS and VC_F_UAS for VC44C bin.
    Type: integer
    Range: 0-900
    Default: 15.
36. dayvcuasvc44c
    Day threshold for VC_N_UAS and VC_F_UAS for VC44C bin.
    Type: integer
    Range: 0-86400
    Default: 20.
37. qhvcuasvc416c
    15-minute threshold for VC_N_UAS and VC_F_UAS for VC416C bin.
    Type: integer
    Range: 0-900
    Default: 15.
38. dayvcuasvc416c
    Day threshold for VC_N_UAS and VC_F_UAS for VC416C bin.
    Type: integer
    Range: 0-86400
    Default: 20.
39. qhvcuasvc464c
    15-minute threshold for VC_N_UAS and VC_F_UAS for VC464C bin.
    Type: integer
    Range: 0-900
    Default: 15.
40. dayvcuasvc464c
    Day threshold for VC_N_UAS and VC_F_UAS for VC464C bin.
    Type: integer
    Range: 0-86400
    Default: 20.

Spec block parameters - reset profile parameters of type HO-VC

1. qhrtrvcbbevc3
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for VC3 bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
2. dayrtrvcbbevc3
   Day reset threshold for VC_N_BBE and VC_F_BBE for VC3 bin.
   Type: integer
   Range: 0-691113600
   Default: 4800.
3. qhrtrvcbbevc4
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for VC4 bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
4. dayrtrvcbbevc4
   Day reset threshold for VC_N_BBE and VC_F_BBE for VC4 bin.
   Type: integer
   Range: 0-691113600
   Default: 4800.
5. qhrtrvcbbevc44c
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for VC44C bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
6. dayrtrvcbbevc44c
   Day reset threshold for VC_N_BBE and VC_F_BBE for VC44C bin.
   Type: integer
   Range: 0-691113600
   Default: 4800.
7. qhrtrvcbbevc416c
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for VC416C bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
8. dayrtrvcbbevc416c
   Day reset threshold for VC_N_BBE and VC_F_BBE for VC416C bin.
   Type: integer
   Range: 0-691113600
   Default: 4800.

9. qhrtrvcbbevc464c
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for VC464C bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
10. dayrtrvcbbevc464c
    dayrtrvcbbevc464c
    Type: integer
    Range: 0-691113600
    Default: 4800.
11. qhrtrvcesvc3
    15-minute reset threshold for VC_N_ES and VC_F_ES VC3 bin.
    Type: integer
    Range: 0-900
    Default: 10.
12. dayrtrvcesvc3
    Day reset threshold for VC_N_ES and VC_F_ES VC3 bin.
    Type: integer
    Range: 0-86400
    Default: 60.
13. qhrtrvcesvc4
    15-minute reset threshold for VC_N_ES and VC_F_ES for VC4 bin.
    Type: integer
    Range: 0-900
    Default: 20.
14. dayrtrvcesvc4
    Day reset threshold for VC_N_ES and VC_F_ES for VC4 bin.
    Type: integer
    Range: 0-86400
    Default: 150.
15. qhrtrvcesvc44c
    15-minute reset threshold for VC_N_ES and VC_F_ES for VC4-4C bin.
    Type: integer
    Range: 0-900
    Default: 20.
16. dayrtrvcesvc44c
    Day reset threshold for VC_N_ES and VC_F_ES for VC4-4C bin.
    Type: integer
    Range: 0-86400
    Default: 150.

17. qhrtrvcesvc416c
    15-minute reset threshold for VC_N_ES and VC_F_ES for VC4-16C bin.
    Type: integer
    Range: 0-900
    Default: 20.
18. dayrtrvcesvc416c
    Day reset threshold for VC_N_ES and VC_F_ES for VC4-16C bin.
    Type: integer
    Range: 0-86400
    Default: 150.
19. qhrtrvcesvc464c
    15-minute reset threshold for VC_N_ES and VC_F_ES for VC4-64C bin.
    Type: integer
    Range: 0-900
    Default: 20.
20. dayrtrvcesvc464c
    Day reset threshold for VC_N_ES and VC_F_ES for VC4-64C bin.
    Type: integer
    Range: 0-86400
    Default: 150.
21. qhrtrvcsesvc3
    15-minute reset threshold for VC_N_SES and VC_F_SES for VC3 bin.
    Type: integer
    Range: 0-810
    Default: 0.
22. dayrtrvcsesvc3
    Day reset threshold for VC_N_SES and VC_F_SES for VC3 bin.
    Type: integer
    Range: 0-77760
    Default: 0.
23. qhrtrvcsesvc4
    15-minute reset threshold for VC_N_SES and VC_F_SES for VC4 bin.
    Type: integer
    Range: 0-810
    Default: 0.
24. dayrtrvcsesvc4
    Day reset threshold for VC_N_SES and VC_F_SES for VC4 bin.
    Type: integer
    Range: 0-77760
    Default: 0.

25. qhrtrvcsesvc44c
    15-minute reset threshold for VC_N_SES and VC_F_SES for VC44C bin.
    Type: integer
    Range: 0-810
    Default: 0.
26. dayrtrvcsesvc44c
    Day reset threshold for VC_N_SES and VC_F_SES for VC44C bin.
    Type: integer
    Range: 0-77760
    Default: 0.
27. qhrtrvcsesvc416c
    15-minute reset threshold for VC_N_SES and VC_F_SES for VC416C bin.
    Type: integer
    Range: 0-810
    Default: 0.
28. dayrtrvcsesvc416c
    Day reset threshold for VC_N_SES and VC_F_SES for VC416C bin.
    Type: integer
    Range: 0-77760
    Default: 0.
29. qhrtrvcsesvc464c
    15-minute reset threshold for VC_N_SES and VC_F_SES for VC464C bin.
    Type: integer
    Range: 0-810
    Default: 0.
30. dayrtrvcsesvc464c
    Day reset threshold for VC_N_SES and VC_F_SES for VC464C bin.
    Type: integer
    Range: 0-77760
    Default: 0.
31. qhrtrvcuasvc3
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for VC3 bin.
    Type: integer
    Range: 0-900
    Default: 0.
32. dayrtrvcuasvc3
    Day reset threshold for VC_N_UAS and VC_F_UAS for VC3 bin.
    Type: integer
    Range: 0-86400
    Default: 0.

33. qhrtrvcuasvc4
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for VC4 bin.
    Type: integer
    Range: 0-900
    Default: 0.
34. dayrtrvcuasvc4
    Day reset threshold for VC_N_UAS and VC_F_UAS for VC4 bin.
    Type: integer
    Range: 0-86400
    Default: 0.
35. qhrtrvcuasvc44c
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for VC44C bin.
    Type: integer
    Range: 0-900
    Default: 0.
36. dayrtrvcuasvc44c
    Day reset threshold for VC_N_UAS and VC_F_UAS for VC44C bin.
    Type: integer
    Range: 0-86400
    Default: 0.
37. qhrtrvcuasvc416c
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for VC416C bin.
    Type: integer
    Range: 0-900
    Default: 0.
38. dayrtrvcuasvc416c
    Day reset threshold for VC_N_UAS and VC_F_UAS for VC416C bin.
    Type: integer
    Range: 0-86400
    Default: 0.
39. qhrtrvcuasvc464c
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for VC464C bin.
    Type: integer
    Range: 0-900
    Default: 0.
40. dayrtrvcuasvc464c
    Day reset threshold for VC_N_UAS and VC_F_UAS for VC464C bin.
    Type: integer
    Range: 0-86400
    Default: 0.

Spec block parameters - profile parameters of type PATH

1. qhcvpsts1
   15-minute threshold for CV-P and CV-PFE bin for STS1.
   Type: integer
   Range: 0-57599100
   Default: 15.
2. daycvpsts1
   Day threshold for CV-P and CV-PFE bin for STS1.
   Type: integer
   Range: 0-4294967295
   Default: 125.
3. qhcvpsts3c
   15-minute threshold for CV-P and CV-PFE bin for STS3C.
   Type: integer
   Range: 0-57599100
   Default: 25.
4. daycvpsts3c
   Day threshold for CV-P and CV-PFE bin for STS3C.
   Type: integer
   Range: 4294967295
   Default: 250.
5. qhcvpsts12c
   15-minute threshold for CV-P and CV-PFE bin for STS12C.
   Type: integer
   Range: 0-57599100
   Default: 75.
6. daycvpsts12c
   Day threshold for threshold for CV-P and CV-PFE bin for STS12C.
   Type: integer
   Range: 4294967295
   Default: 750.
7. qhcvpsts48c
   15-minute threshold for CV-P and CV-PFE bin for STS48C.
   Type: integer
   Range: 0-57599100
   Default: 300.
8. daycvpsts48c
   Day threshold for CV-P and CV-PFE bin for STS48C.
   Type: integer
   Range: 4294967295
   Default: 3000.

9. qhcvpsts192c
   Day threshold for CV-P and CV-PFE bin for STS192C.
   Type: integer
   Range: 0-57599100
   Default: 1200.
10. daycvpsts192c
    Day threshold for CV-P and CV-PFE bin for STS192C.
    Type: integer
    Range: 0-4294967295
    Default: 12000.
11. qhespsts1
    15-minute threshold for ES-P and ES-PFE bin for STS1.
    Type: integer
    Range: 0-900
    Default: 12.
12. dayespsts1
    Day threshold for ES-P and ES-PFE bin for STS1.
    Type: integer
    Range: 0-86400
    Default: 100.
13. qhespsts3c
    15-minute threshold for ES-P and ES-PFE bin for STS3C.
    Type: integer
    Range: 0-900
    Default: 20.
14. dayespsts3c
    Day threshold for ES-P and ES-PFE bin for STS3C.
    Type: integer
    Range: 0-86400
    Default: 200.
15. qhespsts12c
    15-minute threshold for ES-P and ES-PFE bin for STS12C.
    Type: integer
    Range: 0-900
    Default: 60.
16. dayespsts12c
    Day threshold for ES-P and ES-PFE bin for STS12C.
    Type: integer
    Range: 0-86400
    Default: 600.

17. qhespsts48c
    15-minute threshold for ES-P and ES-PFE bin for STS48C.
    Type: integer
    Range: 0-900
    Default: 240.
18. dayespsts48c
    Day threshold for ES-P and ES-PFE bin for STS48C.
    Type: integer
    Range: 0-86400
    Default: 2400.
19. qhespsts192c
    Day threshold for ES-P and ES-PFE bin for STS192C.
    Type: integer
    Range: 0-900
    Default: 240.
20. dayespsts192c
    Day threshold for ES-P and ES-PFE bin for STS192C.
    Type: integer
    Range: 0-86400
    Default: 9600.
21. qhsesp
    15-minute threshold for SES-P and SES-PFE bin.
    Type: integer
    Range: 0-810
    Default: 3.
22. daysesp
    Day threshold for SES-P and SES-PFE bin.
    Type: integer
    Range: 0-77760
    Default: 7.
23. qhuasp
    15-minute threshold for UAS-P and UAS-PFE bin.
    Type: integer
    Range: 0-900
    Default: 10.
24. dayuasp
    Day threshold for UAS-P and UAS-PFE bin.
    Type: integer
    Range: 0-86400
    Default: 10.

Spec block parameters - profile parameters of type ENET

1. qhpdege
   15-minute threshold for PDE bin for GE.
   Type: integer
   Range: 0-183000000
   Default: 187500.
2. daypdege
   Day threshold for PDE bin for GE.
   Type: integer
   Range: 0-4294967295
   Default: 9000000.
3. qhpdevcg
   15-minute threshold for PDE bin for VCG.
   Type: integer
   Range: 0-183000000
   Default: 10.
4. daypdevcg
   Day threshold for PDE bin for VCG.
   Type: integer
   Range: 0-4294967295
   Default: 50.

Spec block parameters - reset profile parameters of type ENET

1. qhrtrpdege
   15-minute reset threshold for PDE bin for GE.
   Type: integer
   Range: 0-183000000
   Default: 937500.
2. dayrtrpdege
   Day reset threshold for PDE bin for GE.
   Type: integer
   Range: 0-4294967295
   Default: 4500000.
3. qhrtrpdevcg
   15-minute reset threshold for PDE bin for VCG.
   Type: integer
   Range: 0-183000000
   Default: 2.
4. dayrtrpdevcg
   Day reset threshold for PDE bin for VCG.
   Type: integer
   Range: 0-4294967295
   Default: 5.

Spec block parameters- profile parameters of type LOVC

1. qhvcbbevc12
   15-minute threshold for VC_N_BBE and VC_F_BBE for VC12 bin.
   Type: integer
   Range: 0-1799100
   Default: 9000.
2. dayvcbbevc12
   Day threshold for VC_N_BBE and VC_F_BBE for VC12 bin.
   Type: integer
   Range: 0-172713600
   Default: 12000.
3. qhvcbbelovc3
   15minute -threshold for VC_N_BBE and VC_F_BBE for lower order VC3 bin.
   Type: integer
   Range: 0-7199100
   Default: 36000.
4. dayvcbbelovc3
   Day threshold for VC_N_BBE and VC_F_BBE for lower order VC3 bin.
   Type: integer
   Range: 0-691113600
   Default: 48000.
5. qhvcesvc12
   15-minute threshold for VC_N_ES and VC_F_ES for VC12 bin.
   Type: integer
   Range: 0-900
   Default: 120.
6. dayvcesvc12
   Day threshold for VC_N_ES and VC_F_ES for VC12 bin.
   Type: integer
   Range: 0-86400
   Default: 350.
7. qhvceslovc3
   15-minute threshold for VC_N_ES and VC_F_ES for lower order VC3 bin.
   Type: integer
   Range: 0-900
   Default: 150.
8. dayvceslovc3
   Day threshold for VC_N_ES and VC_F_ES for lower order VC3 bin.
   Type: integer
   Range: 0-86400
   Default: 600.

9. qhvcsesvc12
   15-minute threshold for VC_N_SES and VC_F_SES for VC12 bin.
   Type: integer
   Range: 0-810
   Default: 15.
10. dayvcsesvc12
    Day threshold for VC_N_SES and VC_F_SES for VC12 bin.
    Type: integer
    Range: 0-77760
    Default: 20.
11. qhvcseslovc3
    15-minute threshold for VC_N_SES and VC_F_SES for lower order VC3 bin.
    Type: integer
    Range: 0-810
    Default: 15.
12. dayvcseslovc3
    Day threshold for VC_N_SES and VC_F_SES for lower order VC3 bin.
    Type: integer
    Range: 0-77760
    Default: 20.
13. qhvcuasvc12
    15-minute threshold for VC_N_UAS and VC_F_UAS for VC12 bin.
    Type: integer
    Range: 0-900
    Default: 15.
14. dayvcuasvc12
    Day threshold for VC_N_UAS and VC_F_UAS for VC12 bin.
    Type: integer
    Range: 0-86400
    Default: 20.
15. qhvcuaslovc3
    15-minute threshold for VC_N_UAS and VC_F_UAS for lower order VC3 bin.
    Type: integer
    Range: 0-900
    Default: 15.
16. dayvcuaslovc3
    Day threshold for VC_N_UAS and VC_F_UAS for lower order VC3 bin.
    Type: integer
    Range: 0-86400
    Default: 20.

Spec block parameters- reset profile parameters of type LOVC

1. qhrtrvcbbevc12
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for VC12 bin.
   Type: integer
   Range: 0-1799100
   Default: 50.
2. dayrtrvcbbevc12
   Day reset threshold for VC_N_BBE and VC_F_BBE for VC12 bin.
   Type: integer
   Range: 0-172713600
   Default: 1200.
3. qhrtrvcbbelovc3
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for lower order VC3 bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
4. dayrtrvcbbelovc3
   Day reset threshold for VC_N_BBE and VC_F_BBE for lower order VC3 bin.
   Type: integer
   Range: 0-691113600
   Default: 4800.
5. qhrtrvcesvc12
   15-minute reset threshold for VC_N_ES and VC_F_ES for VC12 bin.
   Type: integer
   Range: 0-900
   Default: 5.
6. dayrtrvcesvc12
   Day reset threshold for VC_N_ES and VC_F_ES for VC12 bin.
   Type: integer
   Range: 0-86400
   Default: 35.
7. qhrtrvceslovc3
   15-minute reset threshold for VC_N_ES and VC_F_ES for lower order VC3 bin.
   Type: integer
   Range: 0-900
   Default: 10.
8. dayrtrvceslovc3
   Day reset threshold for VC_N_ES and VC_F_ES for lower order VC3 bin.
   Type: integer
   Range: 0-86400
   Default: 60.

9. qhrtrvcsesvc12
   15-minute reset threshold for VC_N_SES and VC_F_SES for VC12 bin.
   Type: integer
   Range: 0-810
   Default: 0.
10. dayrtrvcsesvc12
    Day reset threshold for VC_N_SES and VC_F_SES for VC12 bin.
    Type: integer
    Range: 0-77760
    Default: 0.
11. qhrtrvcseslovc3
    15-minute reset threshold for VC_N_SES and VC_F_SES for lower order VC3 bin.
    Type: integer
    Range: 0-810
    Default: 0.
12. dayrtrvcseslovc3
    Day reset threshold for VC_N_SES and VC_F_SES for lower order VC3 bin.
    Type: integer
    Range: 0-77760
    Default: 0.
13. qhrtrvcuasvc12
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for VC12 bin.
    Type: integer
    Range: 0-900
    Default: 0.
14. dayrtrvcuasvc12
    Day reset threshold for VC_N_UAS and VC_F_UAS for VC12 bin.
    Type: integer
    Range: 0-86400
    Default: 0.
15. qhrtrvcuaslovc3
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for lower order VC3 bin.
    Type: integer
    Range: 0-900
    Default: 0.
16. dayrtrvcuaslovc3
    Day reset threshold for VC_N_UAS and VC_F_UAS for lower order VC3 bin.
    Type: integer
    Range: 0-86400
    Default: 0.

Spec block parameters.- Profile Parameters of Type LOPATH

1. qhcvvt1
   15-minute threshold for CV-P and CV-PFE bin for VT1.
   Type: integer
   Range: 0-14399100
   Default: 75.
2. daycvvt1
   Day threshold for CV-P and CV-PFE bin for VT1.
   Type: integer
   Range: 0-1382313600
   Default: 750.
3. qhesvt1
   15-minute threshold for ES-P and ES-PFE bin for VT1.
   Type: integer
   Range: 0-900
   Default: 40.
4. dayesvt1
   Day threshold for ES-P and ES-PFE bin for VT1.
   Type: integer
   Range: 0-86400
   Default: 900.
5. qhsesvt1
   15-minute threshold for SES-P and SES-PFE bin for VT1.
   Type: integer
   Range: 0-810
   Default: 40.
6. daysesvt1
   Day threshold for SES-P and SES-PFE bin for VT1.
   Type: integer
   Range: 0-77760
   Default: 900.
7. qhuasvt1
   15-minute threshold for UAS-P and UAS-PFE bin for VT1.
   Type: integer
   Range: 0-900
   Default: 40.
8. dayuasvt1
   Day threshold for UAS-P and UAS-PFE bin for VT1.
   Type: integer
   Range: 0-86400
   Default: 900.

Command parameters - profile parameters of type DS3

1. qhcvl
   15-minute threshold for CV-L bin of DS3 Line.
   Type: integer
   Range: 0-7200000
   Default: 387.
2. daycvl
   Day threshold for CV-L bin of DS3 Line.
   Type: integer
   Range: 0- 691200000
   Default: 3865.
3. qhesl
   15-minute threshold for Es-L bin of DS3 Line.
   Type: integer
   Range: 0-900
   Default: 25.
4. dayesl
   Day threshold for ES-L bin of DS3 Line.
   Type: integer
   Range: 0-86400
   Default: 250.
5. qhesal
   15-minute threshold for ESA-L bin of DS3 Line.
   Type: integer
   Range: 0-900
   Default: 25.
6. dayesal
   Day threshold for ESB-L bin of DS3 Line.
   Type: integer
   Range: 0-86400
   Default: 250.
7. qhesbl
   15-minute threshold for ESB-L bin of DS3 Line.
   Type: integer
   Range: 0-900
   Default: 25.
8. dayesbl
   Day threshold for ESB-L bin of DS3 Line.
   Type: integer
   Range: 0-86400
   Default: 250.

9. qhsesl
   15-minute threshold for SES-L bin of DS3 Line.
   Type: integer
   Range: 0-810
   Default: 4.
10. daysesl
    Day threshold for SES-L bin of DS3 Line.
    Type: integer
    Range: 0-77760
    Default: 40.
11. qhcvp
    15-minute threshold for CV-P and CV-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-7200000
    Default: 382.
12. daycvp
    Day threshold for CV-P and CV-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-691200000
    Default: 3820.
13. qhesp
    15-minute threshold for ES-P and ES-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-900
    Default: 25.
14. dayesp
    Day threshold for ES-P and ES-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-86400
    Default: 250.
15. qhesap
    15-minute threshold for ESA-P and ESA-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-900
    Default: 25.

16. dayesap
    Day threshold for ESA-P and ESA-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-86400
    Default: 250.
17. qhesbp
    15-minute threshold for ESB-P and ESB-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-900
    Default: 25.
18. dayesbp
    Day threshold for ESB-P and ESB-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-86400
    Default: 250.
19. qhsesp
    15-minute threshold for SES-P and SES-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-810
    Default: 4.
20. daysesp
    Day threshold for SES-P and SES-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-77760
    Default: 40.
21. qhuasp
    15-minute threshold for UAS-P and UAS-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-900
    Default: 10.
22. dayuasp
    Day threshold for UAS-P and UAS-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-86400
    Default: 10.

23. qhsasp
    15-minute threshold for SAS-P and SAS-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-900
    Default: 2.
24. daysasp
    Day threshold for SAS-P and SAS-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-86400
    Default: 8.

Example output

The following example shows the successful completion of a ED-TCA-PROF command by the NE:

```
LT-UNITE 00-11-03 15:00:00
A  000 REPT DBCHG
   "TIME=15-00-00,DATE=00-11-03:ED-TCA-PROF::RS-MS,DTAG: qhrsnes=10,qhrsnbbe=6"
;
```

□

ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack.

The ED-ULSDCC-L3 command is used to set respectively modify values of layer 3 parameter in existing respectively created OSI stacks. Parameter in the area address field of NSAP respectively NET are to set respectively modify. Parameter in the SYSTEM field and SEL field of NSAP respectively NET are predefined. Further layer 3 parameter to set/modify are IS level, IS domain, RA prefix and RA destination node.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S4

Priority: 1

Abortable: No.

Input format

Command Syntax: `ED-ULSDCC-L3`:*tid*::*ctag*::*osinode*:[*spec_block*];

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
3. osinode
   A *LambdaUnite*® MSS NE can have up to 8 instances of the OSI stack. Node-1 is created by start up of the *LambdaUnite*® MSS NE as default. Node 2-8 can be created and configured, see command "ENT-ULSDCC-L3: Create a further OSI node" (p. 4-1391).
   Type: AID.
   Range: osinode{1-8}.

Spec block parameters

1. l3afi – NSAP/NET Authority and Format Identifier
   This parameter sets or retrieves the format for the rest of the address.
   Type: hexadecimal number.
   Range: 10 – 99
   Default: 39. This value identifies the iso_dcc format.
2. l3idi – NSAP/NET initial Domain Identifier

This parameter consists of two values:

- a 3 semi-octet (3-digit hexadecimal) IDI part to specify the country code indicating the registration authority responsible for the allocation and assignment of the NSAP address.
- a 1 semi-octet (1-digit hexadecimal) IDI pad part. The parameter is used for set and retrieve values.

Type: hexadecimal number.
Range: 0000 – FFFF
Default:
SONET: IDI = 840; IDI pad = F
SDH: IDI = 000; IDI pad = 0.

3. l3dfi – NSAP/NET DSP Format Identifier
   This parameter (2-digit hex) NSAP is used to set or retrieve the format for the rest of the address.
   Type: hexadecimal number.
   Range: 00 – FF.
   Default: 80. This value represents the SONET DSP format.
4. l3org – NSAP/NET Organization Identifier
   This parameter of NSAP is used to set or retrieve the NSP (allocated Company Code).
   Type: hexadecimal number.
   Range: 000000 – FFFFFF.
   Default: 000000.
5. l3res – NSAP/NET Reserved
   This NSAP part currently has not been assigned a specific purpose.
   Type: hexadecimal number.
   Range: 0000 – FFFF.
   Default: 0000.
6. l3rd – NSAP/NET Routing Domain
   This parameter of NSAP is used to set or retrieve a unique routing domain within an administrative domain. A standard for use has not been defined until now.
   Type: hexadecimal number.
   Range: 0000 – FFFF.
   Default: 0000.
7. l3area – NSAP/NET Area Identifier
   This parameter of NSAP is used to set or retrieve the area. So NEs can be identified in the same area.
   Type: hexadecimal number.
   Range: 0000 – FFFF.
   Default: 0000.

8. l3isisnl – Layer 3 IS Level
   This parameter indicates the network router type: ES-IS (level1, value L1), IS-IS (level2, value L2) and partition repair capability (value3).
   Note: This parameter is not reported when output parameter *osinode*=scnnode.
   Type: alphanumeric string.
   Range:
   - L1: this means level1, IS-IS, only allowed when parameter l3radesnode=0
   - L12: this means level2, IS-IS which contains also level1, ES-IS
   - L12PRC : this means partition repair capable (PRC) and contains also level1 and level2.

   Default: L1.
9. l3domain – Layer3 IS Domain
   Per node in a NE, a domain group must be specified. This will be done with this parameter which can be set and retrieved. All nodes in the NE with the same domain-number are interconnected and can communicate without the need for inter-domain routing via RA-PREFIX.
   Note: This parameter is not reported when output parameter *osinode*=scnnode.
   Type: alphanumeric string.
   Range:
   - 1 for osinode1
   - 1 – 2 for osinode2 to osinode8.

   Default: 1.
10. l3raprefix – Layer3 Reachable Address Prefix
    This value specifies an area address or a part of an area address representing an area address group. This parameter is needed when nodes in different routing domains (see *l3domain*) must communicate. The node must forward then CLNP PDUs to the RA-Destination-Node if the destination NSAPs of CLNP PDUs match with the PA-Prefix.
    Note: This parameter is not reported when output parameter *osinode*=scnnode.
    Type: hexadecimal number.
    Range:
    - NONE,
    - a string of 1 to 13 bytes: first byte (most significant): 10 – 99; rest: 0000 – FFFF.

    The value represents an area address or a part of an area address beginning with AFI.
    Default: empty string.

11. l3radesnode – Layer3 Reachable Address Destination Node
    This parameter is in combination with parameter l3raprefix necessary. The value represents the destination node in the same NE. An internal connection over a domain-boundary is established between this node and the RA-Destination-Node, with IS-IS disabled over that connection.
    Note: This parameter is not reported when output parameter *osinode*=scnnode.
    Type: AID and digit value.
    Range:
    - 0, osinode{2-8} for osinode1
    - 0, osinode1 for osinode2 to osinode 8.

    Value 0 indicates that functionality of RA-Prefix is disabled.
    Default: 0.
12. nsapthlev - Number of OSI Nodes Threshold Level
    This parameter indicates the NSAP count threshold level for monitoring the number of OSI nodes (NSAPs) for the level 1 area in which the OSI node specified by the osinode parameter is located. A threshold value of zero (0) indicates that NSAP threshold alarming is disabled. The parameter shall be omitted for the SCN node.
    Type: numeric string
    Range: 0 no alarming; 1 -250 threshold alarming.
    Default: 0

Output format

If the ED-ULSDCC-L3 is successful, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output Parameter section of “RTRV-HDR: Retrieve header” (p. 4-1736) .

Detailed behavior description

The command sets or modifies the parameter of layer 3 in a node as specified in the spec_block of the command line. Result should be an update of the OSI stack.

Modification of any of the parameters *l3domain, l3afi, l3idi, l3dfi, l3org, l3res, l3rd, l3area, l3isisnl* leads to a reset of the DCF controller and disconnection of management communication.

The update is reported by means of ED-ULSDCC-L3 notification.

Example input/output

The following example shows the result of ED-ULSDCC-L3:

```
ED-ULSDCC-L3:NE-UNITE::4744843::osinode8:l3afi=39,l
3idi=840F,l3dfi=80,l3org=100100,l3res=0000,l3rd=0020,
l3area=4711,l3isinl=L12,l3domain=2;
   NE-UNITE 01-01-15 11:59:02
M  4744843 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the ENT-ULSDCC-L3 command.

Validation rule: osinode must be in the created state

The osinode parameter for which changes should be applied must be in the created state, i.e. the value must be either osinode1 or the node must be successfully created via ENT-ULSDCC-L3.

Error code: `SNVS - Status, Not in Valid State, osinode not in created state`

Validation rule: Address area value – RA-prefix value

If an Address Area value will be changed and an existing RA-Prefix matches with the concerning part of the new Area Address the provisioning of the new NSAP Area Address must be rejected.

Error code: `IDNV - Input, Data Not Valid, NSAP Area Addres matches with RA-Prefix`

Validation rule: RA-prefix value – Address area value

If a RA-Prefix will be changed respectively initiated and the value matches with the concerning part of the NSAP Area Address of this node the command must be rejected. The prefix should be specific enough, so that it matches not with NSAPs in both domains.

Error code: `IDNV - Input, Data Not Valid, RA-Prefix matches with the NSAP Area Address`

Validation rule: *l3radesnode* value must be different from osinode

The command will be rejected when parameter *l3radesnode* is equal to the *osinode* parameter of the node.

Error code: `IDNV - Input, Data Not Valid, equal node IDs`

Validation rule: *l3domain* value must be different for current node and *l3radesnode*

If the value for the Domain Group (*l3domain* parameter) is equal for this node and the destination node (*l3radesnode* parameter) the command must be rejected.

Error code: `IDNV - Input, Data Not Valid, equal l3domain`

Validation rule: *l3radesnode* value and *l3isisnl* value

The *l3isisnl* parameter value L1 (Level1) is only allowed when *l3radesnode*=0

Error code: `IDNV - Input, Data Not Valid, constraint l3radesnode`

Validation rule: consistency of *l3radesnode* with *l3raprefix*

If the value for the RA Destination Node (l3radesnode parameter) is equal to 0 while the value of the RA Prefix (l3raprefix parameter) is not NONE the command must be rejected.

Error code: `IDNV - Input, Data Not Valid, l3prefix and l3radesnode inconsistent`

Validation rule: *l3domain* can not be changed for *osinode1*

If *osinode*=osinode1 *l3domain* changes should be rejected.

Error code: `IDNV - Input, Data Not Valid, can't change l3domain for osinode1`

Validation rule: only one single node in a separate domain supported

The command shall be rejected when l3domain has an other value than 1 and there is already an other osinode which has a value other than 1 for l3domain.

Error code: `IDNV - Input, Data Not Valid, only a single node in separate domain supported`

Validation rule: consistency *l3domain* with *l3radesnode* for nodes 2 to 8

The command shall be rejected when l3domain for osinode2 to osinode8 has a value of 1 and l3radesnode is not equal to 0.

Error code: `IDNV - Input, Data Not Valid, inconsistency l3domain with l3radesnode`

Validation rule: *l3radesnode* must be in the created state

If the destination node (l3radesnode parameter) is not in the created state, the command must be rejected.

Error code: `SNVS - Status, Not in Valid State, l3radesnode not in created stat`

Related TL1 messages

- "RTRV-ULSDCC-L3: Retrieve layer 3 related parameters" (p. 4-2226)
- "ENT-ULSDCC-L3: Create a further OSI node" (p. 4-1391)
- "DLT-ULSDCC-L3: Delete a node ID other than node-1" (p. 4-190)

□

ED-ULSDCC-L3 notification

The ED-ULSDCC-L3 command effects a communication SW-reset (protocol stack) and the management connection is lost. Therefore it cannot be guaranteed that a notification could be returned as described below.

Output format

The ENT-ULSDCC-L3 notification shall use the general format of a REPT DBCHG (Report Database Chang) notification.

The ED-ULSDCC-L3 notification has the following specific syntax:

`ED-ULSDCC-L3`::*osinode*:*spec_block*

Output parameters

Command parameters

1. osinode
   A *LambdaUnite*® MSS NE can have up to 8 instances of the OSI stack. Node-1 is created by start up of the *LambdaUnite*® MSS NE as default. Node 2-8 can be created and configured, see command "ENT-ULSDCC-L3: Create a further OSI node" (p. 4-1391).
   Type: AID.
   Range: osinode{1-8}.

Spec block parameters

1. l3afi – NSAP/NET Authority and Format Identifier
   This parameter sets or retrieves the format for the rest of the address.
   Type: hexadecimal number.
   Range: 10 – 99
   Default: 39. This value identifies the iso_dcc format.
2. l3idi – NSAP/NET initial Domain Identifier
   This parameter consists of two values:
   - a 3 semi-octet (3-digit hexadecimal) IDI part to specify the country code indicating the registration authority responsible for the allocation and assignment of the NSAP address.
   - a 1 semi-octet (1-digit hexadecimal) IDI pad part. The parameter is used for set and retrieve values.

   Type: hexadecimal number.
   Range: 0000 – FFFF
   Default:
   SONET: IDI = 840; IDI pad = F
   SDH: IDI = 000; IDI pad = 0.

3. l3dfi – NSAP/NET DSP Format Identifier
   This parameter (2-digit hex) NSAP is used to set or retrieve the format for the rest of the address.
   Type: hexadecimal number.
   Range: 00 – FF.
   Default: 80. This value represents the SONET DSP format.
4. l3org – NSAP/NET Organization Identifier
   This parameter of NSAP is used to set or retrieve the NSP (allocated Company Code).
   Type: hexadecimal number.
   Range: 000000 – FFFFFF.
   Default: 000000.
5. l3res – NSAP/NET Reserved
   This NSAP part currently has not been assigned a specific purpose.
   Type: hexadecimal number.
   Range: 0000 – FFFF.
   Default: 0000.
6. l3rd – NSAP/NET Routing Domain
   This parameter of NSAP is used to set or retrieve a unique routing domain within an administrative domain. A standard for use has not been defined until now.
   Type: hexadecimal number.
   Range: 0000 – FFFF.
   Default: 0000.
7. l3area – NSAP/NET Area Identifier
   This parameter of NSAP is used to set or retrieve the area. So NEs can be identified in the same area.
   Type: hexadecimal number.
   Range: 0000 – FFFF.
   Default: 0000.
8. l3isisnl – Layer 3 IS Level
   This parameter indicates the network router type: ES-IS (level1, value L1), IS-IS (level2, value L2) and partition repair capability (value3).
   Note: This parameter is not reported when output parameter *osinode*=scnnode.
   Type: alphanumeric string.
   Range:
   - L1: this means level1, IS-IS, only allowed when parameter l3radesnode=0
   - L12: this means level2, IS-IS which contains also level1, ES-IS
   - L12PRC : this means partition repair capable (PRC) and contains also level1 and level2.

   Default: L1.

9. l3domain – Layer3 IS Domain
   Per node in a NE, a domain group must be specified. This will be done with this parameter which can be set and retrieved. All nodes in the NE with the same domain-number are interconnected and can communicate without the need for inter-domain routing via RA-PREFIX.
   Note: This parameter is not reported when output parameter *osinode*=scnnode.
   Type: alphanumeric string.
   Range:
   - 1 for osinode1
   - 1 – 2 for osinode2 to osinode8.

   Default: 1.
10. l3raprefix – Layer3 Reachable Address Prefix
    This value specifies an area address or a part of an area address representing an area address group. This parameter is needed when nodes in different routing domains (see *l3domain*) must communicate. The node must forward then CLNP PDUs to the RA-Destination-Node if the destination NSAPs of CLNP PDUs match with the PA-Prefix.
    Note: This parameter is not reported when output parameter *osinode*=scnnode.
    Type: hexadecimal number.
    Range:
    - NONE,
    - a string of 1 to 13 bytes: first byte (most significant): 10 – 99; rest: 0000 – FFFF.

    The value represents an area address or a part of an area address beginning with AFI.
    Default: empty string.
11. l3radesnode – Layer3 Reachable Address Destination Node
    This parameter is in combination with parameter l3raprefix necessary. The value represents the destination node in the same NE. An internal connection over a domain-boundary is established between this node and the RA-Destination-Node, with IS-IS disabled over that connection.
    Note: This parameter is not reported when output parameter *osinode*=scnnode.
    Type: AID and digit value.

Range:

- 0, osinode{2-8} for osinode1
- 0, osinode1 for osinode2 to osinode 8.

Value 0 indicates that functionality of RA-Prefix is disabled.
Default: 0.

12. nsapthlev - Number of OSI Nodes Threshold Level
    This parameter indicates the NSAP count threshold level for monitoring the number of OSI nodes (NSAPs) for the level 1 area in which the OSI node specified by the *osinode* parameter is located. A threshold value of zero (0) indicates that NSAP threshold alarming is disabled. The parameter shall be omitted for the SCN node.
    Type: numeric string
    Range: 0 no alarming; 1 -250 threshold alarming.
    Default: 0

Example output

```
   NE-UNITE 01-01-13 01:57:42
A  000 REPT DBCHG
   "TIME=01-47-43,DATE=01-01-13:ED-ULSDCC-L3::osinode8:
   l3afi=39,l3idi=840F,l3dfi=80,l3org=100100,l3res=0000,
   l3rd=0020,l3area=4711,l3isisnl=L12,l3domain=2,
   l3raprefix=,l3radesnode=0,nsapthlev=48"
;
```

□

ED-USER: Edit user

The ED-USER command modifies a user's own security parameters.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S1

Priority: 1

Abortable: No.

Input format

Command Syntax: `ED-USER`:*tid*::*ctag*:::[*spec_block*];

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).

Spec block parameters

1. screen – Message Screening
   This parameter specifies what output messages are associated with the *uid*. This parameter is omitted if the user has none of these values. Any combination of these values may be specified using ampersand (&)
   Type: alphanumeric string An '&' is also allowed for concatenation of values.
   Range:
   - DBCHG
     Data Base Change notifications – changes in creation of entities, in user provisionable parameters, in deletion of entities will be reported (data base changes). The user will receive REPT DBCHG messages.
     The value DBCHG shall always be used together with the value STCHG.
   - STCHG
     State Change notifications – report changes in user non-provisionable parameters (state changes). The user will receive REPT DBCHG messages.
     The value STCHG shall always be used together with the value DBCHG.
   - PSCHG
     Protection switch notifications – report protection switch changes. User will receive REPT EVT and REPT SW messages.
   - ALARMS
     Alarm notifications. The user will receive REPT ALM ENV, REPT ALM, and REPT EVT messages.

- ONNS

  ONNS Notifications. Database and state changes associated with entities managed by ONNS application and only issued when *xcsetup* = NN. The related ONNS TL1 notifications are REPT PTHCHG, REPT PTHEVT, REPT NNCHG, REPT NNEVT.

- OWN

  Responses to own commands. The user will receive no other notifications.

  Note: OWN will never be shown in conjunction with DBCHG, STCHG, PSCHG or ALARMS.

- NA

  Not applicable. This value is reserved for users with uidclass=MEMADMIN. The notification behavior is controlled in this case by the user class.

Default: OWN
If more than one value is set the values will be concatenated by '&'.
Example: DBCHG&STCHG&ALARMS

Output format

After receiving the ED-USER command, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

If the ED-USER command does not alter existing user security parameters, the NE provides a normal completion response.

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

This command updates the user data of the user *uid* (User ID) who requests the command. The value of *screen* (Message Screening) will be updated according the parameter value.

It will be reported via the corresponding ED-USER notification – see "ED-USER notification" (p. 4-943) section.

The execution of an ED-USER command is entered in the Security Information Log.

When the ED-USER command is successfully executed, the user session is not terminated and is unaffected. It will continue to use the previous values. The changes will take effect the next time the user logs in.

Example input/output

The following example shows the successful completion of the ED-USER command by the NE:

```
ED-USER:LT-UNITE-123::123456:::screen=DBCHG&STCHG;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

The general error responses defined in "RTRV-HDR: Retrieve header" (p. 4-1736) are also valid for this command.

Validation rule: screen value not allowed for *uid*

A user is not able to add a message type to their *screen* parameter list if:

- the message type was never added a security administrator or
- the message type has been removed by a security administrator

Error code: `IDNV - Input, Data Not Valid, screen value was not set by security administrator`

Related TL1 messages

"RTRV-USER: Retrieve user" (p. 4-2236)

□

ED-USER notification

Output format

See definition of "REPT DBCHG: Report data base change" (p. 4-1517).

The ED-USER notification will have following specific syntax:
`ED-USER:`*uid*`::`*spec_block*

Output parameters

Command parameters

1. uid – User Identifier
   This is the unique user login identifier for which the ACT-USER login command is intended. Grouping and/or ranging of *uid* values for the ACT-USER command are not allowed. Valid *uid* values for the ACT-USER command are case-sensitive alphanumeric strings which have been previously provisioned as valid login IDs in the NE.
   Type: alphanumeric string (case-sensitive)
   Range: 1 – 10 characters
   The *uid* ALL is not allowed in any combination of upper or lower cases.
   Default: not applicable

Spec block parameters

1. screen – Message Screening
   This parameter specifies what output messages are associated with the *uid*. This parameter is omitted if the user has none of these values. Any combination of these values may be specified using ampersand (&)
   Type: alphanumeric string An '&' is also allowed for concatenation of values.
   Range:
   - DBCHG

     Data Base Change notifications – changes in creation of entities, in user provisionable parameters, in deletion of entities will be reported (data base changes). The user will receive REPT DBCHG and REPT EVT FXFR messages.
   - STCHG

     State Change notifications – report changes in user non-provisionable parameters (state changes). The user will receive REPT DBCHG messages.
   - PSCHG

     Protection switch notifications – report protection switch changes. User will receive REPT EVT and REPT SW messages.
   - ALARMS

     Alarm notifications. The user will receive REPT ALM ENV, REPT ALM, and REPT EVT messages.
   - ONNS

ONNS Notifications. Database and state changes associated with entities managed by ONNS application and only issued when *xcsetup* = NN. The related ONNS TL1 notifications are REPT PTHCHG, REPT PTHEVT, REPT NNCHG, REPT NNEVT.

- OWN

  Responses to own commands. The user will receive no other notifications.

  Note: OWN will never be shown in conjunction with DBCHG, STCHG, PSCHG or ALARMS.

- NA

  Not applicable. This value is reserved for users with uidclass=MEMADMIN. The notification behavior is controlled in this case by the user class.

Default: OWN
If more than one value is set the values will be concatenated by '&'.
Example: DBCHG&STCHG&ALARMS

Example output

The example shows a normal notification after an ED-USER command:

```
   LT-UNITE-123 00-01-01 08:00:50
A 815 REPT DBCHG
   "TIME=08-00-12,DATE=00-01-01:ED-USER:nbguser1::
   screen=DBCHG&STCHG"
;
```

□

ED-USER-SECU: Edit user security

The ED-USER-SECU command is used by an administrator to edit the security parameters associated with a user.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S5

Priority: 1

Abortable: No.

Input format

Command Syntax: `ED-USER-SECU`:*tid*:*uid*:*ctag*::,[*new_pid*],,[*upc*][:*spec_block*];

Input parameters

Important! During a software download (CIT to NE) it may happen that the *Navis*® Optical EMS -NE connection get lost. This is caused by the *tmout* (Inactivity Timeout Period) parameter. A value of 0 will disable the timeout function (see Spec block parameters description below).

Note: The new setting becomes operational only after a new login.

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. uid – User ID
   ED-USER-SECU input
   Specifies the user ID (*uid*) name which should be edited.
3. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
4. new_pid – New Password ID
   This parameter specifies the new password ID for the addressed *uid*. This is an optional parameter and in the absence of a value the default is the current value. Password strings are transmitted in non-encrypted form in the ACT-USER command; are encrypted when stored in the NE; and are never transmitted from the NE.
   Type: character string (case-sensitive)
   Range: 6 to 10 legal characters. Valid passwords consist of at least two

non-alphabetic characters with at least one special character. The special character can be one of the required non-alpha characters. For example, TEST1+ is a valid password. The first character of a password must be a letter.
Default: For the two superusers the default password is: UNITE+01 for User ID LUC01 and UNITE+02 for User ID LUC02. For other users: not applicable.

5. upc – User Privilege Code List
   This parameter specifies the user privilege code UCFC/UCAL pair assigned to a user. Multiple UCFC/UCALs can be specified using single ampersands (&). If a user try to operate a command with a privilege code higher than assigned to the user for the category of the command the command will be denied.
   Type: alphanumeric string Also allowed is '&' for concatenation.
   Range: Pi, Mi, Ti, Si, PMi, Di where ″i″ is an integer ranging from 0 to 5, with i=0 implying that there is no authorization for the functional category. S0 is not allowed.
   Default: P1&M1&T1&S1&PM1 except for super users: P5&M5&T5&S5&PM5
   Note: The system does not support commands for the D (DEBUG) category. Setting this privilege code does not have any effect on the system behavior and it will not be visible in output direction. It is only for compatibility.
   See also "List of user privilege codes" (p. 15-2).

Spec block parameters

1. alw_login – Allow Login
   This parameter displays the enable/disable state of a User ID.
   A User ID can be automatically disabled by the system when the time specified by parameter *usrage* (see "RTRV-NE-SECU: Retrieve NE security" (p. 4-1828)) expires or via the ED-USER-SECU command. A User ID can be enabled via the ED-USER-SECU command.
   If a User ID is disabled, logins with that User ID are denied.
   Type: alphanumeric value set
   Range:
   - YES: User ID is enabled
   - NO: User ID is disabled

   Default: YES
2. newuid – New UID
   This parameter allows to rename the 2 predefined super-users. It cannot be used to rename a non-super-user login. .
   uid the unique user login identifier for which the ACT-USER login command is intended. Grouping and/or ranging of *uid* values for the ACT-USER command are not allowed. Valid *uid* values for the ACT-USER command are case-sensitive alphanumeric strings which have been previously provisioned as valid login IDs in the NE.
   Type: alphanumeric string (case-sensitive)
   Range: 5 – 10 characters
   The *uid* ALL is not allowed in any combination of upper or lower cases.
   Default: not applicable

3. page – Password Aging Interval
   This parameter specifies the period in days after which the user has to change the password of their account. If the value is set to 0 then the password aging function is disabled.
   Type: integer
   Range: 0, 7-999 [days]
   Default: 90
4. screen – Message Screening
   This parameter specifies what output messages are associated with the *uid*. This parameter is omitted if the user has none of these values. Any combination of these values may be specified using ampersand (&)
   Type: alphanumeric string. An '&' is also allowed for concatenation of values.
   Range:
   - DBCHG

     Data Base Change notifications – changes in creation of entities, in user provisionable parameters, in deletion of entities will be reported (data base changes). The user will receive REPT DBCHG messages.

     The value DBCHG shall always be used together with the value STCHG.
   - STCHG

     State Change notifications – report changes in user non-provisionable parameters (state changes). The user will receive REPT DBCHG messages.

     The value STCHG shall always be used together with the value DBCHG.
   - PSCHG

     Protection switch notifications – report protection switch changes. User will receive REPT EVT and REPT SW messages.
   - ALARMS

     Alarm notifications. The user will receive REPT ALM ENV, REPT ALM, and REPT EVT messages.
   - ONNS

     ONNS Notifications. Database and state changes associated with entities managed by ONNS application and only issued when *xcsetup* = NN. The related ONNS TL1 notifications are REPT PTHCHG, REPT PTHEVT, REPT NNCHG, REPT NNEVT.
   - OWN

     Responses to own commands. The user will receive no other notifications.

     Note: OWN will never be shown in conjunction with DBCHG, STCHG, PSCHG or ALARMS.
   - NA

Not applicable. This value is reserved for users with uidclass=MEMADMIN. The notification behavior is controlled in this case by the user class.

Default: OWN

If more than one value is set the values will be concatenated by '&'.

Example: DBCHG&STCHG&ALARMS

Restriction: When *uidclass* is set to MEMADMIN, screen must be set to NA.

5. tmout – Inactivity Timeout Period

   If there are no messages between the user and the NE over the Timeout Period, the session is logged off. A value of 0 disables the timeout function.

   Type: integer

   Range: 0 – 999 [minutes]

   Default: 30

6. uidclass – UID Class

   This is the user class of a *uid*.

   Type: alphanumeric value set

   Range:

   - OTHER – This is the default class. For users in this class, command privileges and notifications are controlled only by their UPCs and their notification Registration List.
   - MEMADMIN – User class for memory administration users. All users of this class share the same atag counter for autonomous messages and are allowed to execute the command RTRV-AO.

   Default: OTHER

Output format

After receiving the ED-USER-SECU command, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

If the ED-USER-SECU command does not alter existing user security parameters, the NE provides a normal completion response. An example is when the *upc* of the *uid* is P3 and an ED-USER-SECU command is received which sets the *upc* to P3.

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

This command updates the user data of the user specified in the *uid* parameter. The values of *upc* (User Privilege Code List), *alw_login* (Allow Login), *screen* (Message Screening), *page* (Password Aging Interval), *tmout* (Inactivity Timeout Interval) will be

updated according the parameter values. *new_pid* updates the *pid* (Password ID). *newuid* updates the uid (User ID).

It will be reported via the corresponding ED-USER-SECU notification – see "ED-USER-SECU notification" (p. 4-952) section.

The NE always has two preinstalled users with full privileges in all functional categories. These two users will be referred to as super-user. The NE will not allow adding additional super-user type users. It will not be possible to remove either of the original super-user login IDs. An super-users's *upc* cannot be modified using the ED-USER-SECU command.

An existing non-super-user login ID (*uid*) cannot be renamed. It must be deleted and re-entered.

A superuser login ID (*uid*) can be renamed by a security administrator (privilege code S5 in category Security Administration).

The ED-USER-SECU command enables an Security Administrator to modify the password, user privilege code(s), and/or user security parameters of the non-administrative users. An Security Administrator may modify the password and/or user security parameters of the other Security Administrators including super-users (except the user privilege code).

If the *uid* is currently logged in when the ED-USER-SECU command is successfully executed, the user session identified by the *uid* is not terminated and is unaffected. It will continue to use the previous values. The changes will take effect the next time the user logs in.

Example input/output

The following example shows the successful completion of the ED-USER-SECU command by the NE:

```
ED-USER-SECU:LT-UNITE-123:nbguser1:123456::,pass13+,,
P3&M3&PM2:screen=DBCHG&STCHG,page=70,tmout=0, alw_login=YES;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
;
```

This example shows how the super-users *uid* can be changed:

```
ED-USER-SECU:LT-UNITE-123:LUC01:123456::,,,:newuid=Admin1;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

The general error responses defined in "RTRV-HDR: Retrieve header" (p. 4-1736) are also valid for this command.

Validation rule: Invalid *uid*

If the NE receives an ED-USER-SECU command with an invalid (unknown) *uid* value.

Error code: `IDNV - Input, Data Not Valid, invalid UID`

Validation rule: Invalid *upc*

If the NE receives an ED-USER-SECU command with a *upc* value=P5&M5&T5&S5&PM5 for a non-administrator login account or a upc=S0 or one super-user tries to make the other super-user a non-super-user.

Error code: `IDNV - Input, Data Not Valid, invalid UPC`

Validation rule: newuid has the same value of an existing *uid*

If the NE receives an ED-USER-SECU command from a user trying to change with the *newuid* the *uid* of the addressed user id to an existing *uid* different from the addressed user id.

Error code: `IDNV - Input, Data Not Valid, duplicate UID`

Validation rule: newuid defined for non superuser *uid*

If the NE receives an ED-USER-SECU command from a user trying to change the *uid* of a non super-user.

Error code: `IDNV - Input, Data Not Valid, newuid for non superuser`

Validation rule: disabling of superusers

If the NE receives an ED-USER-SECU command from a user trying to disabling *uid* of a super-user.

Error code: `IDNC - Input, Data Not Consistent`

Validation rule: Compatibility *screen*, *uidclass* parameter

If the network element receives an ED-USER-SECU command with uidclass=MEMADMIN and screen !=NA it shall reject the command with:

Error Code: `IDNV - Input, Data Not Valid, incompatible screen, uidclass parameters`

Related TL1 messages

- "DLT-USER-SECU: Delete user security" (p. 4-197)
- "ED-USER-SECU: Edit user security" (p. 4-945)
- "RTRV-USER-SECU: Retrieve user security" (p. 4-2240)

References

TR-NWT-000835, OTGR Section 12.5: Operations Applications Messages – NE and Network System Security Administration Messages.

□

ED-USER-SECU notification

Output format

See definition of "REPT DBCHG: Report data base change" (p. 4-1517).

The ED-USER-SECU notification will have following specific syntax:

`ED-USER-SECU`:*uid*:,,[*upc*]:*spec_block*

Output parameters

Command parameters

1. uid – User ID
   This is the unique user login identifier for which the ACT-USER login command is intended. Grouping and/or ranging of *uid* values for the ACT-USER command are not allowed. Valid *uid* values for the ACT-USER command are case-sensitive alphanumeric strings which have been previously provisioned as valid login IDs in the NE.
   Type: alphanumeric string (case-sensitive)
   Range: 1 – 10 characters
   The *uid* ALL is not allowed in any combination of upper or lower cases.
   Default: not applicable
   If the *uid* was changed via the ENT-USER-SECU command and a value of *newuid* is different from the old *uid* then the *uid* contains in the notification the value of old *uid*.
2. upc – User Privilege Code List
   This parameter specifies the user privilege code UCFC/UCAL pair assigned to a user. Multiple UCFC/UCALs can be specified using single ampersands (&). If a user try to operate a command with a privilege code higher than assigned to the user for the category of the command the command will be denied.
   Type: alphanumeric string Also allowed is '&' for concatenation.
   Range: Pi, Mi, Ti, Si, PMi, Di where "i" is an integer ranging from 0 to 5, with i=0 implying that there is no authorization for the functional category. S0 is not allowed.
   Default: P1&M1&T1&S1&PM1 except for super users: P5&M5&T5&S5&PM5
   Note: The system does not support commands for the D (DEBUG) category.
   Setting this privilege code does not have any effect on the system behavior and it will not be visible in output direction. It is only for compatibility.
   See also "List of user privilege codes" (p. 15-2).

Spec block parameters

1. alw_login – Allow Login
   This parameter displays the enable/disable state of a User ID.
   A User ID can be automatically disabled by the system when the time specified by parameter *usrage* (see "RTRV-NE-SECU: Retrieve NE security" (p. 4-1828)) expires or via the ED-USER-SECU command. A User ID can be enabled via the ED-USER-SECU command.
   If a User ID is disabled, logins with that User ID are denied.
   Type: alphanumeric value set
   Range:
   - YES: User ID is enabled
   - NO: User ID is disabled

   Default: YES
2. newuid – New UID
   This parameter allows to rename the 2 predefined super-users. It cannot be used to rename a non-super-user login. .
   uid the unique user login identifier for which the ACT-USER login command is intended. Grouping and/or ranging of *uid* values for the ACT-USER command are not allowed. Valid *uid* values for the ACT-USER command are case-sensitive alphanumeric strings which have been previously provisioned as valid login IDs in the NE.
   Type: alphanumeric string (case-sensitive)
   Range: 5 – 10 characters
   The *uid* ALL is not allowed in any combination of upper or lower cases.
   Default: not applicable
3. page – Password Aging Interval
   This parameter specifies the period in days after which the user has to change the password of their account. If the value is set to 0 then the password aging function is disabled.
   Type: integer
   Range: 0, 7-999 [days]
   Default: 90
4. screen – Message Screening
   This parameter specifies what output messages are associated with the *uid*. This parameter is omitted if the user has none of these values. Any combination of these values may be specified using ampersand (&)
   Type: alphanumeric string An '&' is also allowed for concatenation of values.
   Range:
   - DBCHG

     Data Base Change notifications – changes in creation of entities, in user provisionable parameters, in deletion of entities will be reported (data base changes). The user will receive REPT DBCHG messages.
   - STCHG

State Change notifications – report changes in user non-provisionable parameters (state changes). The user will receive REPT DBCHG messages.

- PSCHG

  Protection switch notifications – report protection switch changes. User will receive REPT EVT and REPT SW messages.

- ALARMS

  Alarm notifications. The user will receive REPT ALM ENV, REPT ALM, and REPT EVT messages.

- ONNS

  ONNS Notifications. Database and state changes associated with entities managed by ONNS application and only issued when *xcsetup* = NN. The related ONNS TL1 notifications are REPT PTHCHG, REPT PTHEVT, REPT NNCHG, REPT NNEVT.

- OWN

  Responses to own commands. The user will receive no other notifications.

  Note: OWN will never be shown in conjunction with DBCHG, STCHG, PSCHG or ALARMS.

- NA

  Not applicable. This value is reserved for users with uidclass=MEMADMIN. The notification behavior is controlled in this case by the user class.

Default: OWN
If more than one value is set the values will be concatenated by '&'.
Example: DBCHG&ALARMS

5. tmout – Inactivity Timeout Period
   If there are no messages between the user and the NE over the Timeout Period, the session is logged off. A value of 0 disables the timeout function.
   Type: integer
   Range: 0 – 999 [minutes]
   Default: 30

6. uidclass – UID Class
   This is the user class of a *uid*.
   Type: alphanumeric value set
   Range:

   - OTHER – This is the default class. For users in this class, command privileges and notifications are controlled only by their UPCs and their notification Registration List.
   - MEMADMIN – User class for memory administration users. All users of this class share the same atag counter for autonomous messages and are allowed to execute the command RTRV-AO.

   Default: OTHER

Example output

The example shows a normal notification after an ED-USER-SECU command:

```
   LT-UNITE-123 00-01-01 08:00:50
A 815 REPT DBCHG
   "TIME=08-00-12,DATE=00-01-01:ED-USER-SECU:nbguser1:,,
   P3&M3&PM2:screen=DBCHG&STCHG,page=70,tmout=0,
   newuid=nbguser1,
   alw_login=YES"
;
```

This is an example notification in case of the user id was changed for a super-user:

```
   LT-UNITE-123 00-01-01 08:00:50
A 815 REPT DBCHG
   "TIME=08-00-12,DATE=00-01-01:ED-USER:nbguser1::
   SCREEN=DBCHG&STCHG"
;
```

□

ED-VC3: Edit VC3 tributary

The ED-VC3 command is used to provision all parameters related to the tributary VC3.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: no

Input format

Command Syntax: `ED-VC3`:*tid:aid:ctag:::spec_block*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   AID of a SDH tributary. The keyword `all` is allowed on slot, port and tributary level. The so called ″dynamic parameters″ shall be reported, if a `all` is used at the tributary level.
   The ″dynamic parameters″ are:
   - *ptrc*, *ptrcst*, *siglb*, *trailstate*.
     Type: AID
     Range: STS1NumAID.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. brstintvl – Bursty Interval
   Measurement period for determining bursty errors The setting of this parameter is used when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
2. brstthr – Bursty Error Threshold
   The values are set in percent for the degradation threshold. The setting of this parameter is used when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, 15, 20, 25, 30, ... 50.
   Default: 30.
3. degthr – Signal Degrade Threshold
   The setting of this parameter are used when *sdsfmode*=POISSON
   Type: numeric value set.
   Range (as exponents of 10): –5; –6 (default); –7; –8; –9
4. dexcthr – Excessive Degrade Threshold
   The setting of this parameter are used when *sdsfmode*=POISSON. The values are set as exponent of 10.
   Type: numeric value set.
   Range (as exponent of 10) –3 (default); –4; –5.
5. exphptrc – Expected Path Trace (J1)
   The parameter *exphptrc* specifying the expected path trace is only relevant for the path trace supervision when the path trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex.
6. feppm – Far-End Path PM Enable
   It indicates whether this performance monitoring feature is enabled or disabled.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
7. hptimmon – Path Trace Monitoring Enable (J1)
   Description: High order path trace (J1) identifier mismatch (TIM) monitor enable. This parameter is relevant only if the related trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set.

Range:

- ENABLE
- DISABLE (default).

8. loca – Ring A-node TID
   This parameter specifies the TID of the node at which the service is added to the BLSR ring. This parameter is required for the input of tributaries to be used by ONNS on ports of *portClass* =EDGE being members in BLSR/MSSPRING protection groups. The *loca* parameter value shall be an empty string for all other tributaries.
   loca is introduced specifically for use related to ONNS application.
   Type: TID or empty-string.
   Range: Please refer to the TID definition in "RTRV-HDR: Retrieve header" (p. 4-1736) description.
   Default: empty string: ″″. This is displayed as \″\″ in output direction.
9. locz – Ring Z-node TID
   This parameter specifies the TID of the node at which the service is dropped from the BLSR ring. This parameter is required for the output of tributaries to be used by ONNS on ports of *portClass*=EDG E being members in BLSR/MSSPRING protection groups. The *locz* parameter value shall be an empty string for all other tributaries.
   locz is introduced specifically for use related to ONNS application.
   Type: TID or empty-string.
   Range: Please refer to the TID definition in the "RTRV-HDR: Retrieve header" (p. 4-1736) description.
   Default: empty string: ″″. This is displayed as \″\″ in output direction.
10. neppm – Near-End Path PM Enable
    It indicates whether this performance monitoring feature is enabled or disabled.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
11. pmhpfeses – Performance Monitoring Path Far-End SES Threshold
    This parameter describes the Path Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. When the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of ranges for SDH and SONET): 1-64000.
    Default: 2400.

12. pmhpneses – Performance Monitoring Path Near-End SES Threshold
    This parameter describes the Path Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. When the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of ranges for SDH and SONET): 1-64000.
    Default: 2400.
13. ptca – Path TCA Profile Pointer
    Type: alphanumeric string.
    Range: string with up to 24 characters.
    Default: DEFAULT0.
14. ptrcrfmt – Path Trace Read Format (J1)
    The read format of J1, the incoming path trace (ptrc).
    Type: numeric string.
    Range:
    - 2: for non-specific repeating byte
    - 16: for 16 byte specific string.
    - 64: for 64 byte string.

    Default: 2.
15. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in BURST or POISSON mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON
16. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable:
    - TR-only (also known as the implicit reset method)
    - TR-RTR (also known as the explicit reset method).

    Type: alphanumeric value set.
    Range: TR, TRRTR (default).
17. tmonmd – Tributary Monitoring Mode
    This parameter indicates the mode of the tributary.
    Type: alphanumeric value set.

Range:

- MON = alarm monitoring is taking place on the port.
- NMON (default) = alarm monitoring is not occurring on the port.

18. tribsdhpn – Tributary Alarm Severity Assignment Profile
    This parameter points to a tributary ASAP profile name of type PATH for the designated AID.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: string with a maximum of 24 characters.
    Default: DEFAULT.

Output format

If the ED-VC3 command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The ED-VC3 command is also applicable to VC4 tributaries. Even though a VC4 signal is not a concatenated VC3 signal in a strict sense, from a pointer processor viewpoint it can be considered to be comprised of three VC3 signals which have the properties of a concatenated signal. Thus, it is not necessary to have a separate ED-VC4 command. Similarly, ED-VC3 is also applicable to VC4-4C and other ″concatenated″ tributaries.

Even if the command is used for a concatenated signal, it can be applied to any of the tributaries (for example, to the second tributary of the concatenated signal). However, only the parameters pertaining to the first tributary of a concatenated signal are used by the software to determine system operation. If the signal were changed from a concatenated signal to non-concatenated, then the parameters for each of the tributaries would be used by the software.

The command allows to modify all attributes listed above as input spec-block parameters. The modification is reported by means of an ED-VC3 notification for tributary.

Change of J1 expected format - FM impact

When the expected J1 format (ptrcrfmt) is changed to 16 (16 byte specific string) while the TI Mismatch detection is enabled, then the TI Mismatch alarm shall be

updated according to the provisioned ecpected J1 (exphptrc) and the currently received J1 (ptrc).

When the expected J1 format is changed away from 16, while the TI Mismatch alarm is active, then the TI Mismatch alarm shall be cleared.

Signal degrade/signal fail mode provisioning

If the attribute *sdsfmode* is changed then for all tributaries belonging to the same STS-12/VC4-4c group the attribute will also be changed according to value specified in the ED request.

A STS-12/VC4-4c group is composed of all tributaries whose Simple_STS1NumAID is in the range from (k*12) +1 to (k+1)*12 with k=0..63. The maximal value of k is derived from the port rate.

For efficiency reasons the notifications for tributaries are sent out as a single notification (so-called group notification) using a range over the aid which depends on the port rate of the associated port and the Simple_STS1NumAID for that STS-12/VC4-4c group;

i.e. the Simple_STS1NumAID field in the STS1NumAID is set to <M>&&-<N>

- with M is first STS-1/AU-3 number of the STS-12/VC4-4c group,
- with N is last STS-1/AU-3 number of the STS-12/VC4-4c group.

If additional parameters besides *sdsfmode* are changed within the ED request then it is also valid to split the autonomous reporting in up to 3 notifications:

- one group notification for all tributaries with smaller Simple_STS1NumAID as the one which is specified in the ED request.
- one single notification for the tributary which is specified in the ED request.
- one group notification for all tributaries with greater Simple_STS1NumAID as the one which is specified in the ED request.

Disabling of PM monitor

The disabling of a PM monitor shall have the following impacts w.r.t. existing PM registers:

1. stop PM counting
2. all current bins related to the PM monitor shall be deleted
3. all history bins related to the PM monitor shall be deleted

The term PM monitor has the same semantics as the term PM package as used in SRD_PerformanceMonitoring. The number of PM monitors is determined by means of the number of *pm enable attributes*.

PM monitors can be disabled explicitly by means of the *pm enable* attribute or are implicitly disabled as part of a port/tributary deletion.

Additional to the above listed impacts (ID 52924) the disabling of a PM monitor shall have the following impacts: the system has to clear all active TCA events of the deleted PM monitor if TCA mode TR-RTR was selected.

Changing TCA mode from TR-RTR to TR-only

The change of tcamd from TR-RTR (also known as the explicit reset method) to TR-only (also known as the implicit reset method) has the impact, that all active TCA events of the related entity must be cleared.

Example input/output

```
ED-VC3:UNITE-NE:1-1-#-#-3-1-1:123456:::tmonmd=MON,
tribsdhpn=Default,degthr=-6,dexcthr=-3,ptrcrfmt=1,
ptca=Default0,neppm=ENABLE,pmhpneses=30,pmhpfeses=30;
   UNITE-NE 00-10-14 14:59:09
M  123456 COMPLD
;
   UNITE-NE 00-10-14 14:59:09
A  592 REPT DBCHG
   "TIME=14-59-09,DATE=00-10-14:ED-VC3:1-1-#-#-3-1-1::
   tmonmd=MON,tribsdhpn=Default,degthr=-6,dexcthr=-3,
   ptrcrfmt=1,ptca=Default0,neppm=ENABLE,pmhpneses=30,
   pmhpfeses=30:"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the ED-VC3 command.

Validation rule: ASAP profile exists

Check of the existence of the ASAP profile.

Error code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: TCA profile exists

Check of the existance of the TCA profile.

Error Code: `IDNV - Input, Data Not Valid, TCA profile does not exist`

Check CCB against *istd* of related port

Check wether the CCB fits to istd of the related port

Error Code: `ICNV - Input, Command Not Valid, Interface Standard does not match`

ONNS specific validation rule: *loca*, *locz* changes only allowed when *portClass*=EDGE and part of a BLSR/MS-SPRING group

Setting the *loca*, *locz* parameters away from the default value shall only be allowed when the related *portClass*=EDGE and the port is part of a BLSR/MS-SPRING protection group.

Error code: `IDNV - Input, Data Not Valid, related portClass not EDGE or port not in BLSR/MS-SPRING group`

ONNS specific validation rule: *loca*, *locz* changes only allowed when tributary not involved in a cross-connection

Setting the *loca*, *locz* parameters shall be inhibited when the tributary is already input or output tributary of a cross-connection.

Error code: `IDNV - Input, Data Not Valid, tributary already part of a cross-connection`

ONNS specific validation rule: Maximum number of tributaries with *loca*, *locz* entries must not exceed 100

It shall be checked that the maximum number of triburaries with loca, locz parameters set (i.e. having a value different from the default value) does not exceed 100.

Error code: `SSRE - Status, System Resources Exceeded, limit of tribs with loca, locz exceeded`

ONNS specific validation rule: *hptimmon* changes to ENABLE only allowed when corresponding port is not of *portClass* INNI

Setting the *hptimmon* parameter to ENABLE shall only be allowed when the port the VC-3 is located on does not have the port class INNI.

Error Code: `SNVS - Status, Not in Valid State, portClass must not be INNI`

Related TL1 messages

"RTRV-STS1: Retrieve STS1 tributary" (p. 4-2149)

References

GR-199-CORE (ED-*rr*)

□

ED-VC3 notification

Output format

The ED-VC3 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ED-VC3`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   AID of a SDH tributary. The keyword `all` is not allowed on any level.
   Type: AID
   Range: STS1NumAID

Spec block parameters

1. brstintvl – Bursty Interval
   Measurement period for determining bursty errors The setting of this parameter is used when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
2. brstthr – Bursty Error Threshold
   The values are set in percent for the degradation threshold. The setting of this parameter is used when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, 15, 20, 25, 30, ... 50.
   Default: 30.
3. degthr - Signal Degrade Threshold
   The setting of this parameter are used when sdsfmode=POISSON.
   Type: numeric value set.:
   Range (exponents of 10): -5, -6 (default), -7, -8, -9.
4. crslpbkrate – Cross-connect loopback Rate
   It is independent from the current interface standard and therefore both SDH and SONET values are allowed.
   The parameter *crslpbkrate* is not reported if the parameter *crlspbkstat* indicates that no loopback is set.
   Type: alphanumeric value set.
   Range:
   - VC3
   - VC4
   - VC44C

- VC416C
- VC464C
- STS1
- STS3
- STS12
- STS48
- STS192

5. crslpbkstat – Cross-connect loopback status
   State of cross- connect loopback.
   Type: alphanumeric value set.
   Range:
   - YES = Cross-connect loopback is provisioned
   - NO (default) = No cross-connect loopback is provisioned.
6. dexcthr – Excessive Degrade Threshold
   The setting of this parameter are used when *sdsfmode*=POISSON. The values are set as exponent of 10.
   Type: numeric value set.
   Range (as exponent of 10) –3 (default); –4; –5.
7. exphptrc – Expected Path Trace (J1)
   The parameter *exphptrc* specifying the expected path trace is only relevant for the path trace supervision when the path trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex.
8. feppm – Far-End Path PM Enable
   It indicates whether this performance monitoring feature is enabled or disabled.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
9. hptimmon – Path Trace Monitoring Enable (J1)
   Description: High order path trace (J1) identifier mismatch (TIM) monitor enable. This parameter is relevant only if the related trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set.

Range:

- ENABLE
- DISABLE (default).

10. loca – Ring A-node TID
    This parameter specifies the TID of the node at which the service is added to the BLSR ring. This parameter is required for the input of tributaries to be used by ONNS on ports of *portClass* =EDGE being members in BLSR/MSSPRING protection groups. The *loca* parameter value shall be an empty string for all other tributaries.
    loca is introduced specifically for use related to ONNS application.
    Type: TID or empty-string.
    Range: Please refer to the TID definition in "RTRV-HDR: Retrieve header" (p. 4-1736) description.
    Default: empty string: ″″. This is displayed as \″\″ in output direction.
11. locz – Ring Z-node TID
    This parameter specifies the TID of the node at which the service is dropped from the BLSR ring. This parameter is required for the output of tributaries to be used by ONNS on ports of *portClass*=EDGE being members in BLSR/MSSPRING protection groups. The *locz* parameter value shall be an empty string for all other tributaries.
    locz is introduced specifically for use related to ONNS application.
    Type: TID or empty-string.
    Range: Please refer to the TID definition in the "RTRV-HDR: Retrieve header" (p. 4-1736) description.
    Default: empty string: ″″. This is displayed as \″\″ in output direction.
12. neppm – Near-End Path PM Enable
    It indicates whether this performance monitoring feature is enabled or disabled.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
13. pmhpfeses – Performance Monitoring Path Far-End SES Threshold
    This parameter describes the Path Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. When the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of ranges for SDH and SONET): 1-64000.
    Default: 2400.

14. pmhpneses – Performance Monitoring Path Near-End SES Threshold
    This parameter describes the Path Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. When the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of ranges for SDH and SONET): 1-64000.
    Default: 2400.
15. ptca – Path TCA Profile Pointer
    Type: alphanumeric string.
    Range: string with up to 24 characters.
    Default: DEFAULT0.
16. ptrcrfmt – Path Trace Read Format (J1)
    The read format of J1, the incoming path trace (ptrc).
    Type: numeric string.
    Range:
    - 2: for non-specific repeating byte
    - 16: for 16 byte specific string.
    - 64: for 64 byte string.

    Default: 2.
17. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in BURST or POISSON mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON
18. substr - Sub Structured
    The parameter substr indicates if the tributary is sub structured. A sub structured HO tributary has a HO path termination associated which provides LO tributaries to be used for LO cross-connections.
    The parameter substr is set autonomously when LO cross-connections are created or deleted with ENT-CRS or DLT-CRS commands. (See also the lower order cross-connection creation/deletion behaviour description for the commands ENT-CRS and DLT-CRS.) A sub structured HO tributary cannot be used to set up HO cross-connections.
    Type: alphanumeric value set
    Range: YES, NO
19. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable:
    - TR-only (also known as the implicit reset method)
    - TR-RTR (also known as the explicit reset method).

Type: alphanumeric value set.
Range: TR, TRRTR (default).

20. tmonmd – Tributary Monitoring Mode
    This parameter indicates the mode of the tributary.
    Type: alphanumeric value set.
    Range:
    - MON = alarm monitoring is taking place on the port.
    - NMON (default) = alarm monitoring is not occurring on the port.
21. tribsdhpn – Tributary Alarm Severity Assignment Profile
    This parameter points to a tributary ASAP profile name of type PATH for the designated AID.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: string with a maximum of 24 characters.
    Default: DEFAULT.

Example output

```
ED-VC3:UNITE-NE:1-1-#-#-3-1-1:123456:::tmonmd=MON,
tribsdhpn=Default,degthr=-6,dexcthr=-3,ptrcrfmt=1,
ptca=Default0,neppm=ENABLE,pmhpneses=30,pmhpfeses=30;
   UNITE-NE 00-10-14 14:59:09
M  123456 COMPLD
;
   UNITE-NE 00-10-14 14:59:09
A  592 REPT DBCHG
   "TIME=14-59-09,DATE=00-10-14:ED-VC3:1-1-#-#-3-1-1::
   tmonmd=MON,tribsdhpn=Default,degthr=-6,dexcthr=-3,
   ptrcrfmt=1,ptca=Default0,neppm=ENABLE,pmhpneses=30,
   pmhpfeses=30:"
;
```

□

ED-VCG: Edit virtual concatenation group

The ED-VCG command modifies the properties of a virtual concatenation group.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: No

Input format

Command Syntax: **ED-VCG**:*tid:aid:ctag:::spec_block;*

Input parameters

Command parameters

1. tid - Target Identifier
   This is the currently active name of the NE to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
2. aid – Access Identifier
   This parameter specifies the virtual concatenation group (VCG) to be operated on.
   Type: AID.
   Range: VCGAID as defined in AID structure with the exception of the value `vall`
   For changing the portControl parameter the ALL qualifier for the port aid shall be allowed.
3. ctag - Correlation Tag
   Refer to the “RTRV-HDR: Retrieve header” (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameter

1. cnprole – Customer/Network Port Role
   This parameter specifies whether the addressed port is used as a customer WAN port or a network WAN port.
   Type: alphanumeric value set.
   Range: CUSTOMER, for a customer WAN port. NETWORK (default), for a network WAN port.
2. dftpri – Default User Priority
   This parameter specifies the default user priority acc. the IEEE 802.1Q tagging scheme.
   Type: alphanumeric value set.

Range:

- HIGH
- LOW (default).

3. dftvlan – Default VLAN Identifier
   This parameter specifies the value of the VLAN identifier which is applied to frames (tagging) at LAN ingress (i.e. from LAN into the Ethernet-port). This only applies to frames carrying no VLAN identifier, yet. This parameter is also used to provision the customer tag (CID) to be used in transparent tagging mode.
   Type: alphanumeric value set.
   Range:
   - 1, 2, 3, ... 4092, 4093
   - UNAVAILABLE (default).

   To express the state UNAVAILABLE system internally the invalid VLAN ID 4094 is used.
4. enetpn – Ethernet Alarm Severity Assignment Profile Name
   This parameter points to a tributary ASAP profile name of type ENET for the designated AID.
   Ethernet port and VCG port have the same ASAP profile named ENET.
   Type: Alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: 1 … 24 characters length.
   Default: DEFAULT.
5. enettca – Ethernet TCA Profile Name
   This parameter specifies the name of the threshold crossing alert (TCA) profile used for the VCG.
   Type: alphanumeric string.
   Range: 1 ... 24 characters length.
   Default: DEFAULT0.
6. eportClass – Ethernet Port Class
   This identifies the ethernet port class of the AID. *eportClass* is used to specify ethernet ports for use by NN application.
   Type: alphanumeric value set.
   Range: TRADITIONAL (default), EDGE .
7. eportControl – Ethernet Port Control (Ethernet Port Administrative Mode)
   This identifies the administrative mode of ethernet ports of *eportlass*=EDGE. For ethernet ports of other ethernet port class this parameter shall not be relevant. *eportControl* is introduced specifically for use by NN application.
   Type: alphanumeric value set.
   Range: NORMAL (default), MAINT, LOCKOUT .

8. htmr – Hold-Off Time
   The parameter *htmr* shall specify the hold off time for the LCAS protection. If a tributary is configured to take part on transmission for the VCG and it goes to state faulty then this tributary is taken out of transmission by LCAS after the hold off time. This time is configured on group level, i.e. all tributaries have the same value for hold-off time. This parameter only affects NE behaviour if lcasmd=ENABLED.
   Type: numeric value set.
   Range: 0 (default), 100, 200, ..., 9900, 10000 [milliseconds].
9. istd – Interface Standard
   This parameter specifies the interface standard of this VCG. This value is applied for both input and output direction.
   Type: alphanumeric value set.
   Range:
   - SDH
   - SONET.

   Default: As derived from parameter *istddflt* specified at configuration management, section System RTRV-EQPT.
10. lcasmd – LCAS Mode
    This parameter specifies the operation mode of the Link Capacity Adjustment Scheme for this VCG. This value is bi-directional.
    Type: alphanumeric value set.
    Range:
    - DISABLE
    - ENABLE (default).
11. stdis – Spanning Tree Protocol Disable
    This parameter allows to enable or disable the Spanning Tree Protocol for the given port. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: alphanumeric value set.
    Range: DISABLE, STP is disabled, i.e. the port is not used to build the spanning tree. ENABLE (default), STP is enabled, i.e. the port is used to build the spanning tree.
    As VCGs are by default network ports the default value is to enable STP.
12. stpcost – Spanning Tree Path Cost
    This parameter specifies the STP-related cost of the path egressing the given port. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: integer.

Range: 1 to 200000000.
Default: 20000.
The default value depends on the provisioned VCG size. As currently only a fix size of 7 VC4s or 21 STS1s corresponding to approx. 1 Gbit is supported the default value is as shown above.

13. stpp – Spanning Tree Port Priority
    This parameter specifies the priority of the given port for the Spanning Tree Protocol. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: integer.
    Range: 0 to 255.
    The stepping as recommended by the standard (steps of 16 starting at 0) should be implemented by the management system. The NE will accept any value in the range described above. This has the consequence, that also the range restriction ″0 to 240″ is not done by the NE.
    Default: 128.
14. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable: TR-only, (also known as the implicit reset method). TR-RTR, (also known as the explicit reset method).
    Type: alphanumeric value set.
    Range: TR, TRRTR.
    Default: TRRTR in SDH mode; TR in SONET mode.
15. vmode – VCG Monitoring Mode
    The parameter vmode shall specify the monitoring mode for VCG. Alarms for this port will be reported if in mode MON otherwise not. There is no automatic mode.
    Type: alphanumeric value set.
    Range:
    - MON, for monitored
    - NMON (default), for not monitored.
16. vpm – VCG Performance Monitoring
    The parameter *vpm* shall specify whether the performance monitoring is enabled or disabled for this port.
    Type: alphanumeric value set.
    Range:
    - DISABLE (default)
    - ENABLE.
17. vvidls – Valid VLAN Identifier List (static)
    This parameter specifies a list of all static VLAN identifiers allowed for this port. The list shall be ampersand grouped (& and &&). The list shall be packed by the NE and the management systems as good as possible by using '&' and '&&' . The vlan identifier of an incoming frame must be a member of this static VLAN Id list

or the dynamic VLAN Id list *vvidlsd*. Frames tagged by a vlan identifier not member of these lists will be discarded. The port VLAN identifier (refer to parameter dftvlan of RTRV-EPORT Output Parameters) is not part of this list. This parameter is also used in transparent tagging mode to specify the list of valid customer tags (CIDs) for network ports (cnprole == NETWORK).
Type: alphanumeric string and the character '&'.
Range:

- Value of each single member (valid VLAN identifier) in the list 1, 2, ..., 4092, 4093
- In case the list has no members (empty list) -1.

The length of the list is limited only by the usual system limitations like e.g. TL1 line length. The number of entries in this list is limited to 64 by some NE-internal restrictions. Ranging and grouping by using the operators '&' and '&&' has no impact on the number of entries, it only reduces the length of the list being transported to/from CIT/EMS.
Default: -1.
Example 1:
vvidls=-1. The list has no members (empty list).
Example 2:
vvidls=3&5&40&&45. This list has the members 3, 5, 40, 41, 42, 43, 44 and 45.
Example 3:
vvidls=1&&4093 This list has the members 1,2, 3, ..., 4092, 4093.

18. wtr – Wait To Restore Time
    The parameter wtr shall specify the wait to restore time for the LCAS protection. If a tributary is configured to take part on transmission for the VCG and it recovers from a faulty state then this tributary is taken in again to transmission by LCAS after the wait-to-restore time. This time is configured on group level, i.e. all tributaries have the same value for the wait-to-restore time. This parameter only affects NE behaviour if lcasmd=ENABLED.
    Type: alphanumeric value set.
    Range: 0, 1, 2, ..., 59, 60 [minutes].
    Default: 5.

Output format

If the NE fully complies with the ED-VCG request, the following normal completion response shall be returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time* and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behaviour description

The ED-VCG shall generate a REPT DBCHG message.

The command shall modify the attributes (listed in the spec_block parameters part of this command) of the addressed port entity according to the parameters given with this command.

The modification shall be reported by means of an ED-VCG notification.

Mode changes

A change of istd shall only be possible if the VCG port has no cross-connections. A change of *istd* shall not be dependent from pending alarms or active performance monitoring for the individual tributaries.

A change of *istd* shall set default values for the parameters:

- cnprole, dftpri, dftvlan, enettca, htmr, lcasmd, stdis, stpcost, stpp, tcamd, vmode, vpm, wtr.

A change of istd shall set the parameter vvidls to default (empty list), if the GE pack works not in backward compatible mode (vlantagmd ¼ BCMD). If the GE pack works in backward compatible mode (vlantagmd = BCMD), then the parameter vvidls is not reseted to an empty list.(VRTSW does not exists, so the vvidls is set indirectly by EPORT configuration).

Update affected entities

A change of the value of the parameter lcasmd shall trigger the report of the corresponding tributary changes via a ED-VCGTRIB notification.

A change of the value of the parameter istd shall trigger the deletion of all tributaries of this VCG port and the creation of tributaries for this VCG port with the default values according the new value of *istd*. The deletion is reported by a DLT-VCGTRIB notification. The creation is reported by an ENT-VCGTRIB notification. The deletion of the objects leads to a clearance of pending alarms for these objects. The generation of objects with a different istd generates new alarms for these objects if the alarm condition is still present.

Relation of STP Disable and GVRP - relation of STP Disable and GVRP

Implicit Enabling/Disabling of GVRP when Enabling/Disabling STP for a port:

When enabling/disabling STP for a network port via parameter stdis GVRP is implicitly enabled/disabled for this port (if enabled via parameter gvrpmode of the virtual switch).

Relation of STP Disable and GVRP - switching of interface standard - ignore other parameters

If additional parameters beside istd are specified with the ED-rr command they will be ignored by the NE. This simple approach has the advantage that all ambiguous

situations are avoided and it is not necessary to implement an order or follow a certain sequence when evaluating the parameters.

Example for *istd* change from SONET to SDH

```
ED-VCG:LT-UNITE:1-1-#-#-2-V3:654321:::istd=SDH;
   LT-UNITE 00-11-11 11:11:00
M  654321 COMPLD
;
   LT-UNITE 00-11-11 11:11:05
A  001 REPT DBCHG
   "TIME=11-11-02,DATE=00-11-11:ED-VCG:1-1-#-#-2-V3::
   istd=SDH"
;
   LT-UNITE 00-11-11 11:11:06
A  003 REPT DBCHG
   "TIME=11-11-02,DATE=00-11-11:DLT-VCGTRIB:
   1-1-#-#-2-V3-1&&-21"
;
   LT-UNITE 00-11-11 11:11:08
A  005 REPT DBCHG
   "TIME=11-11-05,DATE=00-11-11:ENT-VCGTRIB-VC:
   1-1-#-#-2-V3-1&-4&-7&-10&-13&-16&-19::brstintvl=7,
   brstthr=30,degthr=-6,dexcthr=-3,hptimais=ENABLE,
   exphptrc=8900000000000000000000000000000,
   hptimmon=DISABLE,inmbs=DISABLE,inmbst=NA,
   outmbs=DISABLE,outmbst=NA,ptpn=DEFAULT,ptrcrfmt=1,
   ptrcwfmt=1,sdsfmode=BURST,tmonmd=NMON,trc=00,
   tslmmon=ENABLE"
;
```

Group notifications for VCG tributaries

For efficiency reasons the notifications for VCG tributaries shall be sent out as a single notification (so-called group notification) using a range over the aid which depends on the used mapping of the associated vcg port, i.e. the Simple_VCGNumAID field in the VCGNumAID is set to

- 1&&-<N> for non-sequential range
- 1&-4 .. &-<N> for non-sequential range

with N is maximal legal VCG tributary number.

Example:

The AID field in a group notification for a VCG tributaries related to VCG port 1 for a GE1 pack in slot 1 looks like:

1-1-#-#-1-v1-1&&-21 (for STS-1/VC-3 mapping) 1-1-#-#-1-v1-1&-4&-7&-10&-13&-16&-19 (for STS-3c/VC-4 mapping)

Disabling of PM monitor

The disabling of a PM monitor shall have the following impacts w.r.t. existing PM registers:

1. Stop PM counting
2. All current bins related to the PM monitor shall be deleted
3. All history bins related to the PM monitor shall be deleted

The term PM monitor has the same semantics as the term PM package as used in SRD_PerformanceMonitoring. The number of PM monitors is determined by means of the number of 'pm enable attributes'. PM monitors can be disabled explicitly by means of the 'pm enable' attribute or are implicitly disabled as part of a port/tributary deletion. Additional to the above listed impacts the disabling of a PM monitor shall have the following impacts: the system has to clear all active TCA events of the deleted PM monitor if TCA mode TR-RTR was selected .

Two different scenario are relevant w.r.t. disabling of PM monitors in the context of this command:

1. set the 'pm enable' attribute to disable - affects VCG PM monitors
2. change interface standard - affects VCGTRIB PM monitors due to deletion.

Changing TCA mode from TR-RTR to TR-only

The change of tcamd from TR-RTR (also known as the explicit reset method) to TR-only (also known as the implicit reset method) has the impact, that all active TCA events of the related entity must be cleared.

ONNS specific behaviour - Impact on port parameter settings while *eportClass* is TRADITIONAL

When *eportClass* has the value TRADITIONAL for an ethernet port, setting of the following parameter shall be accepted, but shall have no impact until *eportClass* is changed away from TRADITIONAL: *eportControl*.

ONNS specific behaviour - Impact on *eportControl* when changing *eportClass*

When *eportClass* is changed *eportControl* shall be set to NORMAL.

Example input/output

```
ED-VCG-1GE:LT-UNITE:1-1-#-#-1-V1:123456:::vpmode=NMON;
   LT-UNITE 00-11-11 11:11:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the ED-VCG command.

Validation rule: command only allowed for VCG on Gigabit Ethernet Packs

If the command is not applied to a VCG on a Gigabit Ethernet pack, then the command shall be denied.

Error code: `IENE - Input, Entity Not Exists`

Validation Rule: cross-connection - interface standard change

Check that the interface standard is not changed if there is still a cross-connection applied to any tributary of the whole VCG port. Whole port means all tributaries of a port independent of there configured membership.

Error code: `SNVS - Status, Not in Valid State, cross-connections are still existing`

Validation rule: no loopbacks for interface standard change

Check that the interface standard parameter (istd) is not changed when cross-connection loopback is still on this port.

Error code: `SNVS - Status, Not in Valid State, a loopback is existing`

Validation rule: no ONNS for interface standard change

Check that the interface standard parameter (istd) is not changed if ONNS functionality is available. This means that *eportClass* must be TRADITIONAL or *eportControl* must be LOCKOUT.

Error Code: `SNVS - Status, Not in Valid State, SwiSS access possible`

Validation rule: ASAP profile exists

Check of the existance of the ASAP profile.

Error code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: TCA profile exists

Check of the existance of the TCA profile.

Error Code: `IDNV - Input, Data Not Valid, TCA profile does not exist`

Validation rule: ALL qualifier used for wrong parameters

The ALL qualifier for the port aid is only allowed for changing the *portControl* parameter.

Error Code: `IDNC - Input, Data Not Consistent, 'ALL' qualifier for port aid not allowed`

Validation rule: Parameter modification not allowed in backward compatible mode

No modification of the following parameters shall be allowed if the VLAN tagging mode *vlantagmd* of the pack, to which the specified VCG port belongs to, is set to

backward compatible mode (BCMD): *cnprole*, *stdis*, *dftpri*, *dftvlan*, *stpp*, *stpcost*, *rstpmd*, *vvidls*.

Error Code: `SNVS - Status, Not in Valid State, Modification not allowed in Backward Compatible Mode`

Default VLAN ID is already assigned for this system

The default VLAN ID of a Customer port cannot have the same value as the default VLAN Id of another Customer port in the system or any other instantiated VLAN in the system, except for the value 4094.

Error Code: `IDNC - Input, Data Not Consistent, Default VLAN ID is already assigned for this System`

Default VLAN ID is no allowed member of valid VLAN list for this system

The default VLAN ID of a LAN port cannot be included into the valid VLAN list of any LAN port within the system.

Error Code: `IDNC-Input, Data Not Consistent, Default VLAN ID is not an allowed member of valid VLAN list`

ONNS specific validation rules - *eportClass* only settable when *xcsetup*=SWISS

Modification of the *eportClass* parameter shall only be allowed when xcsetup=SWISS.

Error Code: `SNVS - Status, Not in Valid State, SwiSS not enabled`

ONNS specific validation rules - Setting of *eportClass* from EDGE to TRADITIONAL only possible, if the VCG tributaries on the port are not in use by ONNS

For setting *eportClass* from EDGE to TRADITIONAL the following must be fulfilled:

1. No cross-connections with *xconcls* NN must exist on any VCG tributary of the VCG.
2. *eportControl* must be LOCKOUT

Error Code: `SNVS - Status, Not in Valid State, VCG is still in use`

ONNS specific validation rules - Setting of *eportClass* to EDGE only possible, if no test access session actve

It shall not be allowed to change eportClass of a VCG port to EDGE when a VCG tributary related to this port is used in a test access session either as tributary under test or as test access tributary.

Error code: `SNVS - Status, Not in Valid State, a test access session exists`

Related TL1 Messages

"RTRV-VCG: Retrieve virtual concatenation group" (p. 4-2254)

ED-VCG notification

Output format

The ED-VCG notification uses the general format of a REPT DBCHG (Report Database Change) notification.

The ED-VCG notification has the following specific syntax:

`ED-VCG:`*aid::spec_block;*

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter specifies the virtual concatenation group (VCG) to be operated on.
   Type: AID.
   Range: VCGAID as defined in AID structure with the exception of the value vall

Spec block parameters

1. cnprole – Customer/Network Port Role
   This parameter specifies whether the addressed port is used as a customer WAN port or a network WAN port.
   Type: alphanumeric value set.
   Range: CUSTOMER, for a customer WAN port. NETWORK (default), for a network WAN port.
2. dftpri – Default User Priority
   This parameter specifies the default user priority acc. the IEEE 802.1Q tagging scheme.
   Type: alphanumeric value set.
   Range:
   - HIGH
   - LOW (default).
3. dftvlan – Default VLAN Identifier
   This parameter specifies the value of the VLAN identifier which is applied to frames (tagging) at LAN ingress (i.e. from LAN into the Ethernet-port). This only applies to frames carrying no VLAN identifier, yet. This parameter is also used to provision the customer tag (CID) to be used in transparent tagging mode.
   Type: alphanumeric value set.
   Range:
   - 1, 2, 3, ... 4092, 4093
   - UNAVAILABLE (default).

   To express the state UNAVAILABLE system internally the invalid VLAN ID 4094 is used.

4. enetpn – Ethernet Alarm Severity Assignment Profile Name
   This parameter points to a tributary ASAP profile name of type ENET for the designated AID.
   Ethernet port and VCG port have the same ASAP profile named ENET.
   Type: Alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: 1 … 24 characters length.
   Default: DEFAULT.
5. enettca – Ethernet TCA Profile Name
   This parameter specifies the name of the threshold crossing alert (TCA) profile used for the VCG.
   Type: alphanumeric string.
   Range: 1 ... 24 characters length.
   Default: DEFAULT0.
6. eportClass – Ethernet Port Class
   This identifies the ethernet port class of the AID. *eportClass* is used to specify ethernet ports for use by NN application.
   Type: alphanumeric value set.
   Range: TRADITIONAL (default), EDGE .
7. eportControl – Ethernet Port Control (Ethernet Port Administrative Mode)
   This identifies the administrative mode of ethernet ports of *eportlass*=EDGE. For ethernet ports of other ethernet port class this parameter shall not be relevant. *eportControl* is introduced specifically for use by NN application.
   Type: alphanumeric value set.
   Range: NORMAL (default), MAINT, LOCKOUT .
8. htmr – Hold-Off Time
   The parameter *htmr* shall specify the hold off time for the LCAS protection. If a tributary is configured to take part on transmission for the VCG and it goes to state faulty then this tributary is taken out of transmission by LCAS after the hold off time. This time is configured on group level, i.e. all tributaries have the same value for hold-off time. This parameter only affects NE behaviour if lcasmd=ENABLED.
   Type: numeric value set.
   Range: 0 (default), 100, 200, ..., 9900, 10000 [milliseconds].
9. istd – Interface Standard
   This parameter specifies the interface standard of this VCG. This value is applied for both input and output direction.
   Type: alphanumeric value set.
   Range:
   - SDH
   - SONET.

   Default: As derived from parameter *istddflt* specified at configuration management, section System RTRV-EQPT.

10. lcasmd – LCAS Mode
    This parameter specifies the operation mode of the Link Capacity Adjustment Scheme for this VCG. This value is bi-directional.
    Type: alphanumeric value set.
    Range:
    - DISABLE
    - ENABLE (default).
11. stdis – Spanning Tree Protocol Disable
    This parameter allows to enable or disable the Spanning Tree Protocol for the given port. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: alphanumeric value set.
    Range: DISABLE, STP is disabled, i.e. the port is not used to build the spanning tree. ENABLE (default), STP is enabled, i.e. the port is used to build the spanning tree.
    As VCGs are by default network ports the default value is to enable STP.
12. stpcost – Spanning Tree Path Cost
    This parameter specifies the STP-related cost of the path egressing the given port. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: integer.
    Range: 1 to 200000000.
    Default: 20000.
    The default value depends on the provisioned VCG size. As currently only a fix size of 7 VC4s or 21 STS1s corresponding to approx. 1 Gbit is supported the default value is as shown above.
13. stpp – Spanning Tree Port Priority
    This parameter specifies the priority of the given port for the Spanning Tree Protocol. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: integer.
    Range: 0 to 255.
    The stepping as recommended by the standard (steps of 16 starting at 0) should be implemented by the management system. The NE will accept any value in the range described above. This has the consequence, that also the range restriction ″0 to 240″ is not done by the NE.
    Default: 128.

14. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable: TR-only, (also known as the implicit reset method). TR-RTR, (also known as the explicit reset method).
    Type: alphanumeric value set.
    Range: TR, TRRTR.
    Default: TRRTR in SDH mode; TR in SONET mode.
15. vmode – VCG Monitoring Mode
    The parameter vmode shall specify the monitoring mode for VCG. Alarms for this port will be reported if in mode MON otherwise not. There is no automatic mode.
    Type: alphanumeric value set.
    Range:
    - MON, for monitored
    - NMON (default), for not monitored.
16. vpm – VCG Performance Monitoring
    The parameter *vpm* shall specify whether the performance monitoring is enabled or disabled for this port.
    Type: alphanumeric value set.
    Range:
    - DISABLE (default)
    - ENABLE.
17. vvidls – Valid VLAN Identifier List (static)
    This parameter specifies a list of all static VLAN identifiers allowed for this port. The list shall be ampersand grouped (& and &&). The list shall be packed by the NE and the management systems as good as possible by using '&' and '&&' . The vlan identifier of an incoming frame must be a member of this static VLAN Id list or the dynamic VLAN Id list *vvidlsd*. Frames tagged by a vlan identifier not member of these lists will be discarded. The port VLAN identifier (refer to parameter dftvlan of RTRV-EPORT Output Parameters) is not part of this list. This parameter is also used in transparent tagging mode to specify the list of valid customer tags (CIDs) for network ports (cnprole = NETWORK).
    Type: alphanumeric string and the character '&'.
    Range:
    - Value of each single member (valid VLAN identifier) in the list 1, 2, ..., 4092, 4093
    - In case the list has no members (empty list) -1.

    The length of the list is limited only by the usual system limitations like e.g. TL1 line length. The number of entries in this list is limited to 64 by some NE-internal restrictions. Ranging and grouping by using the operators '&' and '&&' has no impact on the number of entries, it only reduces the length of the list being transported to/from CIT/EMS.
    Default: -1.

Example 1:
vvidls=-1. The list has no members (empty list).
Example 2:
vvidls=3&5&40&&45. This list has the members 3, 5, 40, 41, 42, 43, 44 and 45.
Example 3:
vvidls=1&&4093 This list has the members 1,2, 3, ..., 4092, 4093.

18. wtr – Wait To Restore Time
    The parameter wtr shall specify the wait to restore time for the LCAS protection. If a tributary is configured to take part on transmission for the VCG and it recovers from a faulty state then this tributary is taken in again to transmission by LCAS after the wait-to-restore time. This time is configured on group level, i.e. all tributaries have the same value for the wait-to-restore time. This parameter only affects NE behaviour if lcasmd = ENABLED.
    Type: alphanumeric value set.
    Range: 0, 1, 2, ..., 59, 60 [minutes].
    Default: 5.

Example output

```
   LT-UNITE 00-11-11 11:11:00
A  001 REPT DBCHG
   "TIME=11-10-30,DATE=00-11-11:ED-VCG:1-1-#-#-1-V1::vmode=MON"
;
```

□

ED-VCG-TRANS: Edit virtual concatenation group for fully transparent application

The ED-VCG-TRANS command modifies the properties of a virtual concatenation group for fully transparent applications.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: No.

Input format

Command Syntax: `ED-VCG-TRANS`*:tid:aid:ctag:::spec_block;*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   This parameter specifies the VCG to be operated on.
   Type: AID.
   Range: VCGAID as defined in AID structure. The values *vall* for Simple_VCGAID and *usall* for Simple_UnivSlotAID shall be accepted.
3. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the network element in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters Note: Current implementation also allows '0' as valid CTAG, which is an extension to GR-831.

Spec block parameters

1. camd - Consequent Action Mode
   This parameter specifies the mode of the consequent action to be executed in egress direction (to the synchronous port) on detected signal fail conditions (dPLM, AI_TSF or detected generic AIS) on the ODU layer
   Type: alphanumeric value set.
   Range: GENERICAIS (default), MSAIS, LASEROFF
2. enetpn – Ethernet Alarm Severity Assignment Profile Name
   This parameter points to a tributary ASAP profile name of type ENET for the designated AID.
   Some VCG related alarms have to be referenced via the ASAP profile named ENET.
   Type: Alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: 1 … 24 characters length.
   Default: DEFAULT.
3. fevpm - Far End VCG Performance Monitoring
   The parameter fevpm shall specify whether the far end performance monitoring is enabled or disabled for this port. For the fully transparent application performance monitoring is actually done on the ODUkP layer and on the VCG level. This parameter enables/disable therefore far end PM on the ODUkP layer.
   Type: alphanumeric value set.
   Range: DISABLE (default), ENABLE
4. istd – Interface Standard
   This parameter specifies the interface standard of this VCG. This value is applied for both input and output direction.
   Type: alphanumeric value set.
   Range:
   - SDH
   - SONET.

   Default: As derived from parameter *istddflt* specified at configuration management, section System RTRV-EQPT.
5. nevpm - Near End VCG Performance Monitoring
   This parameter specifies whether the near end performance monitoring is enabled or disabled for this port. For the fully transparent application performance monitoring is actually done on the ODUkP layer and on the VCG level. This parameter enables/disable therefore near end PM on the ODUkP layer.
   Type: alphanumeric value set.
   Range: DISABLE (default), ENABLE
6. pmvcgfeses - Performance Monitoring VCG Far-End SES Threshold
   This parameter describes the VCG (actually ODUkP) Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severly errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface

standard is changed the current default value is not adapted automatically.
Type: numeric value set.
Range: (the range depends on the ODUkP rate but is identical for the corresponding SDH and SONET rates): ODU1P: 1 - 163360
Default: ODU1P: 3064. Currently only SDH Performance Monitoring is supported on the ODUkP layer.

7. pmvcgneses - Performance Monitoring VCG Near-End SES Threshold
   This parameter describes the VCG (actually ODUkP) Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severly errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
   Type: numeric value set.
   Range: (the range depends on the ODUkP rate but is identical for the corresponding SDH and SONET rates): ODU1P: 1 - 163360
   Default: ODU1P: 3064. Currently only SDH Performance Monitoring is supported on the ODUkP layer.
8. tcamd – TCA mode
   This parameter shows the modus of the PM thresholding.
   Two thresholding methods are applicable: TR-only, (also known as the implicit reset method). TR-RTR, (also known as the explicit reset method).
   Type: alphanumeric value set.
   Range: TR, TRRTR.
   Default: TRRTR in SDH mode; TR in SONET mode.
9. transpn - Transparent Alarm Severity Assignment Profile Name
   This parameter points to a ASAP profile name of type TRANSPARENCY for the designated AID.
   Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: 1 ... 24 characters length
   Default: DEFAULT.
10. transtca - Transparent TCA Profile Name
    The parameter transtca shall specify the name of the threshold crossing alert (TCA) profile used for the VCG..
    Type: alphanumeric string.
    Range: 1 ... 24 characters length
    Default: DEFAULT0
11. vmode - VCG Monitoring Mode
    This parameter wtr specifies the monitoring mode for VCG. Alarms for this port will be reported if in mode MON otherwise not. There is no automatic mode.
    Type: alphanumeric value set.
    Range: MON: for monitored; NMON (default): for not monitored.

Output format

If the NE fully complies with the ED-VCG-TRANS request, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time* and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The command shall modify the attributes (listed in the spec_block parameters part of this command) of the addressed port entitiy according to the parameters given with this command. The modification shall be reported by means of an ED-VCG-TRANS notification for port (except for parameter istd; see below).

Switching of interface standard - Ignore other parameters

If additional parameters beside istd are specified with the ED-VCG-TRANS command they will be ignored by the NE. This simple approach has the advantage that all ambiguous situations are avoided and it is not necessary to implement an order or follow a certain sequence when evaluating the parameters.

Switching of interface standard - FM impact

The change of the interface standard of a port from SDH to SONET shall have the following impact related to Fault Management:

- All SDH alarms related to that VCG port shall be cleared
- The corresponding SONET alarms shall be raised.

Switching of interface standard - Impact on port parameters

Switching of interface standard

The switching of *istd* should not result in an deletion and recreation of the VCG port. NE internally there are no differences between SDH and SONET.

Switching of interface standard I

In detail the following attributes are influenced by switching of the *istd* from SDH to SONET

- *inputsig* is set to the default value
- *istd* is set to SONET
- *pmvcgfeses* is set to the default value for a SONET port
- *pmvcgneses* is set to the default value for a SONET port

- *transtca* is set to the default value for a SONET port
- *tcamd* is set to the default value for a SONET port
- *unequiposig* is set to its default value.

In detail the following attributes are influenced by switching of the istd from SONET to SDH

- *inputsig* is set to the default value
- *istd* is set to SDH
- *pmvcgfeses* is set to the default value for a SDH port
- *pmvcgneses* is set to the default value for a SDH port
- *transtca* is set to the default value for a SDH port
- *tcamd* is set to the default value for a SDH port
- *unequiposig* is set to its default value.

All other port parameters remain unchanged.

Switching of interface standard - Side effects on tributaries

The switching of *istd* should not result in a deletion and recreation of the tributaries of a VCG port. NE internally there are no differences between SDH and SONET.

In detail the following side-effects apply to the related tributary attributes when switching the *istd* from SDH to SONET:

- *ptca* shall be set to the default value for a SONET tributary
- *tcamd* is set to the default value for a SONET tributary
- *pmhpneses* is set to the default value for an SONET tributary
- *pmhpfeses* is set to the default value for an SONET tributary
- *sdsfmode* is set to the default value for an SONET tributary
- *hptimais* is set to the default value for an SONET tributary.

In detail the following side-effects apply to the related tributary attributes when switching the istd from SONET to SDH:

- *ptca* shall be set to the default value for a SDH tributary
- *tcamd* is set to the default value for a SDH tributary
- *pmhpneses* is set to the default value for an SDH tributary
- *pmhpfeses* is set to the default value for an SDH tributary
- *sdsfmode* is set to the default value for an SDH tributary
- *hptimais* is set to the default value for an SDH tributary.

Currently (in this release) not applicable parameters to be ignored.

Switching of interface standard - notification behavior for port attributes

When changing the interface standard istd using the ED-VCG-TRANS command all resulting parameter changes shall be reported by ED-VCG-TRANS notifications. This is valid for the parameter istd itself as well as for all other parameters which might change as a consequence of changing the interface standard.

Switching of interface standard - notification behavior for tributary attributes

When changing the interface standard istd using the ED-VCG-TRANS command all resulting tributary parameter changes shall be reported by ED-VCGTRIB notifications.

Switching of interface standard - notification behavior for active TCA events

If the changing of the interface standard istd to SONET includes a change of tcamd from TR-RTR to TR-only (SONET default value), then all active TCA events of the related entities must be cleared.

Switching of interface standard - PM impact

The change of interface standard for the VCG shall have the following impacts w.r.t. existing PM registers:

- All current bins related to the port shall be reset.
- All history bins related to the port shall remain unchanged.
- All current bins related to tributaries being a member of the VCG port shall be reset.
- All history bins related to tributaries being a member of the VCG port shall remain unchanged.

Retrieving the bins after switching the interface standard may result in a strange reporting behavior:

- When switching the interface standard to SONET the periods before the switch contain SDH-related parameters and values even though the port is addressed as a SONET port.
- When switching the interface standard to SDH the periods before the switch contain SONET-related parameters and values even though the port is addressed as a SDH port.

Disabling of PM Monitor

The disabling of a PM monitor shall have the following impacts w.r.t. existing PM registers:

- Stop PM counting
- All current bins related to the PM monitor shall be deleted
- All history bins related to the PM monitor shall be deleted
- All active TCA events related to the deleted PM monitor have to be cleared if the TCA mode TR-RTR was selected.

The term PM monitor has the same semantics as the term PM package as used in SRD_PerformanceMonitoring. The number of PM monitors is determined by means of the number of 'pm enable attributes'.

PM monitors can be disabled explicitly by means of the 'pm enable' attribute or are implicitly disabled as part of a port/tributary deletion.

Changing TCA mode from TR-RTR to TR-only

The change of tcamd from TR-RTR (also known as the explicit reset method) to TR-only (also known as the implicit reset method) has the impact, that all active TCA events of the related entity must be cleared.

Group Notification for VCG Tributaries

For efficiency reasons the notifications for VCG tributaries shall be sent out as a single notification (so-called group notification) using a range over the aid which depends on the used mapping of the associated vcg port, i.e. the Simple_VCGNumAID field in the VCGNumAID is set to

1. 1&&-<N> for sequential range
2. 1&-4 .. &-<N> for non-sequential range

with N is maximal legal VCG tributary number. Example:

The AID field in a group notification for a VCG tributaries related to VCG port 1 for a GE1 pack in slot 1 looks like:

1-1-#-#-1-v1-1&&-21 (for STS-1/VC-3 mapping) 1-1-#-#-1-v1-1&-4&-7&-10&-13&-16&-19 (for STS-3c/VC-4 mapping).

ONNS specific behavior - Impact on port parameter settings while tportClass is TRADITIONAL

When *tportClass* has the value TRADITIONAL for a fully transparent port's VCG, setting of the following parameter shall be accepted, but shall have no impact until *tportClass* is changed away from TRADITIONAL: *tportControl*

ONNS specific behavior - Impact on *tportControl* when changing *tportClass*

When *tportClass* is changed *tportControl* shall be set to NORMAL.

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the ED-VCG-TRANS command, too.

Validation rule: Command only allowed for VCG on Transparent Packs

If the command is not applied to a VCG on a transparent pack, then the command shall be denied.

Error Code: `IENE - Input, Entity Not Exists`

Validation rule: crossconnection - interface standard change

Check that the interface standard parameter (istd) is not changed if there is still a cross-connection applied to any tributary of the whole VCG port.

Error Code: `SNVS - Status, Not in Valid State, cross-connections are still existing`

Validation rule: no loopbacks for interface standard change

Check that the interface standard parameter (istd) is not changed when cross-connection loopback is applied to any tributary of the whole VCG port.

Error Code: `SNVS - Status, Not in Valid State, a loopback is existing`

Validation rule: ASAP profile exists

Check of the existence of the ASAP profile.

Error Code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: TCA profile exists

Check of the existance of the TCA profile.

Error Code: `IDNV - Input, Data Not Valid, TCA profile does not exist`

□

ED-VCG-TRANS notification

Output format

The ED-VCG-TRANS notification shall use the general format of a REPT DBCHG notification.

Syntax

`ED-VCG-TRANS`*:aid::spec_block;*

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter specifies the VCG to be operated on.
   Type: AID.
   Range: VCGAID as defined in AID structure. The values *vall* for Simple_VCGAID and *usall* for Simple_UnivSlotAID shall be accepted.

Spec block parameters

1. camd - Consequent Action Mode
   This parameter specifies the mode of the consequent action to be executed in egress direction (to the synchronous port) on detected signal fail conditions (dPLM, AI_TSF or detected generic AIS) on the ODU layer
   Type: alphanumeric value set.
   Range: GENERICAIS (default), MSAIS, LASEROFF
2. enetpn – Ethernet Alarm Severity Assignment Profile Name
   This parameter points to a tributary ASAP profile name of type ENET for the designated AID.
   Some VCG related alarms have to be referenced via the ASAP profile named ENET.
   Type: Alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: 1 … 24 characters length.
   Default: DEFAULT.
3. fevpm - Far End VCG Performance Monitoring
   The parameter fevpm shall specify whether the far end performance monitoring is enabled or disabled for this port. For the fully transparent application performance monitoring is actually done on the ODUkP layer and on the VCG level. This parameter enables/disable therefore far end PM on the ODUkP layer.
   Type: alphanumeric value set.
   Range: DISABLE (default), ENABLE
4. istd – Interface Standard
   This parameter specifies the interface standard of this VCG. This value is applied for both input and output direction.
   Type: alphanumeric value set.

Range:

- SDH
- SONET.

Default: As derived from parameter *istddflt* specified at configuration management, section System RTRV-EQPT.

5. nevpm - Near End VCG Performance Monitoring
   This parameter specifies whether the near end performance monitoring is enabled or disabled for this port. For the fully transparent application performance monitoring is actually done on the ODUkP layer and on the VCG level. This parameter enables/disable therefore near end PM on the ODUkP layer.
   Type: alphanumeric value set.
   Range: DISABLE (default), ENABLE
6. pmvcgfeses - Performance Monitoring VCG Far-End SES Threshold
   This parameter describes the VCG (actually ODUkP) Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severly errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
   Type: numeric value set.
   Range: (the range depends on the ODUkP rate but is identical for the corresponding SDH and SONET rates): ODU1P: 1 - 163360
   Default: ODU1P: 3064.
7. pmvcgneses - Performance Monitoring VCG Near-End SES Threshold
   This parameter describes the VCG (actually ODUkP) Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severly errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
   Type: numeric value set.
   Range: (the range depends on the ODUkP rate but is identical for the corresponding SDH and SONET rates): ODU1P: 1 - 163360
   Default: ODU1P: 3064.
8. tcamd – TCA mode
   This parameter shows the modus of the PM thresholding.
   Two thresholding methods are applicable: TR-only, (also known as the implicit reset method). TR-RTR, (also known as the explicit reset method).
   Type: alphanumeric value set.
   Range: TR, TRRTR.
   Default: TRRTR in SDH mode; TR in SONET mode.

9. transpn - Transparent Alarm Severity Assignment Profile Name
   This parameter points to a ASAP profile name of type TRANSPARENCY for the designated AID.
   Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: 1 ... 24 characters length
   Default: DEFAULT.
10. transtca - Transparent TCA Profile Name
    The parameter transtca shall specify the name of the threshold crossing alert (TCA) profile used for the VCG..
    Type: alphanumeric string.
    Range: 1 ... 24 characters length
    Default: DEFAULT0
11. vmode - VCG Monitoring Mode
    This parameter wtr specifies the monitoring mode for VCG. Alarms for this port will be reported if in mode MON otherwise not. There is no automatic mode.
    Type: alphanumeric value set.
    Range: MON: for monitored; NMON (default): for not monitored.

Example output

```
   LT-UNITE-123 00-01-01 08:00:50
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-01-01:ED-VCG-TRANS:
   1-1-#-#-1-V1::vmode=MON"
;
```

□

ED-VCGTRIB: Edit virtual concatenation group tributary

The ED-VCGTRIB command modifies the properties of a virtual concatenation group tributary.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: No

Input format

Command Syntax: `ED-VCGTRIB-`*modifier:tid:aid:ctag:::spec_block;*

Input parameters

Command parameters

1. modifier
   This parameter specifies the type of the tributary.
   Type: alphanumeric value set.
   Range: STS, VC, STST, VCT.
   To distinguish the fully transparent application from the GE1 application, a letter "T" is appended.
2. tid - Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
3. aid - Access Identifier
   The access identifier shall specify the VCG tributary whose attributes are to be modified.
   Type: AID
   Range: VCGNumAID as defined in AID structure, i.e. the value all is allowed for Simple_VCGNumAID. For Simple_VCGAID there shall be no *vall* value and for Simple_UnivSlotAID there shall be no *usall* value.
4. ctag - Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. brstintvl - Bursty Interval
   This parameter specifies the measurement period for degraded defect if *sdsfmode* is set to BURST. If *sdsfmode* is not set to BURST then *brstintvl* has no affect to NE behaviour.
   Type: integer..
   Range: 2, 3, ..., 10 [seconds].
   Default: 7 [seconds].
2. brstthr - Bursty Error Threshold
   This parameter specifies the degradation threshold for degraded defect if *sdsfmode* is set to BURST. If *sdsfmode* is not set to BURST then *brstthr* has no affect to NE behaviour.
   Type: integer.
   Range: 5, 10, 15, ... 50 [%].
   Default: 30 [%].
3. degthr - Signal Degrade Threshold
   This parameter specifies the exponent to base 10 for building the degraded threshold level. The degraded threshold level is used for building the degraded defect if sdsfmode is set to POISSON. If *sdsfmode* is not set to POISSON then *degthr* has no affect to NE behaviour. For the definition of *sdsfmode* refer to the Output parameters section.
   Type: integer.
   Range: -5, -6, -7, -8, -9 i.e. range is 10exp-9 to 10exp-5.
   Default: -6
4. dexcthr - Excessive Degrade Threshold
   This parameter specifies the exponent to base 10 for building the excessive threshold level. The excessive threshold level is used for building the excessive bit error defect if *sdsfmode* is set to POISSON. If *sdsfmode* is not set to POISSON then *dexcthr* has no affect to NE behaviour. For the definition of *sdsfmode* refer to the Output parameters section.
   Type: integer.
   Range: -3, -4, -5 i.e. range is 10exp-5 to 10exp-3.
   Default: -3.
5. exphptrc - Expected HP trace identifier
   This parameter specifies the Expected Higher Order Path Trace Identifier (J1). The first byte value shall be in the range from 80 to FF (MSB always set to 1). The other byte values shall be in the range from 00 to 7F (MSB always set to 0). This parameter is only useful if ptrcrfmt is set to 16.
   Type: hexadecimal number without a preceding 'H'.
   Range: length, 32 hexadecimal digits; value, specific string acc. ITU/ETSI mode 1.
   Default: 89000000000000000000000000000000.

6. feppm - Far End Path PM Enable
   This parameter specifies whether the performance monitoring for the far end is enabled or disabled for this tributary.
   Type: alphanumeric value set.
   Range: DISABLE (default), ENABLE.
7. hptimais - HP Trace Identifier Mismatch AIS Insertion
   This parameter specifies if a detected TIM will cause AIS insertion. This parameter is relevant only if the related trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set.
   Range: DISABLE , ENABLE.
   Default: The default value depends on interface standard specified by istd for the VCG owning this tributary. For definition of *istd* refer to "RTRV-VCG: Retrieve virtual concatenation group" (p. 4-2254) Output parameters. DISABLE, if *istd*=SONET; ENABLE, if *istd*=SDH.
8. hptimmon - HP Trace Identifier Mismatch Monitor
   This parameter specifies if the mode of the TIM detection. This parameter is relevant only if the related trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set.
   Range: DISABLE (default), ENABLE.
9. inmbs - Input Membership
   This parameter specifies if the tributary shall take part to the transmission of its owning VCG in input direction. The addressing scheme of the tributaries by using VCGNumAIDs is ensuring that only legal AIDs are used. So no consideration about the 'illegal' tributaries (e.g. 1-1-#-#-1-1-3 for VC-4) is necessary.
   Type: alphanumeric value set.
   Range: DISABLE , ENABLE.
   Default: DISABLE. The VCG has as default the size 0, i.e. it has no member. So the default for the parameter above for VCGTRIB needs to be DISABLE.
10. neppm - Near End Path PM Enable
    This parameter specifies whether the performance monitoring for the near end is enabled or disabled for this tributary.
    Type: alphanumeric value set.
    Range:
    - DISABLE (default)
    - ENABLE.
11. outmbs - Output Membership
    This parameter specifies if the tributary shall take part to the transmission of its owning VCG in input direction.
    Type: alphanumeric value set.

Range:

- DISABLE
- ENABLE.

Default: DISABLE. The VCG has as default the size 0, i.e. it has no member. So the default for the parameter above for VCGTRIB needs to be DISABLE.

12. pmhpfeses - PM HP Far End SES Threshold
    This parameter specifies the Higher Order Path Far End Severely Errored Seconds Performance Monitoring Threshold for errored frames. If errored frames are crossing this threshold this will result in an SES count for the far end. The behaviour depends on interface standard specified by *istd* for the VCG owning this tributary. For definition of *istd* refer to the output parameters section of "RTRV-VCG: Retrieve virtual concatenation group" (p. 4-2254). If *istd* is not set to SDH then *pmhpfeses* has no affect to NE behaviour.
    Type: integer.
    Range: 1, 2, 3, ..., 63998, 63999, 64000, includes SDH/SONET range.
    Default: 2400.
13. pmhpneses - PM HP Near End SES Threshold
    This parameter specifies the Higher Order Path Near End Severely Errored Seconds Performance Monitoring Threshold for errored frames. If errored frames are crossing this threshold this will result in an SES count for the near end. The behaviour depends on interface standard specified by *istd* for the VCG owning this tributary. For definition of *istd* refer to the output parameters section of "RTRV-VCG: Retrieve virtual concatenation group" (p. 4-2254). If *istd* is not set to SDH then *pmhpneses* has no affect to NE behaviour.
    Type: integer.
    Range: 1, 2, 3, ..., 63998, 63999, 64000, includes SDH/SONET range.
    Default: 2400.
14. ptca - Path TCA Profile Pointer
    This parameter specifies the name of the threshold crossing alert (TCA) profile used for this tributary.
    Type: alphanumeric string.
    Range: 1 ... 24 characters.
    Default: DEFAULT0.
15. ptpn - Path Terminating ASA Profile Name
    This parameter points to a tributary ASAP profile name pfname for the designated AID.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: 1 ... 24 characters.
    Default: DEFAULT.
16. ptrcrfmt - Path Trace Read Format
    This parameter specifies the format of the path trace (J1 byte) to be received (sink).
    Type: numeric string.

Range:

- 2, for non-specific repeating byte
- 16, for 16 byte specific string
- 64, for 64 byte string.

Default: 2.

17. ptrcwfmt - Path Trace Write Format
    This parameter specifies the format of the path trace (J1 byte) to be sent (source).
    Type: numeric string.
    Range:
    - 2, for non-specific repeating byte
    - 16, for 16 byte specific string
    - 64, for 64 byte string.

    Default: 2.
18. sdsfmode - Signal Degrade/Signal Fail Mode
    This parameter specifies the determination mode of degraded defect for transmission.
    Type: alphanumeric value set.
    Range: BURST or POISSON.
    Default: The default value depends on interface standard specified by istd for the VCG owning this tributary. For definition of istd refer to RTRV-VCG Output Parameters. POISSON, if *istd*=SONET BURST, if *istd*=SDH.
19. tcamd - TCA mode
    This parameter is only available for SDH mode. This means the modifier must be VC. The parameter shows the modus of the PM thresholding. Two thresholding methods are applicable for SDH: TR-only (also known as the implicit reset method), TR-RTR (also known as the explicit reset method). For SONET the parameter tcamd does not exist. SONET ports only support ″TR-only″ mode. Thus the mode must be internally set to ″TR-only″.
    Type: alphanumeric value set.
    Range: TR, TRRTR.
    Default: SDH mode: TRRTR. SONET mode: TR (internal). For SONET the parameter tcamd does not exist. SONET ports only support ″TR-only″ mode. Thus the mode must be internally set to ″TR-only″.
20. tmonmd - Tributary Monitoring Mode
    This parameter specifies the monitoring mode for the tributary.
    Type: alphanumeric value set.
    Range: MON or NMON (default).

21. trc - Outgoing Path Trace
    This parameter specifies the path trace (J1) to be sent (source). For the 16 byte path trace format the following syntactical rule shall be applied: The first byte value shall be in the range from 80 to FF (MSB always set to 1). The other byte values shall be in the range from 00 to 7F (MSB always set to 0). This parameter is irrelevant if the format is non-specific repeating byte (ptrcwfmt=2).
    Type: hexadecimal number without a preceding H'.
    Range: the range depends on the parameter ptrcwfmt specified in RTRV-VCGTRIB Output parameters length
    - 32, hexadecimal digits, if *ptrcwfmt*=16
    - 128, hexadecimal digits, if *ptrcwfmt*=64
    - value: specific string acc. ITU/ETSI mode 1, if ptrcwfmt=16; 64 byte string, if *ptrcwfmt*=64.

    Default: 00. This implies also that ptrcwfmt is set to 2.
22. tslmmon - Trail Signal Label Mismatch Monitor
    This parameter specifies the mode of the TSL mismatch detection.
    Type: alphanumeric value set.
    Range:
    - DISABLE
    - ENABLE (default).

Output format

If the NE fully complies with the ED-VCGTRIB request, the following normal completion response shall be returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time* and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behaviour description

The ED-VCGTRIB generates a REPT DBCHG message.

The command modifies the attributes (listed in the spec_block parameters part of this command) of the addressed port entity according to the parameters given with this command.

The parameters *brstintvl*, *brstthr*, *degthr* and *dexcthr* shall be modifiable also if they are not meaningful at the moment. The modification is reported by means of an ED-VCGTRIB notification.

Dependencies

brstintvl and *brstthr* are only meaningful if sdfsmode is set to BURST. *degthr* and *dexcthr* are only meaningful if sdfsmode is set to POISSON.

Update affected entities

A change of the value of one of the parameters *inmbs* and *outmbs* shall trigger the report of *inmbst* and *outmbst* of the corresponding VCGTRIB via an autonomous notification.

Update affected entities - *hptimais* for VCG tributaries of a transparent VCG

If the value of hptimais is changed for one VCG tributary of a transparent VCG (modifiers STST and VCT), then the parameter hptimais shall be updated to the same value for all VCG tributaries of the same transparent VCG. The update of *hptimais* shall be notified via ED-VCGTRIB notifications for each VCG tributary.

Supply outgoing J1 trace value and format together

When changing the format of the outgoing J1 trace *ptrcwfmt*, the parameter trc specifying the outgoing J1 trace shall always be supplied within the same TL1-command to always have a consistent set of trace format and value. When the format of the outgoing J1 trace *ptrcwfmt* is set to 2 (non-specific repeating byte) then the outgoing J1 trace (mandatory parameter trc) specified in the command shall be ignored.

Change of J1 expected format - FM impact

When the expected J1 format (*ptrcrfmt*) is changed to 16 (16 byte specific string) while the TI Mismatch detection is enabled, then the TI Mismatch alarm shall be updated according to the provisioned ecpected J1 (exphptrc) and the currently received J1 (ptrc). When the expected J1 format is changed away from 16, while the TI Mismatch alarm is active, then the TI Mismatch alarm shall be cleared.

Not applicable parameters for the modifiers STST and VCT

For the command modifiers STST and VCT the following parameters shall not be alterable:

- brstintvl
- brstthr
- degthr
- dexcthr
- feppm
- inmbs
- inmbst
- neppm
- outmbs

- outmbst
- pmhpfeses
- pmhpneses
- ptca
- sdsfmode
- tcamd

See also the invalid declaration of these parameters for RTRV-VCGTRIB for these modifiers.

Disabling of PM Monitor

The disabling of a PM monitor shall have the following impacts w.r.t. existing PM registers:

- Stop PM counting
- All current bins related to the PM monitor shall be deleted
- All history bins related to the PM monitor shall be deleted

The term PM monitor has the same semantics as the term PM package as used in SRD_PerformanceMonitoring. The number of PM monitors is determined by means of the number of 'pm enable attributes'.

PM monitors can be disabled explicitly by means of the 'pm enable' attribute or are implicitly disabled as part of a port/tributary deletion.

Additional to the above listed impacts the disabling of a PM monitor shall have the following impacts: the system has to clear all active TCA events of the deleted PM monitor if TCA mode TR-RTR was selected .

Changing TCA mode from TR-RTR to TR-only

The change of tcamd from TR-RTR (also known as the explicit reset method) to TR-only (also known as the implicit reset method) has the impact, that all active TCA events of the related entity must be cleared.

Threshold settings for all VCG Tributaries related to one VCG

Setting one of the parameters *brstintvl*, *brstthr*, *degthr*, *dexcthr*, *sdsfmode* for one VCG Tributary causes that this parameter is set to the same value for all other VCG Tributaries related to the same VCG. The respective notifications shall be sent.

Refer to the parameter definitions in "RTRV-VCGTRIB: Retrieve virtual concatenation group tributary" (p. 4-2274) for the restrictions using the modifiers STST and VCT.

Example input/output

```
ED-VCGTRIB-VC:LT-UNITE:1-1-#-#-1-v1-1:123456:::tmonmd=NMON;
   LT-UNITE 00-11-11 11:11:00
M  123456 COMPLD
```

;

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the ED-VCGTRIB command.

Validation rule: Check *modifier* against circuit pack type

If the command is applied

- with *modifier* = VC or STS to a VCG Tributary on a Transparent pack or
- with *modifier* = VCT or STST to a VCG Tributary on a Gigabit Ethernet pack, then the command shall be denied.

Error Code: `IENE - Input, Entity Not Exists`

Validation rule: ASAP profile exists

Check of the existence of the ASAP profile.

Error code: `IDNV - Input, Data Not Valid, ASAP profile does not exist`

Validation rule: TCA profile exists

See definition of validation rule in "ED-STM16: Edit STM16 port" (p. 4-704).

Validation rule: supply of transmitted path trace

Check that a transmit path trace (trc) is supplied, too, if the path trace mode is changed.

Error code: `IDNC - Input, Data, Not Consistent, a new trc must also be supplied for a path trace mode change.`

Validation rule: transmitted path trace length

Check that a length of the transmit path trace (*trc*) fits to the length given by path trace mode, i.e. write format (*ptrcwfmt*).

Error code: `IDNC - Input, Data, Not Consistent, trc length must match the given path trace mode.`

Validation rule: Correct state of tributary for being added (Sink)

Check that the tributary to be added for transmission in sink direction is in the inactive state (NA, not applicable).

Error code: `ICNV - Input, Command Not Valid, outmbst not NA.`

For the detailed description of the LCAS protocol refer to SRD_Data_VirtualConcatenation. Only applicable for modifiers different from STST and VCT.

Validation rule: Correct state of tributary for being added (Source)

Check that the tributary to be added for transmission in source direction is in the inactive state (NA, not applicable).

Error code: `ICNV - Input, Command Not Valid, inmbst not NA`

For the detailed description of the LCAS protocol refer to SRD_Data_VirtualConcatenation. Only applicable for modifiers different from STST and VCT.

Validation rule: LCAS failure of protocol present in sink direction

Check if a tributary is going to be added for transmission under active LCAS that no failure of the LCAS protocol is present in receive direction.

Error code: `ICNV - Input, Command Not Valid, Protocol Failure in Receive Direction.`

For the detailed description of the LCAS protocol refer to SRD_Data_VirtualConcatenation. Only applicable for modifiers different from STST and VCT.

Validation rule: LCAS failure of protocol present in source direction

Check if a tributary is going to be added for transmission under active LCAS that no failure of the LCAS protocol is present in transmit direction.

Error code: `ICNV - Input, Command Not Valid, Protocol Failure in Transmit Direction.`

For the detailed description of the LCAS protocol refer to SRD_Data_VirtualConcatenation.

Only applicable for modifiers different from STST and VCT.

Check CCB against istd of related VCG

See definition of Error responses in "RTRV-VCGTRIB: Retrieve virtual concatenation group tributary" (p. 4-2274).

Related TL1 messages

- "RTRV-VCGTRIB: Retrieve virtual concatenation group tributary" (p. 4-2274)
- "OPR-VCGTRIB: Operate virtual concatenation group tributary" (p. 4-1497).

□

ED-VCGTRIB notification

Output format

The ED-VCGTRIB notification uses the general format of a REPT DBCHG (Report Database Change) notification.

The ED-VCGTRIB notification has the following specific syntax:

`ED-VCGTRIB:`*aid,aidtype::spec_block;*

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter specifies the VCG tributary whose attributes are reported.
   Type: AID.
   Range: VCGNumAID as defined in AID structure with exception of value all.
2. aidtype - Access Identifier Type
   This parameter specifies the type of the tributary.
   Type: alphanumeric value set.
   Range: STS or VC.

Spec block parameters

1. brstintvl - Bursty Interval
   This parameter specifies the measurement period for degraded defect if *sdsfmode* is set to BURST. If *sdsfmode* is not set to BURST then *brstintvl* has no affect to NE behaviour.
   Type: integer..
   Range: 2, 3, ..., 10 [seconds].
   Default: 7 [seconds].
2. brstthr - Bursty Error Threshold
   This parameter specifies the degradation threshold for degraded defect if *sdsfmode* is set to BURST. If *sdsfmode* is not set to BURST then *brstthr* has no affect to NE behaviour.
   Type: integer.
   Range: 5, 10, 15, ... 50 [%].
   Default: 30 [%].
3. crslpbkstat - Cross-connect Loopback Status
   This parameter reports the configuration of the cross-connection loopback of this tributary. For changing the loopback operation refer to “OPR-LPBK (here cross-connection loopback)” (p. 4-1458).
   Type: alphanumeric value set.
   Range: YES, for enabled loopback; NO, for disabled loopback.

4. degthr - Signal Degrade Threshold
   This parameter specifies the exponent to base 10 for building the degraded threshold level. The degraded threshold level is used for building the degraded defect if sdsfmode is set to POISSON. If *sdsfmode* is not set to POISSON then *degthr* has no affect to NE behaviour. For the definition of *sdsfmode* refer to the Output parameters section.
   Type: integer.
   Range: -5, -6, -7, -8, -9 i.e. range is 10exp-9 to 10exp-5.
   Default: -6
5. dexcthr - Excessive Degrade Threshold
   This parameter specifies the exponent to base 10 for building the excessive threshold level. The excessive threshold level is used for building the excessive bit error defect if *sdsfmode* is set to POISSON. If *sdsfmode* is not set to POISSON then *dexcthr* has no affect to NE behaviour. For the definition of *sdsfmode* refer to the Output parameters section.
   Type: integer.
   Range: -3, -4, -5 i.e. range is 10exp-5 to 10exp-3.
   Default: -3.
6. exphptrc - Expected HP trace identifier
   This parameter specifies the Expected Higher Order Path Trace Identifier (J1). The first byte value shall be in the range from 80 to FF (MSB always set to 1). The other byte values shall be in the range from 00 to 7F (MSB always set to 0). This parameter is only useful if ptrcrfmt is set to 16.
   Type: hexadecimal number without a preceding 'H'.
   Range: length, 32 hexadecimal digits; value, specific string acc. ITU/ETSI mode 1.
   Default: 89000000000000000000000000000000.
7. feppm - Far End Path PM Enable
   This parameter specifies whether the performance monitoring for the far end is enabled or disabled for this tributary.
   Type: alphanumeric value set.
   Range: DISABLE (default), ENABLE.
8. hptimais - HP Trace Identifier Mismatch AIS Insertion
   This parameter specifies if a detected TIM will cause AIS insertion. This parameter is relevant only if the related trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set.
   Range: DISABLE , ENABLE.
   Default: The default value depends on interface standard specified by istd for the VCG owning this tributary. For definition of *istd* refer to "RTRV-VCG: Retrieve virtual concatenation group" (p. 4-2254) Output parameters. DISABLE, if *istd*=SONET; ENABLE, if *istd*=SDH.

9. hptimmon - HP Trace Identifier Mismatch Monitor
   This parameter specifies if the mode of the TIM detection. This parameter is relevant only if the related trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set.
   Range: DISABLE (default), ENABLE.
10. inmbs - Input Membership
    This parameter specifies if the tributary shall take part to the transmission of its owning VCG in input direction. The addressing scheme of the tributaries by using VCGNumAIDs is ensuring that only legal AIDs are used. So no consideration about the 'illegal' tributaries (e.g. 1-1-#-#-1-1-3 for VC-4) is necessary.
    Type: alphanumeric value set.
    Range: DISABLE , ENABLE.
    Default: DISABLE. The VCG has as default the size 0, i.e. it has no member. So the default for the parameter above for VCGTRIB needs to be DISABLE.
11. inmbst - Input Member Status
    This parameter reports the status of the tributary related to its VCG membership in input direction.
    Type: alphanumeric value set.
    Range:
    - NA, for not applicable, i.e. the trib. is no member of the VCG
    - ADD, the tributary is in the LCAS state ″Wait-for-Add″, ″Add″ or ″Wait-for-ACK″
    - ACTIVE, the tributary is member of the VCG and working
    - DNU, the tributary is member of the VCG but taken off by LCAS (incoming failed condition for the sink tributary)
    - UNAVAILABLE, for not available, i.e. the trib. is member of the VCG but the current data is not retrievable for any reason.

      The state DNU can only be reported if lcasmd is set to ENABLE for the VCG owning this tributary. For parameter *lcasmd* refer to the Output parameters section of "RTRV-VCG: Retrieve virtual concatenation group" (p. 4-2254).
12. neppm - Near End Path PM Enable
    This parameter specifies whether the performance monitoring for the near end is enabled or disabled for this tributary.
    Type: alphanumeric value set.
    Range:
    - DISABLE (default)
    - ENABLE.
13. outmbs - Output Membership
    This parameter specifies if the tributary shall take part to the transmission of its owning VCG in input direction.
    Type: alphanumeric value set.

Range:

- DISABLE
- ENABLE.

Default: for modifiers STST or VCT: ENABLE; or all other modifiers: DISABLE

14. outmbst - Output Member Status
    This parameter reports the status of the tributary related to its VCG membership in output direction.
    Type: alphanumeric value set.
    Range:
    - NA, for not applicable, i.e. the trib. is no member of the VCG
    - ADD, the tributary is in the LCAS state ″Wait-for-Add″, ″Add″ or ″Wait-for-ACK″
    - ACTIVE, the tributary is member of the VCG and working
    - FAILE, the tributary is member of the VCG but not working due to a failure condition. Includes period during ″Hold-Off″.
    - WTR, failure condition has cleared, tributary is in wait to restore condition.
    - UNAVAILABLE, for not available, i.e. the trib. is member of the VCG but the current data is not retrievable for any reason.

      The state WTR can only be reported if lcasmd is set to ENABLE for the VCG owning this tributary. For parameter lcasmd refer to RTRV-VCG Output Parameters.
15. pmhpfeses - PM HP Far End SES Threshold
    This parameter specifies the Higher Order Path Far End Severely Errored Seconds Performance Monitoring Threshold for errored frames. If errored frames are crossing this threshold this will result in an SES count for the far end.
    Type: integer.
    Range: 1, 2, 3, ..., 63998, 63999, 64000, includes SDH/SONET range.
    Default: 2400.
16. pmhpneses - PM HP Near End SES Threshold
    This parameter specifies the Higher Order Path Near End Severely Errored Seconds Performance Monitoring Threshold for errored frames. If errored frames are crossing this threshold this will result in an SES count for the near end.
    Type: integer.
    Range: 1, 2, 3, ..., 63998, 63999, 64000, includes SDH/SONET range.
    Default: 2400.
17. ptca - Path TCA Profile Pointer
    This parameter specifies the name of the threshold crossing alert (TCA) profile used for this tributary.
    Type: alphanumeric string.
    Range: 1 ... 24 characters.
    Default: DEFAULT0.

18. ptpn - Path Terminating ASA Profile Name
    This parameter points to a tributary ASAP profile name pfname for the designated AID.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: 1 ... 24 characters.
    Default: DEFAULT.
19. ptrcrfmt - Path Trace Read Format
    This parameter specifies the format of the path trace (J1 byte) to be received (sink).
    Type: numeric string.
    Range:
    - 2, for non-specific repeating byte
    - 16, for 16 byte specific string
    - 64, for 64 byte string.

    Default: 2.
20. ptrcwfmt - Path Trace Write Format
    This parameter specifies the format of the path trace (J1 byte) to be sent (source).
    Type: numeric string.
    Range:
    - 2, for non-specific repeating byte
    - 16, for 16 byte specific string
    - 64, for 64 byte string.

    Default: 2.
21. sdsfmode - Signal Degrade/Signal Fail Mode
    This parameter specifies the determination mode of degraded defect for transmission.
    Type: alphanumeric value set.
    Range: BURST or POISSON.
    Default: The default value depends on interface standard specified by istd for the VCG owning this tributary. For definition of istd refer to RTRV-VCG Output Parameters. POISSON, if *istd*=SONET BURST, if *istd*=SDH.
22. tcamd - TCA mode
    This parameter is only available for SDH mode. This means the modifier must be VC. The parameter shows the modus of the PM thresholding. Two thresholding methods are applicable for SDH: TR-only (also known as the implicit reset method), TR-RTR (also known as the explicit reset method). For SONET the parameter tcamd does not exist. SONET ports only support ″TR-only″ mode. Thus the mode must be internally set to ″TR-only″.
    Type: alphanumeric value set.
    Range: TR, TRRTR.
    Default: SDH mode: TRRTR. SONET mode: TR (internal). For SONET the parameter tcamd does not exist. SONET ports only support ″TR-only″ mode. Thus the mode must be internally set to ″TR-only″.

23. tmonmd - Tributary Monitoring Mode
    This parameter specifies the monitoring mode for the tributary.
    Type: alphanumeric value set.
    Range: MON or NMON (default).
24. trc - Outgoing Path Trace
    This parameter specifies the path trace (J1) to be sent (source). For the 16 byte path trace format the following syntactical rule shall be applied: The first byte value shall be in the range from 80 to FF (MSB always set to 1). The other byte values shall be in the range from 00 to 7F (MSB always set to 0). This parameter is irrelevant if the format is non-specific repeating byte (ptrcwfmt=2).
    Type: hexadecimal number without a preceding H'.
    Range: the range depends on the parameter ptrcwfmt specified in RTRV-VCGTRIB Output parameters length
    - 32, hexadecimal digits, if *ptrcwfmt*=16
    - 128, hexadecimal digits, if *ptrcwfmt*=64
    - value: specific string acc. ITU/ETSI mode 1, if ptrcwfmt=16; 64 byte string, if *ptrcwfmt*=64.

    Default: 00. This implies also that ptrcwfmt is set to 2.
25. tslmmon - Trail Signal Label Mismatch Monitor
    This parameter specifies the mode of the TSL mismatch detection.
    Type: alphanumeric value set.
    Range:
    - DISABLE
    - ENABLE (default).

Example output

```
   LT-UNITE 00-11-11 11:11:00
A  001 REPT DBCHG
   "TIME=11-10-30,DATE=00-11-11:ED-VCGTRIB:1-1-#-#-1-V1-1,STS::outmbs=ENABLE"
;
```

□

ED-VRTSW: Edit Virtual Switch

The ED-VRTSW command modifies the properties of a virtual switch.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: No

Input format

Command Syntax: `Ed-VRTSW`:*tid*:*aid*:*ctag*::*vrtswid*:*spec_block*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and the description of this parameter.
2. aid – Access Identifier
   The access identifier specifies the slot containing a GE1 pack.
   Type: AID.
   Range: UnivSlotAID as defined in AID structure.
   The values
   - all and
   - usall for Simple_UnivSlotAID

   shall be accepted.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and the description of this parameter.
4. vrtswid - Virtual Switch Identifier
   This parameter identifiers the instance of the virtual switch.
   - A Virtual Switch ID is unique within a single circuit pack. When creating a new Virtual Switch, the system automatically assigns a unique ID to it.
   - There will be one virtual switch per physical switch, implicitly all LAN ports and all WAN ports on the physical switch are part of the single virtual switch. The ID of this virtual switch is fixed to 1. A future release may support multiple virtual switches per physical switch.

   Type: integer.
   Range: 1 - Currently this is the only allowed value.
   Default: 1.

Spec block parameters

1. ethertype – VLAN tag protocol ID
   This parameter specifies the VLAN tag protocol ID necessary for interworking purposes. This parameter is used to control whether the virtual switch operates in IEEE802.1Q tagging mode (i.e. set to 0x8100) or in transparent tagging mode (i.e. set to value different to 0x8100).
   Type: hexadecimal value.
   Range: 0x0600 .. 0xFFFF.
   The following values have a specific meaning:
   - 0x8100: virtual switch operates in IEEE802.1Q tagging mode
   - any other value: virtual switch operates in transparent tagging mode.

   Default: 0x8100.
2. gvrpmode – GVRP mode
   The parameter *gvrpmode* allows to control the dynamic VLAN registration mode.
   Type: alphanumeric value set.
   Range: ENABLED, GVRP is enabled. DISABLED (default), GVRP is disabled.
3. stbrpriority – Spanning tree bridge priority
   This parameter specifies the priority of the bridge to be used by the Spanning Tree Protocol.
   Type: integer.
   Range: 0 to 65535.
   The stepping as recommended by the standard (steps of 4096 starting at 0) should be implemented by the management system. The NE will accept any value in the range described above. This has the consequence, that also the range restriction ″0 to 61440″ is not done by the NE.
   Default: 32768.
4. stfdtm – Spanning Tree forward delay timer
   The parameter *stfdtm* specifies the rSTP-related bridge forward delay timer. This parameter is relevant for both rSTP and STP.
   Type: integer.
   Range: 1 .. 255.
   Default: 15.

5. sthellotm – Spanning Tree hello timer
   The parameter *sthellotm* specifies the rSTP-related bridge hello timer. This parameter is relevant for both rSTP and STP.
   Type: integer.
   Range: 1 .. 225.
   Default: 2.
6. stmaxage – Spanning Tree maximum age timer
   The parameter *stmaxage* specifies the rSTP-related maximum PDU transmission delay timer. This parameter is relevant for both rSTP and STP.
   Type: integer.
   Range: 1 .. 255.
   Default: 20.

Output format

If the NE fully complies with the ED-VRTSW request, the following normal completion response shall be returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are described in the Output parameter section of.

Detailed behavior description

The ED-VRTSW command generates a REPT DBCHG message.

The command modifies the attributes (listed in the spec_block parameters part of this command) of the addressed virtual switch entity according to the parameters given with this command.

The modification is reported by means of an ED-VRTSW notification.

Effect of *ethertype* on virtual switch operation mode

Setting the parameter *ethertype* to a value different from 0x8100 implicitly changes the mode of operation of the virtual switch to transparent tagging.

Reset to default values when changing *ethertype*

When changing ethertype to a value different from 0x8100 the parameter vvidls of all EPORTs and VCGs with cnprole=CUSTOMER shall be set to its default value.

Example input/output

```
ED-VRTSW:LT-UNITE:1-1-#-#-1:123457::1:ethertype=0x8100,
gvrpmode=DISABLED,stbrpriority=28672,stfdtm=20,
sthellotm=3,stmaxage=10;
   LT-UNITE 00-11-11 11:11:00
```

```
M  123457 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the ED-EPORT command.

Related TL1 messages

- "RTRV-VRTSW: Retrieve Virtual Switch" (p. 4-2287)

□

ED-VRTSW notification

Output format

The ED-VRTSW notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Command Syntax: `ED-VRTSW`*:aid:vrtswid:spec_block;*

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter specifies the slot containing a GE1 pack to be operated on.
   Type: AID.
   Range: UnivSlotAID as defined in AID structure with the exception of the value all and usall.
2. vrtswid - Virtual Switch Identifier
   This parameter identifiers the instance of the virtual switch.
   - A Virtual Switch ID is unique within a single circuit pack. When creating a new Virtual Switch, the system automatically assigns a unique ID to it.
   - There will be one virtual switch per physical switch, implicitly all LAN ports and all WAN ports on the physical switch are part of the single virtual switch. The ID of this virtual switch is fixed to 1. A future release may support multiple virtual switches per physical switch.

   Type: integer.
   Range: 1 - Currently this is the only allowed value.
   Default: 1.

Spec block parameters

1. ethertype – VLAN tag protocol ID
   This parameter specifies the VLAN tag protocol ID necessary for interworking purposes. This parameter is used to control whether the virtual switch operates in IEEE802.1Q tagging mode (i.e. set to 0x8100) or in transparent tagging mode (i.e. set to value different to 0x8100).
   Type: hexadecimal value.
   Range: 0x0600 .. 0xFFFF.

The following values have a specific meaning:

- 0x8100: virtual switch operates in IEEE802.1Q tagging mode
- any other value: virtual switch operates in transparent tagging mode.

Default: 0x8100.

2. gvrpmode – GVRP mode
   The parameter *gvrpmode* allows to control the dynamic VLAN registration mode.
   Type: alphanumeric value set.
   Range: ENABLED, GVRP is enabled. DISABLED (default), GVRP is disabled.
3. rstpmd - Rapid Spanning Tree Protocol Mode
   This parameter allows to enable or disable the Rapid Spanning Tree Protocol for the given virtual switch.
   Type: alphanumeric value set.
   Range: DISABLE (rSTP is disabled, i.e. the virtual switch only supports normal STP (IEEE802.1D)); ENABLE (rSTP is enabled, i.e. the virtual switch also supports rSTP (IEEE802.1w)).
   Default: DISABLE
4. stbrpriority – Spanning tree bridge priority
   This parameter specifies the priority of the bridge to be used by the Spanning Tree Protocol.
   Type: integer.
   Range: 0 to 65535.
   The stepping as recommended by the standard (steps of 4096 starting at 0) should be implemented by the management system. The NE will accept any value in the range described above. This has the consequence, that also the range restriction ″0 to 61440″ is not done by the NE.
   Default: 32768.
5. stfdtm – Spanning Tree forward delay timer
   The parameter *stfdtm* specifies the rSTP-related bridge forward delay timer. This parameter is relevant for both rSTP and STP.
   Type: integer.
   Range: 1 .. 255.
   Default: 15.

6. sthellotm – Spanning Tree hello timer
   The parameter *sthellotm* specifies the rSTP-related bridge hello timer. This parameter is relevant for both rSTP and STP.
   Type: integer.
   Range: 1 .. 225.
   Default: 2.
7. stmaxage – Spanning Tree maximum age timer
   The parameter *stmaxage* specifies the rSTP-related maximum PDU transmission delay timer. This parameter is relevant for both rSTP and STP.
   Type: integer.
   Range: 1 .. 255.
   Default: 20.

Example output

```
   LT-UNITE 00-11-11 11:11:00
A  001 REPT DBCHG
   "TIME=11-10-30,DATE=00-11-11:ED-VRTSW:1-1-#-#-1:1:gvrpmode=DISABLED"
;
```

□

ENT-ASAP-PROF: Enter alarm severity assignment profile

The ENT-ASAP-PROF command is used to create a new ASAP and to define the name of the ASAP.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M3

Priority: 1

Abortable: No

Input format

Command Syntax: `ENT-ASAP-PROF`:*tid*::*ctag*::*pftype*,*pfname*;

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
3. pftype – Profile Type
   This parameter indicates the type of the ASAP (ASAP type).
   Type: alphanumeric value set. A '-' is also allowed for the values
   Range:
   - DCN: Data Communications Network
   - DS3: DS3 asynchronous ports
   - ENET: Ethernet
   - ENV: Environmental (Miscellaneous Discrete)
   - EQUIP-PROT: Equipment with Protection State Dependence
   - EQUIP-UNPROT: Equipment unprotected
   - MSSPRING-BLSR: MS-SPRing and Bilateral Switched Ring protection switch
   - MSP-APS: Automatic protection switch
   - PATH: Path MSA/NIM related
   - PATHTERM: Path Termination
   - PORT: SDH/SONET ports
   - SNCP-UPSR: Sub-Network Connection Protection and Unidirectional Path Switched Ring

- TIMING: System Timing
- TRANSPARENCY: Fully Transparent Service.

Default Value: There is no default value. The *pftype* does not change.

4. pfname – ASAP Profile Name
   This parameter indicates the name of the ASAP. The ASAP name distinguishes ASAPs of the same ASAP type specified by pftype. That means the same name can be used for several ASAP types.
   Type: alphanumeric character string. A hyphen (-) is additionally allowed in the name.
   Range: length 1-24 characters.
   For predefined ASAPs is the value of *pfname* ″DEFAULT″ , but it is no default name in general.

Output format

The following example shows the successful completion of the ENT-ASAP-PROF command by the NE:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the output parameter section of “RTRV-HDR: Retrieve header” (p. 4-1736).

Detailed behavior description

This command creates a new ASAP of ASAP type *pftype* and profile name *pfname*. All ASAP parameters defined for the specific *pftype* will have default values; i.e. the values are derived from the actual values of the default ASAP (with name DEFAULT).

The maximum total number of ASAPs in a NE includes the predefined DEFAULT ASAPs. (Note: The maximum number of ASAPs is defined per system not per *pftype*.)

The modification is reported via the ENT-ASAP-PROF notification.

Example input/output

The following example shows the successful completion of the ENT-ASAP-PROF command by the NE:

```
ENT-ASAP-PROF:LT-UNITE-123::123456::ENET,att;
   LT-UNITE 00-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command error responses section. The error responses listed there also apply to the ENT-ASAP-PROF command.

Validation rule: Duplicate *pfname*

The *pfname* is already used for the specified *pftype*.

Error Code: `IEAE - Input, Entity Already Exists, duplicate profile name`

Validation rule: Maximum number of profiles

The maximum number of profiles is exceeded.

Error Code: `SSRE - Status, System Resources Exceeded, limit of profiles exceeded`

Related TL1 messages

- "DLT-ASAP-PROF: Delete alarm severity assignment profile" (p. 4-92)
- "ED-ASAP-PROF: Edit alarm severity assignment profile" (p. 4-206)
- "RTRV-ASAP-PROF: Retrieve ASAP profile" (p. 4-1616)
- "RTRV-ASAP-ASGNMT: Retrieve ASAP assignment" (p. 4-1612).

□

ENT-ASAP-PROF notification

Output format

See definition of "REPT DBCHG: Report data base change" (p. 4-1517).

Syntax: The ENT-ASAP-PROF notification has the following specific syntax:

`ENT-ASAP-PROF`::*pftype*,*pfname*:*spec_block*

Output parameters

Command parameters

1. pftype – Profile Type
   This parameter indicates the type of the ASAP (ASAP type).
   Type: alphanumeric value set. A '-' is also allowed for the values
   Range:
   - DCN: Data Communications Network
   - DS3: DS3 asynchronous ports
   - ENET: Ethernet
   - ENV: Environmental (Miscellaneous Discrete)
   - EQUIP-PROT: Equipment with Protection State Dependence
   - EQUIP-UNPROT: Equipment unprotected
   - MSSPRING-BLSR: MS-SPRing and Bilateral Switched Ring protection switch
   - MSP-APS: Automatic protection switch
   - PATH: Path MSA/NIM related
   - PATHTERM: Path Termination
   - PORT: SDH/SONET ports
   - SNCP-UPSR: Sub-Network Connection Protection and Unidirectional Path Switched Ring
   - TIMING: System Timing
   - TRANSPARENCY: Fully Transparent Service.

   Default Value: There is no default value. The *pftype* does not change.
2. pfname – ASAP Profile Name
   This parameter indicates the name of the ASAP. The ASAP name distinguishes ASAPs of the same ASAP type specified by pftype. That means the same name can be used for several ASAP types.
   Type: alphanumeric character string. A hyphen (-) is additionally allowed in the name.
   Range: length 1-24 characters.
   For predefined ASAPs is the value of *pfname* "DEFAULT" , but it is no default name in general.

Spec block parameters

1. Alarm Severity Profile parameters
   The spec block contains ASAP parameters. Each ASAP parameter defines for a probable cause (*condtype*) the assigned severity which will be reported when the alarm appears. If for one specific probable cause a service affecting (sa) or non service affecting (nsa) alarm can be reported then for each the sa-alarm and nsa-alarm an ASAP parameter exists.
   The severity indicates the urgency of an alarm. The severity of a sa-alarm must be more urgent that of a nsa-alarm for the same *condtype*.
   The description of the ASAP parameters, the relation to the profile types and the default values are described in: "Alarms, events, ASAPs" (p. 7-4).
   All parameters have the same type and value range.
   Type: alphanumeric value set.
   Range:
   - CR - Critical (ITU / Telcordia)
   - MJ - Major (ITU / Telcordia)
   - MN - Minor (ITU / Telcordia)
   - NA - Warning (ITU) / Not-Alarmed (Telcordia)
   - NR - Non-Alarmed (ITU) / Not-Reported (Telcordia).

   Example: Concrete ASAP parameters are *sa_eqpt* and *nsa_eqpt*. Both refers to the probable cause (*condtype*) EQPT and ASAP type EQUIPPROT. *sa_eqpt* contains the assigned severity for the service affecting alarm of probable cause EQPT and *nsa_eqpt* for the non service affecting alarm. *sa_eqpt* can have the concrete value CR and *nsa_eqpt* MN.

Example output

The example shows a normal notification after an ENT-ASAP-PROF command:

```
   LT-UNITE-123 00-01-01 08:00:50
A 815 REPT DBCHG
   "TIME=08-00-12,DATE=00-01-01:ENT-ASAP-PROF::ENET,att:sa_vcg_
     loa=MJ,nsa_vcg_loa=MN,sa_vcg_ssf=MJ,nsa_vcg_ssf=MN,sa_vcg_
     plm=MN,nsa_vcg_plm=NA,sa_gfp_lof=CR,nsa_gfp_lof=MJ,sa_lan_
     los=CR,nsa_lan_los=MJ,sa_lan_anm=MN,nsa_lan_anm=NA"
;
```

□

ENT-BANNER

The ENT-BANNER command can be initiated by a user to provision a proprietary notice to enhance system security. The intent is to warn would be intruders against illegal intrusion into the system.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S5

Priority: 1

Abortable: No

Input format

Command Syntax: `ENT-BANNER` :*tid*::*ctag*::::*spec_block;*

Input parameters

Command parameters

1. tid – Target Identifier
   Target Identifier. Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and the description of this parameter.
2. ctag – Correlation Tag
   See defintion of "RTRV-HDR: Retrieve header" (p. 4-1736).

Spec block parameters

1. line1 - Line 1 of the Customer Provisionable Banner.
   Setting line1 to an empty string will suppress the output of the Customer Provisionable Banner in the resonse to the ACT-USER command.
   Type: text string
   Range: 2 ... 62 characters, case-sensitive. The beginning and ending double quotes are included.
   Default: none. The initial value shall be an empty string.
2. line 2 .... line 11 - Line 2 (....Line 11) of the Customer Provisionable Banner.
   Type: text string
   Range: 2 ... 62 characters, case-sensitive. The beginning and ending double quotes are included.
   Default: none. The initial value shall be an empty string.

Output format

After receiving the ENT-BANNER command, the following normal completion response shall be returned:

```
   sid date time
M  ctag COMPLD
```

```
;
```

The NE returns the successful completion response even if none of the parameter values are modified using the ENT-BANNER command.

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output Parameter section for the RTRV-HDR command.

Detailed behavior description

The command shall update the specified lines of the Customer Provisionable Banner with the text strings provided in the command. If an empty string is specified for a line, then the content of the line shall be set to an empty string. All lines which are not specified shall remain unchanged.

Banner Display Control

If *line1* is set to an empty string, then the Customer Provisionable Banner shall not be displayed in the response to the ACT-User command. Setting *line1* to an empty string does not affect *line2* ... *line11*. The content of *line2* ... *line11* can still be retrieved with RTRV-BANNER and changed with ENT-BANNER.

Notification behavior

The ENT-BANNER command shall generate an ENT-BANNER Notification containing all lines which are specified in the command, independent whether the line has been changed or not.

Example input/output

The following example shows the successful completion of the ENT-BANNER command by the NE:

```
ENT-BANNER:LT-UNITE-123::123456:::line1="This is line 1 of the banner";
   LT-UNITE-123 04-12-23 08:01:00
M  123456 COMPLD
;
```

Error response

Refer to the RTRV-HDR command ERROR RESPONSES section. The error responses listed there apply to the ENT-BANNER command.

Related TL1 Messages

- "ACT-USER: Activate user" (p. 4-14)
- "RTRV-BANNER" (p. 4-1639)

□

ENT-BANNER notification

Output format

See definition of REPT DBCHG - Report Database Change.

Command Syntax: `ENT-BANNER` :::*spec_block;*

Output parameters

Spec block parameters

1. line1 - Line 1 of the Customer Provisionable Banner.
   Setting line1 to an empty string will suppress the output of the Customer Provisionable Banner in the resonse to the ACT-USER command.
   Type: text string
   Range: 2 ... 62 characters, case-sensitive. The beginning and ending double quotes are included.
   Default: none. The initial value shall be an empty string.
2. line 2 .... line 11 - Line 2 (....Line 11) of the Customer Provisionable Banner.
   Type: text string
   Range: 2 ... 62 characters, case-sensitive. The beginning and ending double quotes are included.
   Default: none. The initial value shall be an empty string.

Example output

The example shows a normal notification after an ENT-BANNER command:

```
   LT-UNITE-123 00-01-01 08:00:50
A 815 REPT DBCHG
   "TIME=08-01-12,DATE=04-12-23:ENT-BANNER:::line1=\
   "This is line 1 of the banner\""
;
```

Error response

Refer to the RTRV-HDR command ERROR RESPONSES section. The error responses listed there apply to the ENT-BANNER command.

Related TL1 Messages

- "ACT-USER: Activate user" (p. 4-14)
- "RTRV-BANNER" (p. 4-1639)

□

ENT-CRS: Enter cross-connection

The ENT-CRS-*modifier* command can be initiated by a user to establish a cross-connection between tributaries in the NE.

The *modifier* in the ENT-CRS command indicates the cross-connection rate of the tributary for which the command is applied to. There is no difference if the rate is specified as a SONET rate (STS1, STS3,..) or as SDH-rate (VC3, VC4, …) for the establishment of the cross-connection i.e. the ENT-CRS-<*sonet-rate*> yields to the same (with the exception mentioned next) physical and logical behavior as ENT-CRS-<*sdh-rate*>. No check is made if the *modifier* matches the interface-standard of the port i.e. if the port is provisioned as SONET (resp. SDH) and the *rate* is a SONET (resp. SDH) rate. The only difference between entering a cross-connection via SONET- or SDH-rate as modifier is that a RTRV-CRS-*modifier* will return the same output parameter *rate* as was used when entering the cross-connection.

The number of cross-connections from the same tributary is restricted to two i.e. bridging (1:2) is possible but no broadcast 1:N, N>2 .

See section Error response concerning not supported/allowed combinations of input/output for cross-connections.

Physical preconditions prior to establishing a cross-connection

Please note that (for the ENT-CRS command processing) it is not necessary that the packs necessary for establishing traffic (i.e. the switch and the optical-packs OPn or GEn) are physically present and operable; Instead it is sufficient that those packs are pre-/provisioned and the corresponding logical entities are created in the database of the NE.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 3

Abortable: No

Input format

Command Syntax:
`ENT-CRS-`*modifier*:*tid*:*in_aid*,*out_aid*:*ctag*::[*cct*][,*in_aid2*][:*spec_block*];

Input parameters

Command parameters

1. modifier
   This parameter indicates the cross-connection rate on which the ENT-CRS command acts on.
   For detailed description please refer to the "RTRV-CRS: Retrieve cross-connection" (p. 4-1649) command.
   Type: Alphanumeric value set.
   Range:
   - LOVC12
   - LOVC3
   - VC3
   - VC4
   - VC44C
   - VC416C
   - VC464C
   - LOVT1
   - STS1
   - STS3
   - STS12
   - STS48
   - STS192.
2. tid – Target Identifier
   Target Identifier. Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and the description of this parameter.
3. in_aid – Input Access Identifier
   This parameter specifies the source of the cross-connection.
   In case of a 1-way cross-connection the source of a cross-connection is unambiguous. In this case the cross-connection will be retrieved by the RTRV-CRS, which has the identical *in_aid*.
   In case of a 2-way cross-connection the source is not defined (the source could be the *in_aid* or the *out_aid* of the cross-connection). In this case both aids (*in_aid* or *out-aid*) of the cross-connection can be used as the *in_aid* parameter of the RTRV-CRS command. The RTRV-CRS command will then return the *in_aid* – parameter used in the RTRV-CRS command as the *in_aid* of the RTRV-CRS reply.
   Example:

ENT-CRS-VC4:NEname:1-1-#-#-1-1-1,1-1-#-#-2-1-1:123456:2way;
RTRV-CRS-VC4:NEname:1-1-#-#-2-1-1:123457;
M 123457 COMPLD ″1-1-#-#-1-1-,1-1-#-#-2-1-1:vc4….. ;
Type: GenTribAID or GenLOTribAID.
Range: No use of the *all* or *usall* or *vall* values within the in_aid shall be allowed.

4. out_aid – Output Identifier
   This parameter specifies the tributary which is the sink of the cross-connection.
   Type: GenTribAID or GenLOTribAID.
   Range: No use of the `all` value within the *out_aid* is allowed.
5. ctag – Correlation Tag
   See defintion of "RTRV-HDR: Retrieve header" (p. 4-1736).
6. cct – cross-connection Topology
   This parameter specifies the topology of the cross-connection to be established via the ENT-CRS command.
   The topology defines
   - the number of legs of the cross-connection
   - whether both legs belong to the same tributary
   - whether a path protection is included.

   The following values are possible:
   - 1WAY: the cross-connection consists of one leg given by the *in_aid* to the *out_aid*
   - 2WAY: the cross-connection consists of two legs given by the *in_aid* to the *out_aid* and the return leg given by the *out_aid* to the *in_aid*
   - 1WAYPPROT: the cross-connection consist of one leg (the worker leg) given by *in_aid* to *out_aid* and another leg (the protection leg) given by *in_aid2* to the *out_aid*. The path selector function is associated with the tributary of *out_aid*.

   Type: Alphanumeric value string.
   Range:
   - 1WAY
   - 2WAY (default)
   - 1WAYPPROT.
7. in_aid2 – Input Access Identifier 2
   This parameter is applicable to path-protected cross-connections only and specifies the source of the protection leg.
   Thus *in_aid* and *out_aid* specify the working leg while *in_aid2* and *out_aid* specify the protection leg of a path-protected cross-connection. For non path-protected cross-connection the parameter *in_aid2* must be omitted.
   Both input aids (*in_aid* and *in_aid2*) have to be related to ports with the same interface mode being either SDH or SONET. This is due to different switch criteria for SONET and SDH.

Type: STS1NumAID or GenLOTribAID.
STS1NumAID are used for high-order tributaries on e.g. OPn, EPn packs; GenLOTribAID are used for low-order tributaries on I/O packs e.g. OPn, EP155.
Note: Using VCGNumAID (when using e.g. GEn packs) is NOT applicable as those packs can not be the input to a path-protected cross-connection.
Range: No use of the *all* or *usall* or *vall* values within the *in_aid2* is allowed.
Default: None (a valid value is needed on case of a path-protected cross-connection – no default is defined).

Spec block parameters

1. htmr – Hold Off Timer
   This parameter specifies the value of the hold-off timer for automatic protection switching. This parameter is applicable to path-protected cross-connections only and shall be omitted for non path-protected cross-connections.
   Type: numeric string [ms]
   Range:
   - For high order path protection groups, the range shall be: 0 - 99 msec in 1 msec steps and 100 - 10000 msec in 100 msec steps
   - For low order path protection groups, the range shall be: 0, 25, 50, 75 msec (thus in steps of 25 msec) and 100 - 10000 msec in 100 msec steps.
2. loca – Location-a
   This parameter specifies the TID of the node at which service is added to the BLSR. This parameter is required for BLSR THROUGH, INTER-BLSR and DROP connections, if the Automatic Squelch Map Calculation function is disabled. The parameter *loca* can be specified for BLSR THROUGH, INTER-BLSR and DROP connections while the Automatic Squelch Map Calculation function is enabled to do a User Override. The *loca* parameter value has to be omitted for ADD, non-BLSR connections.
   A 2way cross-connection is considered to be a DROP if the *out_aid* is a non BLSR high-order tributary.
   For lower-order cross-connections the parameter *loca* is the TID of that ring node in the direction towards the specified input tributary (upstream), where the HO path termination source function resides. If there is no such function in an upstream ring node then *loca* is the TID of the node where the related HO circuit is first added to the ring. Refer to the figure "Lower-order cross-connections" (p. 4-1661) for further explanation.
   Additional information are given for this parameter in the RTRV-CRS section with respect to:
   - figure illustrating BLSR connections,
   - inter-ring cross-connections with collapsed nodes,
   - extra traffic handling.

   Type: TID
   Range: 1 to 20 characters. Needs to be the same as defined in RTRV-HDR.

3. loca2 – Location-a-2
   This parameter specifies the TID associated with *in_aid2* of the protection leg of a path-protected cross-connection.
   For the syntax, range and default definition please refer to *loca* description.
   Please note that *loca2* parameter is omitted if no *in_aid2* has been specified or for non-BLSR crossconnection.
   A 2way cross-connection is considered to be a DROP if the out_aid is a non BLSR high order tributary. Additional information are given for this parameter in the RTRV-CRS command.
   The loca2 parameter value has to be omitted for low-order cross-connections in general.
   Currently, path protected LO cross-connections with input tributaries from MS-SPRing/BLSR ports are not supported. As a consequence, the parameter *loca2* needs not to be specified for a LO cross-connection.
   Type: TID
   Range: 1 to 20 characters. Needs to be the same as defined in RTRV-HDR.
4. locz – Location-z
   This parameter specifies the TID of the node at which service is dropped from the BLSR. This parameter is required for BLSR THROUGH, INTER-BLSR and ADD connections, if the Automatic Squelch Map Calculation function is disabled.
   The parameter *locz* can be specified for BLSR THROUGH, INTER-BLSR and ADD connections while the Automatic Squelch Map Calculation function is enabled to do a User Override. The *locz* parameter value has to be omitted for DROP and non-BLSR connections.
   A 2way cross-connection is considered to be a ADD if the in_aid is a non BLSR high-order tributary.
   For lower-order cross-connections the parameter *locz* is the TID of that ring node in the direction towards the specified output tributary (downstream), where the HO path termination sink function resides. If there is no such function in a downstream ring node then *locz* is the TID of the node, where the related HO circuit is last dropped from the ring. Refer to the figure "Lower-order cross-connections" (p. 4-1661)for further explanation.
   Additional information are given for this parameter in the RTRV-CRS section with respect to:
   - figure illustrating BLSR connections,
   - inter-ring cross-connections with collapsed nodes,
   - extra traffic handling.

   Type: TID
   Range: 1 to 20 characters. Needs to be the same as defined in RTRV-HDR.
5. omode – Output Mode

This parameter specifies the output mode of the cross-connection:

- for a 1-way cross-connection the output is clearly defined by the destination (*out_aid*)
- for a 2-way cross-connection the output is defined as the source-to-destination direction (*in_aid* to *out_aid*)
- NORM: this is the normal output i.e. the signal from the *in_aid* is passed through to the *out_aid*;
- IDLE/UNEQ: this mode outputs an unequipped signal;
- AIS: this mode outputs an AIS signal.

omode and adaptive-mode: In case a SONET-port is provisioned to adaptive-mode setting the *omode* to IDLE/UNEQ or AIS will be lead to transmitting the corresponding signal (UNEQ or AIS) on STS1 base for all the STS1 tributary comprising the STS-N signal. Thus for an output of an STS3 cross-connection, if either AIS or IDLE/UNEQ is selected each of the 3 STS1 will output the AIS or IDLE/UNEQ signal. When switching the *omode* back to NORM the original STS3 cross-connection-signal will re-appear again.

omode in case of path-protected cross-connection: In case of a path-protected cross-connection the *omode* affects the output of the path selector and is thus not setable on a per leg base. In other words the *omode* insertion is done after (downstream direction) the selector function.

Type: Alphanumeric value set.

Range:

- NORM (default)
- IDLE/UNEQ
- AIS

6. ppgname – Path protection group name
   This parameter is a user-defined string that identifies a path protection group. This parameter is applicable to path-protected cross-connections only and is omitted for non path-protected cross-connections.
   Note: Storage and retrieval of the *ppgname* is case sensitive, but the actual use of the *ppgname* to determine the corresponding protection group is case insensitive. For details please refer to parameter *ppgname* in "RTRV-PROTN-GRP: Retrieve protection group" (p. 4-1997).
   Default: NULL.
7. rme – Revertive Mode Enable
   This parameter specifies whether the path protection operates in revertive-mode (rme=ENABLE) or non-revertive-mode (rme=DISABLE).
   This parameter is applicable to path-protected cross-connections only and shall be omitted for non path-protected cross-connections.
   Type: alphanumeric value set

Range:

- ENABLE, DISABLE: in case of *protype* = 1+1
- ENABLE: in case of *protype* = 1xNOPT
- ENABLE is not valid for protocol = 1+1_OPTM

Default:

- DISABLE: in case of protype = 1+1
- ENABLE: in case of protype = 1xNOPT (i.e. protection type 1:1)

The protocol = OPTM can only be choosen in case of protype = 1+1, thus default is DISABLE then.

8. rtnomode – Return Output Mode
   The parameter *rtnomode* (return output mode) is only applicable for 2way cross-connection and is omitted for 1way and path-protected cross-connections.
   Type: Alphanumeric value set
   Range: NORM (default), IDLE/UNEQ, AIS
   Note the default values:
   - For a 1way cross-connection the default value is NOT-APPLICABLE, but the parameter must be omitted in the ENT-CRS command.
   - For a 2way cross-connection the default value is: NORM.
9. snctype – SNCP Type
   This parameter is used to specify the SNCP mode i.e. the switch criteria used for automatic protection switching. This parameter is mandatory for path-protected cross-connections and only applicable to them. The parameter shall be omitted for non path-protected cross-connections.
   Type: alphanumeric value set
   Range:
   - SNCI (Inherent) is used if server signal fail is used as switch criteria.
   - SNCN (Non-Instrusive) is used if server signal fail and defects supervised by a non-intrusive path monitor are used as switch criteria
   - NA shall be used if one of the tributary inputs is related to a port operating in SONET mode.
10. wtr – Wait To Restore Time
    This parameter specifies the value of the wait-to-restore time for automatic protection switching. This parameter is applicable to path-protected cross-connections only and is omitted for non path-protected cross-connections.
    Type: numeric string (minute)
    Range: 0 - 60

11. xcappl – cross-connection application
    This parameter is a numeric value which indicates the application for which the cross-connection is used in the context of compound cross-connection topologies. The parameter is not further processed in the NE, but only stored (when establishing or modifying the cross-connection) and returned when retrieving the cross-connection.
    The numeric values are assigned to appropriate text strings (see Range below) and the manager should display these value in case of a RTRV-CRS.
    As a possible assignment proposal the following may serve:
    - 0) Unknown
    - 1) 1-Way Point-to-Point
    - 2) 1-Way Path-Protected
    - 3) 1-Way Adjunct Path-Protected
    - 10) 2-Way Point-to-Point
    - 20) UPSR (or SNCP Ring) Add, Drop
    - 21) UPSR (or SNCP) Ring-to-Ring, Single Node Interconnection, Same NE
    - 22) UPSR (or SNCP) Drop, 1-Way Broadcast
    - 30) Logical Ring (or SNCP) Add, Drop
    - 40) Ring Interworking, Drop-and-Continue, BLSR (or MS-SPRing) Primary Node
    - 41) Ring Interworking, Drop-and-Continue, BLSR (or MS-SPRing) Primary Nodes in same NE
    - 42) Ring Interworking, Dual Transmit, BLSR (or MS-SPRing) Terminating Node
    - 50) Ring Interworking, Drop-and-Continue, UPSR (or SNCP Ring)
    - 51) Ring Interworking, Drop-and-Continue, UPSR (or SNCP Ring) Nodes in same NE
    - 60) 1-Way Broadcast -- note: this is with N greater than or equal to 2.

    Type: numerical value set.
    Range: {0, 1, 2,..., 255}.
    Default: The default value is 0.
12. xcnum – cross-connection number
    This parameter is a 9 digit number, identifying each leg in a specific compound cross-connection. (Compound cross-connection are a composition of several atomic cross-connection in order to form complex scenarios like e.g. described in ″Example input/output″ section of the RTRV-CRS command like UPSR, DRI etc.). Like the *xcappl* parameter the *xcnum* parameter is not further processed in the NE, but only stored (when establishing or modifying the cross-connection) and returned when retrieving the cross-connection. It may be used by a manager to characterize

and group cross-connections belonging to complex cross-connection topology (e.g. compound cross-connections as used in ring interworking scenarios).
Type: numeric value set (9 digit).
Range: 000000000 .. 999999999.
Default: The default value is 000000000.

Output format

If the ENT-CRS command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are described in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

Behavior cct=1WAY, 2WAY

Cross-connections can be established via the ENT-CRS-mod command between tributaries of type:

- STS1-tribs: Tribs related to SDH/SONET ports (i.e. ports of OPn packs) - the AID for these tribs being specified as STS1NumAID (refer to the AID definition) or
- VCG-tribs: Tribs related to VCG-ports (i.e. (logical) ports of GEn pack - please refer to [7], [8], [9, [10] for details) - the AID for these tribs being specified as VCGNumAID (refer to the AID definition).

Between STS1-tribs cross-connection can be established for all the specified SDH/SONET rate (i.e. VC3/STS1, VC4/STS3, VC44c/STS12, VC16c/STS48, VC464c/STS192).

As soon as a VCG-trib is involved in a cross-connection (either cross-connection between VCG-tribs or between VCG-trib and STS1-trib) only the cross-connection rates STS1/VC3 for a SONET-provisioned GEn-port or STS3/VC4 for a SDH-provisioned GEn-port is allowed. This is due the implicit tributary mode for the GEn-ports, which are either fixed structured to STS1/VC3 (1,2,3 up to 21) in case of a SONET-GEn or STS3/VC4 (1,4,7 up to 19) in case of a SDH-GEn.

Behavior cct=1WAYPROT

Path-protected cross-connections can be established via the ENT-CRS-mod command between tributaries of type:

- STS1-tribs: Tribs related to SDH/SONET ports (i.e. ports of OPn packs) - the AID for these tribs being specified as STS1NumAID (refer to the AID definition) or
- VCG-tribs: Tribs related to VCG-ports (i.e. (logical) ports of GEn pack) - the AID for these tribs being specified as VCGNumAID (refer to the AID definition).

For *in_aid* and *in_aid2* only STS1-tribs are allowed.

All path protection group related parameters are only used in the context of ENT-CRS command in order to provide appropriate defaults for different applications (from operator perspective). Retrieval, Modification and reporting for these parameters is within entity protection group.

When establishing a cross-connection a entity of type cross-connection is created with the parameter values as

- specified in the ENT-CRS command.

Additionally when establishing a path-protected cross-connection a protection entity is created with the parameter values as

- specified in the ENT-CRS command,
- (for those parameter not part of ENT-CRS command) with the default-values.

Updated affected entities: General

In case of establishing a path-protected cross-connection the command creates in addition an entity of type protection group (of type PATHDRI) with

- the attributes as entered in the ENT-CRS command and
- for those attributes not given by the command by its default values.

This creation is reported by means of an ENT-PROTN-GRP notification – refer to this notification for further details.

In case the *repleg* state is changed by establishing a cross-connection an ED-CRS notification is used to notify the updated *repleg* value.

Updated affected entities: 1-way cross-connection, not resulting in a 2 way cross-connection

In case a 1-way cross-connection is established where no ″equivalent return-leg″ (see below) is already existing one instance of type cross-connection is created with the entered parameter. This is reported by means of an ENT-CRS notification.

An ″equivalent return-leg″ means: when entering a 1-way cross-connection with rate N from in_trib to out_trib a return-leg would be given by

- a 1-way cross-connection from out_trib to in_trib
- with the same rate N
- and in (case of BLSR only) the same *loca* and *locz* values

Example:

ENT-CRS-vc4:NEname:1-1-#-#-3-4-1,1-1-#-#-7-3-1:586::1way:;

REPT DBCHG:

ENT-CRS-VC4:1-1-#-#-3-4-1,1-1-#-#-7-3-1:1WAY,:omode=NORM,xcappl=0, xcnum=000000000000,loca=\″\″,locz=\″\″,repleg=1WAY

Updated affected entities: 1-way cross-connection, resulting in a 2-way cross-connection

In case a 1-way cross-connection is established where an ″equivalent return-leg″ (see below) is already existing one instance of type cross-connection is created with the entered parameter and the repleg-parameter ″2-way″. This is reported by means of an ENT-CRS notification.

Furthermore as stated above the *repleg* status is updated for the already existing leg (i.e. in_aid, out_aid are flipped w.r.t. ENT request) and reported via an ED-CRS notification.

An ″equivalent return-leg″ means: when entering a 1-way cross-connection with rate N from in_trib to out_trib a return-leg would be given by

- a 1-way cross-connection from *out_trib* to *in _trib*
- with the same *rate* N
- and (in case of BLSR only) the same *loca* and *locz* values

Example (Precondition is specified in previous example):

ENT-CRS-vc4:NEname:1-1-#-#-7-3-1,1-1-#-#-3-4-1:587::1way:;

REPT DBCHG:

ENT-CRS-VC4:1-1-#-#-7-3-1,1-1-#-#-3-4-1:1WAY,:omode=NORM,xcappl=0, loca=\″\″,locz=\″\″,repleg=2WAY,rtnxcappl=0,xcnum=000000000000, rtnxcnum=000000000000, rtnomode=NORM

REPT DBCHG:

ED-CRS-VC4:1-1-#-#-3-4-1,1-1-#-#-7-3-1::repleg=2WAY:

Note that in the considered case the ENT-CRS notification for the 2-way cross-connection contains the same information as if it would result directly from an ENT-CRS with the *cct*=2WAY, i.e. the ENT-CRS notification for a *repleg*=2WAY cross-connection is independent from the way it is created (either direct cia *cct*=2WAY

or via two separated 1-way cross-connections) and it thus also contains the *rtnxcappl, rtnxcnum*, *rtnomode* parameters.

Updated affected entities: 2-way cross-connection

In case a 2-way cross-connection is established one instance of type cross-connection is created with the entered parameter and the *repleg*=2WAY.

This is reported by means of an ENT-CRS notification.

Example:

ENT-CRS-vc4:UNITE-NE:1-1-#-#-3-1-1,1-1-#-#-2-1-7:584::2way:;

REPT DBCHG:

ENT-CRS-VC4:1-1-#-#-3-1-1,1-1-#-#-2-1-7:2WAY,:omode=NORM,xcappl=0,
xcnum=000000000000,rtnomode=NORM,loca=\″\″,locz=\″\″,repleg=2WAY,rtnxcappl=0,
rtnxcnum=000000000000

Updated affected entities: path-protected cross-connection

In case a path-protected cross-connection is established two instances of type cross-connection is created (one for each leg) with the entered parameters and *repleg*=1WAYPSW and *repleg*=1WAYPSP, respectively.

Furthermore one instance of type protection group is created and notified via an ENT-PROTN-GRP notification.

For details on protection group and the related notifications please refer to the protection group section.

Example (path-protected SDH cross-connection i.e. no adaptive mode for non-BLSR):

ENT-CRS-vc3:NameOfNE:1-1-#-#-1-1-1,1-1-#-#-34-1-1:123456::1WAYPPROT,1-1-#-#-2-1-1:ppgname=\″name1\″,rme=ENABLE,snctype=SNCI,htmr=300,wtr=10;

REPT DBCHG:

ENT-CRS-VC3:1-1-#-#-1-1-1,1-1-#-#-34-1-1:1WAYPPROT,1-1-#-#-2-1-1:
omode=NORM,xcnum=000000000000,xcappl=0,loca=\″\″,locz=\″\″,repleg=1WAYPSW

REPT DBCHG:

ENT-CRS-VC3:1-1-#-#-2-1-1,1-1-#-#-34-1-1:1WAYPPROT,1-1-#-#-1-1-1:
omode=NORM,xcnum=000000000000,xcappl=0,loca=\″\″,locz=\″\″,repleg=1WAYPSP

REPT DBCHG:

ENT-PROTN-GRP:1-1-#-#-15-1-1::PATHDRI:ppgname=\″name1\″,
dripathpn=DEFAULT,htmr=300,protn=1-1-#-#-2-1-1,wkg=1-1-#-#-01-1-1,
rme=ENABLE,snctype=SNCI,wtr=10,htmr=300,<CML-BLOCK>

Identification of VCG Tributaries:

The system shall allow to create cross-connections at VCG tributaries using the AID format of an AU-3/STS-1 Tributary. I.e. the VCG number specified in the port field of the AID shall be allowed with or without the leading ″v″.

ONNS specific behavior - Behavior for *xconcls*

A cross-connection which is created via ENT-CRS shall have implicitly set the *xconcls* parameter to TRADITIONAL, see “RTRV-CRS: Retrieve cross-connection” (p. 4-1649) .

The only way to explicitly set the *xconcls* parameter is via the ED-NNCRS command.

ONNS specific behavior - Behaviour for tributaries belonging to EDGE ports in a BLSR/MS-SPRING group

When a cross-connection of type *xconcls*=TRADITIONAL is created where a tributary belongs to a port with *portClass*=EDGE, which is part of a BLSR/MS-SPRING group, then any *loca*, *locz* parameter with a value different from the default value shall be copied from the tributary into the corresponding *loca*, *locz* parameter of the cross-connection.

The *loca*/*locz* parameter in the tributary shall be reset to its default value. This shall be notified by means of an ED-STS1 (*istd*=SONET) or ED-VC3 (*istd*=SDH) notification.

Low-order cross-connection specific behaviour - Auto-substructuring of HO NIM entities (VC3, STS1)

If the first low-order tributary contained in a dedicated high-order tributary gets connected then the high-order tributary shall get automatically substructured as follows resulting in the initial setup of the related parameters:

ENT-CRS-PTF::PTF::PTF::

modifier inputsig unequiposig ptfstd

LOVC3 6312 6312 SDH

LOVC12 6312 6312 SDH

LOVT1 2811 2811 SONET

The auto-substructuring shall be executed on VC4 or STS1 granularity.

Resulting creations of HPT and LONIM entities shall be notified (by ENT-PTF and ENT-LONIM notifications). The substructure and the related PTF and LONIM objects are bidirectionally created independent from the topology of the cross-connect request.

If a cross-connection at LOVC3 rate causes the auto-substructuring of a HO NIM entity then first the creation of the default substructure (6312) will be reported. After then, an auto-re-configuration of the PTF substrcuture will take place as described in ID 69853 in order to adapt the affected third to the LOVC3 in the needed direction(s).

Example:

If the following cross-connection is entered: ENT-CRS-LOVC3::1-1-#-#-1-1-1-1,1-1-#-#-2-1-1-22:::1WAY;

Then this causes following notifications:

ED-VC3:1-1-#-#-1-1-1::substr=YES;

ED-VC3:1-1-#-#-2-1-1::substr=YES;

ENT-PTF:1-1-#-#-1-1-1::inputsig=6312,unequiposig=6312,...

ENT-PTF:1-1-#-#-2-1-1::inputsig=6312,unequiposig=6312,...

ENT-LONIM:1-1-#-#-1-1-1-1&&-63::pmlpfeses=600,pmlpneses=600,...

ENT-LONIM:1-1-#-#-2-1-1-1&&-63::pmlpfeses=600,pmlpneses=600,...

ED-PTF:1-1-#-#-1-1-1::inputsig=13-4212;

ED-PTF:1-1-#-#-2-1-1::unequiposig=2112-13-2112;

ED-LONIM:1-1-#-#-1-1-1-1::pmlpfeses=2400,pmlpneses=2400;

Low-order cross-connection specific behaviour - Auto-configuration of the HO NIM entity

During the auto-substructuring of a HO NIM as required in ID 69850, the following parameter values shall be automatically configured:

substr shall be set to TRUE.

This shall be notified with a ED-rr notification.

Low-order cross-connection specific behaviour - Auto-configuration of the PTF entity

During the auto-creation of a PTF entity as consequence of the auto-substructuring as required in ID 69850, all parameter shall be set to default. Although such a requirement is not needed to be stated as this is implicit behaviour of entity creations, this has been made since the original single-step-approach had forseen to copy parameters from the related HO NIM entity. WIth the reduced single-step-approach, this idea has been discarded (probably postponed).

Low-order cross-connection specific behaviour - Auto-configuration of LO NIM entities

During the auto-creation of a LONIM entities as consequence of the auto-substructuring as required in ID 69850, all related parameters shall be set to the default value.

Low-order cross-connection specific behaviour - Auto-re-configuration of the PTF substructure (SDH only)

If the first cross-connection of a third of a substructured VC4 tributary gets connected then a mismatching substructure level shall be automatically corrected for that third and in the required direction.

The changing HPT parameter inputsig and/or unequiposig shall be notified (by a ED-PTF notification).

The parameter of the first LONIM entity of that third shall be set to default values according to the newly represented transmission rate except for the parameters:

neppm, *feppm*, *tcamd* and *ptca*.

Any changed parameters in this context shall be notified in a single ED-LONIM notification. The remaining 20 other entities of that third of the PTF remain untouched.

Low-order cross-connection specific behaviour - Example - Performance monitoring handling

Assuming that a VC4 signal had been initially substructured to 63 times VC12 due to 63 bidirectional LOVC12 cross-connections. For all 63 LONIM entities PM had been enabled for both, far end and near end.

Later the operator removes the first 21 LOVC12 cross-connection and establishes a bidirectional LOVC3 cross-connection instead. Following notifications are to be generated:

ED-PTF-HOVC::1-1-#-#-39-16-1::inputsig=13-4212,unequiposig=13-4212;

ED-LONIM-LOVC::1-1-#-#-39-16-1-1::pmlpfeses=2400,pmlpneses=2400;

Note that performance monitoring commences without interruption using the new default SES threshold values but keeping the previously configured TCA mode and TCA profile (the appropriate rate values are included in the TCA profile). The current bins (for 15 min and 24 hours) are declared as being suspect.

Note also that for LONIM entities addressed by 1-1-#-#-39-16-2&&-20 no notification will be sent as they remain untouched. However, the PM data cannot be retrieved from those entities.

Low-order cross-connection specific behaviour - Example - Performance monitoring handling

If low-order signals of a VC4 tributary get connected with different rates (VC3 or VC12) in opposit direction for the same timeslots then the values of inputsig and unequiposig will differ:

1. Initial 1WAY connection may cause both direction to be set to the same value

ENT-CRS-LOVC12::1-1-#-#-1-1-1-1,1-1-#-#-2-1-1-1:::1WAY;

PTF::inputsig[1-1-#-#-1-1-1] = 6312,unequiposig=6312;

PTF::inputsig[1-1-#-#-2-1-1] = 6312,unequiposig=6312;

2. An opposit 1WAY connection may cause one direction to be adapted

ENT-CRS-LOVC3::1-1-#-#-2-1-1-1,1-1-#-#-1-1-1-1:::1WAY;

PTF::inputsig[1-1-#-#-1-1-1] = 6312,unequiposig=13-4212;

PTF::inputsig[1-1-#-#-2-1-1] = 13-4212,unequiposig=6312;

Possibly established performance monitoring between the first and second command for both directions of the LO-VC12 signal (saying for slot 1 and 2 in input direction) would be deleted after the second command for the LONIM 1-1-#-#-2-1-1-1 (thus for slot 2).

Low-order cross-connection specific behaviour - Example - Opposit unidirectional cross-connections

If low-order signals of a VC4 tributary get connected with different rates (VC3 or VC12) in opposit direction for the same timeslots then the values of inputsig and unequiposig will differ:

1. Initial 1WAY connection may cause both direction to be set to the same value

ENT-CRS-LOVC12::1-1-#-#-1-1-1-1,1-1-#-#-2-1-1-1:::1WAY;

PTF::inputsig[1-1-#-#-1-1-1] = 6312,unequiposig=6312;

PTF::inputsig[1-1-#-#-2-1-1] = 6312,unequiposig=6312;

2. An opposit 1WAY connection may cause one direction to be adapted

ENT-CRS-LOVC3::1-1-#-#-2-1-1-1,1-1-#-#-1-1-1-1:::1WAY;

PTF::inputsig[1-1-#-#-1-1-1] = 6312,unequiposig=13-4212;

PTF::inputsig[1-1-#-#-2-1-1] = 13-4212,unequiposig=6312;

Possibly established performance monitoring between the first and second command for both directions of the LO-VC12 signal (saying for slot 1 and 2 in input direction) would be deleted after the second command for the LONIM 1-1-#-#-2-1-1-1 (thus for slot 2).

Low-order cross-connection specific behaviour - Restricted interface standard for low-order cross-connections

The system shall only accept low-order cross-connection requests if the provided modifier (representing a specific interface standard) matches to the supported interface standard of the whole LOXC pack.

With the reduced single-step-approach, the supported interface standard of the LOXC pack will be determined during activation of its switch capacity. This implies that only one interface standard can be supported at a time.

Example input/output

Example 1

A non-BLSR 1-way cross-connection with rate vc4 between an OP10G (2.vc4) in slot 01 and an OP2G5 in slot 34 (3.port 3.VC4) will be established by:

```
ENT-CRS-VC4:UNITE-NE:1-1-#-#-10-1-4,1-1-#-#-34-3-7:123456::1WAY;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
;
```

Example 2

A 2-way Drop-cross-connection with rate vc44c between an OP10G (2.vc4-4c) in slot10 and an OP10G in slot 17 (1.vc4-4c) will be established – the OP10G in slot10 being in the BLSR.

```
ENT-CRS-STS12:UNITE-NE:1-1-#-#-10-1-13,1-1-#-#-17-1-1:
123456::2WAY:LOCA=NE-in-RING;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
;
```

Example 3

A SDH path-protected cross-connection consisting of

- a working leg (1-1-#-#-10-1-1 -> 1-1-#-#-34-1-13) and
- a protection leg (1-1-#-#-11-1-1 -> 1-1-#-#-34-1-13) is established. None of the affected tributaries is in an BLSR.

The path protection is specified by

- a name (*ppgname*=″Pathprot.Gr.Name.1″),
- the sncp-type (*snctype*=SNCI),
- the hold-off-timer-value (*htmr*=3000, i.e. 3 sec) and
- the wait-to-restore time (*wtr*=10, i.e. 10min).

```
ENT-CRS-STS12:UNITE-NE:1-1-#-#-10-1-1,1-1-#-#-34-1-13:
123456::1WAYPPROT,1-1-#-#-11-1-1:ppgname=″Pathprot.Gr.
Name.1″,rme=DISABLE,snctype=SNCI,htmr=3000,wtr=10;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
;
```

Example 4

A 1-way low-order crossconnection with rate VC3 between an OP10G (3rd VC3 in 2nd VC4) in slot 01 and an OP2G5 in slot 34 (2nd VC3 in 3rd VC4 of port 3) will be established by:

```
 ENT-CRS-LOVC3:UNITE-NE:1-1-#-#-10-1-4-43,
1-1-#-#-34-3-7-22:\
123456::1WAY;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
;
```

Example 5

A 2-way low-order crossconnection with rate VT1.5 between an OP10G (last VT1.5 in the 4th VT group of the 2nd STS1) in slot 01 and an OP2G5 in slot 34 (last VT1.5 in the last VT group in 3rd STS1 of port 3) will be established by:

```
 ENT-CRS-LOVT1:UNITE-NE:1-1-#-#-10-1-2-15,
1-1-#-#-34-3-3-28:\
123456::2WAY;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
;
```

Error responses

Validation rule: Entities must exist for HO cross-connections

Cross-connection command processing verifies that the logical high-order tributaries specified in the high-order cross-connection command do exist.

Error code: `IENE - Input Entity Not Exists, Specified tributary/tributaries do not exist`

Validation rule: HO cross-connections not on substructured tributaries

Cross-connection command processing shall verify that the high-order tributaries specified in the high-order cross-connection command are not substructured, i.e. that no LO cross connections exist.

Error code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

Validation rule: Entities must fit LOXC interface standard

Cross-connection command processing shall verify that the specified modifier and the given aid's must fit to the LOXC overall interface standard, i.e. the value of the parameter lostd related to the active LOXC pack.

Error code: `IDNV - Input, Data Not Valid, Low-order cross-connections of this interface standard not supported`

Validation rule: Entities must be creatable for LO cross-connections

Cross-connection command processing shall verify that the low-order tributaries specified in the low-order cross-connection command do exist or can be properly created.

Error code: `IENE - Input, Entity Not Exists, Specified low-order tributary/tributaries do not exist/cannot be created (possibly connected at high-order level)`

The existence low-order entity is verfied if:

- the HO NIM entity indicates to be substructured (parameter substr==TRUE), and
- the HO PTF entity has a matching inputsig parameter (if used as input),
- the HO PTF entity has a matching unequiposig parameter (if used as output).

The possibility to create a related entity is verified if:

- the interface standard of the related port and the rate of the related HO NIM matches the cross-connect modifier (SDH/VC4 in case of LOVC3, LOVC12; SONET/STS1 in case of LOVT1),
- the HO NIM is not yet substructured (parameter substr=FALSE) and is not yet involved in any type of a HO cross-connection *), or
- the HO NIM is - but not properly - substructured and the substructure can be adapted accordingly.

*) this means: neither cross-connected, nor looped back, nor involved in a remote test access session.

Examples:

Assuming the following low-order cross-connections have been established:

ENT-CRS-LOVC12::1-1-#-#-1-1-1-22,1-1-#-#-2-1-1-22:::1WAY;

ENT-CRS-LOVC3::1-1-#-#-1-1-1-43,1-1-#-#-2-1-1-43:::1WAY;

The following subsequent cross-connection is invalid:

ENT-CRS-LOVC3::1-1-#-#-1-1-1-23,1-1-#-#-2-1-1-23:::1WAY;

Validation rule: Entities must be adaptable for LO cross-connections

Cross-connection command processing shall verify that the low-order tributaries specified in the low-order cross-connection command can be properly created by adaptation of the existing substructure. For modifier LOVC3 a tributary boundary check shall be included, i.e. only the LO tributary numbers 1, 22, 43 are allowed.

Error code: `IENE - Input, Entity Not Exists, Substructure cannot be adapted`

Examples:

Assuming the following low-order cross-connections have been established:

ENT-CRS-LOVC12::1-1-#-#-1-1-1-22,1-1-#-#-2-1-1-22:::1WAY;

ENT-CRS-LOVC3::1-1-#-#-1-1-1-43,1-1-#-#-2-1-1-43:::1WAY;

The following subsequent cross-connection is invalid:

ENT-CRS-LOVC12::1-1-#-#-1-1-1-44,1-1-#-#-2-1-1-44:::1WAY;

Validation rule: Entities must fit to the interface standard

Cross-connection command processing shall verify that the low-order tributaries specified in the low-order cross-connection command have the same interface standard as the high-order tributary they are contained in.

Error code: `IENE - Input, Entity Not Exists, Not for this interface standard`

Examples:

Assuming the following low-order cross-connections have been established:

ENT-CRS-VC12::1-1-#-#-1-1-1-22,1-1-#-#-2-1-1-22:::1WAY;

ENT-CRS-VC3::1-1-#-#-1-1-1-43,1-1-#-#-2-1-1-43:::1WAY;

The following subsequent cross-connection is invalid:

ENT-CRS-VT1::1-1-#-#-1-1-1-1,1-1-#-#-2-1-1-1:::1WAY;

Validation rule: Only those parameter present which are needed

Cross-connection command processing verifies according to the given context only those parameter are present which are needed for that context. This means that e.g.

- for entering a 1-way cross-connection the *rtnomode* must not be present
- for entering a non path-protected cross-connection the *ppgname, htmr, wtr, snctype, rme* parameter must not be present.
- for entering a non-BLSR or BLSR-ADD cross-connection the *loca* parameter must not be present
- for entering a non-BLSR or BLSR-DROP cross-connection the *locz* parameter must not be present
- for entering a non-BLSR and unprotected cross-connection the *loca2* parameter must not be present
- for entering a low-order cross-connection the *loca2* and *ppgname* parameters must not be present.

Error code: `IDNV - Input Data Not Valid, Parameter(s) present which are not allowed`

Validation rule: Both legs must have same rate

Cross-connection command processing verifies that each logical AID specified in the command is consistent with the cross-connection rate. Consistency implies the following condition:

The rate of a new cross-connection from an input tributary that is in use for an existing cross-connection must match the rate of that existing cross-connection.

This can happen if to an existing leg with rate n a further leg is tried to establish with rate m $\neq$ n.

Error code: `IDNC - Input, Data, Not Consistent, Bridging rate is not compliant with existing leg`

Validation rule: AID boundary and rate consistency

Cross-connection command processing verifies that each logical AID specified in the command is consistent with the cross-connection rate. Consistency implies the following condition:

- the boundary of the specified tributary is consistent with the specified rate.
- STS-1/VC-3 payloads can start at any position
- the first (STS-1 equivalent) tributary of an STS-3/VC-4 rate cross-connection must be on a mod3 + 1 boundary (1, 4 , 7, …).
- the first STS-1 of an STS-12/VC-4-4c rate cross-connection must be on a mod12 + 1 boundary (1, 13, 25, …).
- the first STS-1 of an STS-48/VC-4-16c rate cross-connection must be on a mod48 + 1 boundary (1, 49, 97, …).
- the first STS-1 of an STS-192/VC-4-64c rate cross-connection must be on a mod192 + 1 boundary (1, 193, 385, …).

Error code: `IDNC - Input, Data, Not Consistent, Tributary boundary is inconsistent with the indicated rate`

Validation rule: Tributary provisioning and rate consistency

For fixed rate tributaries, cross-connection command processing verifies that

- if the port identified by logical input AID is provisioned to operate in the fixed signal rate mode, as determined by the tributary mode parameter, then the specified cross-connection rate is equivalent to the provisioned signal rate of the input tributary, as determined by the tributary input signal rate parameter.
- if the port identified by logical output AID is provisioned to operate in the fixed signal rate mode, as determined by the tributary mode parameter, then the specified cross-connection rate is equivalent to the provisioned signal rate of the output tributary, as determined by the tributary unequipped output signal rate parameter. Note that in both cases it does not matter whether the connected tributaries are SONET (STS1/STS3/...) or SDH (VC3/VC4/..) signals with the same transmission rate.

Error code: `IDNC - Input, Data, Not Consistent, Specified Tributary does not support the indicated rate`

Example:

Assuming an STM-16 (SDH) port named A with 1-1-#-#-1-1 has an input structure of 44-44C.

Assuming an OC-48 (SONET) port named B with 1-1-#-#-2-1 has an ouput structure of 483.

Both ports (A and B) work in fixed mode (port A since it is SDH, port B since configured).

Following TL1 commands could be sent to connect two tributaries unidirectionally:

- ENT-CRS-VC4::1-1-#-#-1-1-16,1-1-#-#-2-1-48::1WAY:...
- ENT-CRS-STS3::1-1-#-#-1-1-16,1-1-#-#-2-1-48::1WAY:...

Note: In case of adaptive rate no consistency check is required.

Validation rule: Restrictions for LOXC cross-connection rates

For low-order cross-connections, crossconnection command processing shall verify that the rates of the HO NIMs fit to the modifier parameter as follows:

- LOVT1 requires STS1 HO NIMs,
- LOVC3 and LOVC12 require VC4 HO NIMs.

Error code: `IDNC - Input, Data Not Consistent, Specified Tributary does not support the indicated rate`

The existence of a STS1 HO NIM can be verified by checking the *inputsig*, *unequiposig* and *istd* parameters of the related port. Example: If the first HO NIM of a port needs to be successfully checked then the related port parameters should read as follows:

- *inputsig* starting with N1-... (N1 is a number of STS1 signals),
- *unequiposig* starting with N1-... (N1 is a number of STS1 signals),
- *istd* equals SONET.

The existence of a VC4 HO NIM can be verified by checking the *inputsig*, *unequiposig* and *istd* parameters of the related port. Example: If the first HO NIM of a port needs to be successfully checked then the related port parameters should read as follows:

- *inputsig* starting with N4-... (N4 is a number of VC4 signals),
- *unequiposig* starting with N4-... (N4 is a number of VC4 signals),
- *istd* equals SDH.

Validation rule: Pack restrictions for LOXC cross-connection sources

For low-order cross-connections, cross-connection command processing shall verify that any input or output AID shall not reside:

- the OPT2G5 pack,
- the EP51 pack (DS3 and EC1 interfaces),
- the GE1 pack..

Error code: `IDNC - Input, Data Not Consistent, LO tributary not supported by that pack (e.g. OPT2G5, EP51, GE1)`

Validation rule: Restrictions for LO path protection

If a low-order path protection is created, where the specified input tributaries are already used as input tributaries for another, already existing path protection, then the cross-connection command processing shall verify that:

- the specified working input tributary (in-aid) is also the working input tributary of the existing path protection AND
- the specified protection input tributary (in-aid2) is also the protection input tributary of the existing path protection

Error code: `SNVS - Status, Not in Valid State`

Validation rule: XC pack is (pre-)provisioned

Cross-connection command processing shall verify that at least one XC pack is pre-provisioned or provisioned.

Error code: `SNVS - Status, Not in Valid State, XC Pack not provisioned`

This is also valid for LO cross-connections.

Validation rule: LOXC pack with more than 0G switch capacity

It shall not be possible to establish low-order cross-connections if there is no LOXC pack with more than 0 GBit/s low-order switch capacity.

Error code: `SNVS - Status, Not in Valid State, LOXC switch capacity invalid`

Validation rule: Rate must not exceed half of the port rate (2f-BSLR only)

Cross-connection command processing verifies that in case of a 2f-BLSR that the cross-connection rate does not exceed half the rate of the related port.

Note that this validation rule only applies in case of adaptive mode because for fixed-rate such a payload violation would already been denied in the context of the ED-*rr* command.

Error code: `IDNC - Input, Data, Not Consistent, 2f-BSLR: rate exeeds half of the port rate`

Validation rule: path-protected cross-connection has unique input AIDs

Cross-connection command processing verifies that for path-protected cross-connections the two input tributaries are unique i.e. the in_aid has to be different from in_aid2.

Error code: `IDNV - Input Data Not Vaild, Both input tributaries are identical`

Validation rule: path-protected cross-connection has inputs from ports with same interface standards

Cross-connection command processing denies requests to establish path-protected cross-connections where the ports of the logical input tributaries are not provisioned for the same standard, either SONET or SDH – this is due to different switching criteria.

Error code: `SNVS - Status, Not in Valid State, Different interface standards for input tributaries`

Validation Rule: No trib of any MSP port as in_aid (for path-protected cross-connection)

Cross-connection command processing shall verify that for path-protected cross-connections no tributary is used as *in_aid* or *in_aid2* if one of the related ports is a member of a 1+1 or 1:1 multiplex section/line protection group.

Error Code: `SNVS - Status, Not in Valid State, trib of MSP 1+1/1x1 port as input-trib in pathprotected crossconnection`

Validation Rule: no multiple added XCs for MSSPRING TOP

Cross-connection command processing shall verify that for path-protected cross-connections the output tributary and one of the two input tributaries are not a worker tributary of an port being a member of a BLSR/MS-SPRing protection group operating in TOP mode (i.e. protnmode = 'SHORTENED' or 'TOPEX').

Error Code: `SNVS - Status, Not in Valid State, multiple added XCs for MSSPRING TOP`

Validation rule: Supported MS-SPRing/BLSR DNI/DRI

Cross-connection command processing verifies that for path-protected cross-connections the specified input/output tribs are an allowed/supported combination w.r.t. BLSR/MS-SPRing DRI/DNI.

Error code: `SNVS - Status, Not in Valid State, unsupported MS - SPRing/BLSR DNI/DRI`

Validation rule: path-protected cross-connection: missing parameters

Cross-connection command processing shall deny requests to establish path-protected cross-connections if one of the mandatoy parameters *htmr*, *rme*, *snctype* or *wtr* is missing.

Error code: `IPMS -Input, Parameter MiSsing, <parameter name> is missing`

Validation rule: LO cross-connections only in fixed mode

Cross-connection command processing shall deny requests to establish low-order cross-connections where at least one of connected low-order tributaries belongs to a port which is not provisioned in fixed-mode (only fixed STS1 allowed).

Error code: `SNVS - Status, Not in Valid State, input port(s) for LOXC cross-connection in adaptive mode`

Validation rule: Spare capacity for HO cross-connection legs on LOXC

Cross-connection command processing shall deny requests to establish low-order cross-connections if a newly to be substructured HO tributary cannot be connected to the LO switch matrix (which is limited to 96 VC4 respectively 288 STS1).

Error code: `SARB - Status, All Resources Busy, LOXC capacity exhausted`

Validation rule: No cross-connection loopback existing

Cross-connection command processing denies commands requesting a cross-connection to a tributary with an existing cross-connection loopback.

Error code: `SNVS - Status, Not in Valid State, Tributary has existing loopback.`

Note: There is no command validation concerning facility loopback i.e. the cross-connection establishing is possible even with a facility loopback present.

Validation Rule: No test access session

Cross-connection command processing shall deny commands requesting a cross-connection to a tributary which is used in a test access session either as tributary under test or as test access tributary. The denial of the cross-connection request shall be independent whether the direction of the tributary (input or output) is used in the test access session or not.

Error Code: `SNVS - Status, Not in Valid State, Tributary used in test access session`

With this validation rule it is not allowed to add a 1-way cross-connection at a tributary where already another 1-way cross-connection exists in the other direction. This shall avoid cross-connection topology conversions.

Validation rule: Restrict number of cross-connection using same input tributary

Cross-connection command processing verifies that the number of cross-connections originating from the same tributary is restricted to two.

Error code: `SNVS - Status, Not in Valid State, Too many cross-connection originating from same tributary`

Validation rule: TIDs consistent with existing cross-connection

Cross-connection command processing verifies that for each leg of the cross-connection for which the logical input AID is used in any pre-existing cross-connection that the source TID is identical to that associated with the pre-existing cross-connection. This hold for BLSR cross-connections where both legs of a bridge must originate from the same NE.

Error code: `SNVS - Status, Not in Valid State, TID inconsistent with existing cross-connection.`

Validation rule: Output not in use

Cross-connection command processing verifies that logical output AID is not in use as a destination for an existing cross-connection.

Error code: `SNVS - Status, Not in Valid State, Output is already crossconnected`

Validation rule: BLSR/MS-SPRing protection access (Extra Traffic)

Cross-connection command processing shall deny commands requesting cross-connections to the protection tributaries of a port being a member of a BLSR/MS-SPRing protection group. Exception is when the protection group has the parameter attribute protnmode = TOPEX.

Error Code: `SNVS - Status, Not in Valid State, Command refers to protection tributaries of a BLSR/MS-SPRing protection and no TOPEX application`

Validation rule: No low-order cross-connection with BLSR ports

Cross-connection command processing shall deny commands requesting low-order cross-connections having at least one BLSR(SONET) port involved (independent whether as any input or output of the cross-connection).

Error Code: `IDNC - Input, Data Not Consistent, No BLSR inter-working with low-order traffic`

Validation rule: No low-order path protection with input tributaries from BLSR/MS-SPRing ports

Cross-connection command processing shall deny commands requesting low-order path-protected cross-connections having at least one input tributary at a BLSRMS-SPRing port.

Error Code: `IDNC - Input, Data Not Consistent, No low-order path protection with input tributaries from BLSR/MS-SPRing ports`

Validation rule: Corresponding *loca/locz* information is missing

Cross-connection command processing shall deny commands, if affected tributaries are on ports in BLSR/MSSPRING groups which have Automatic Squelch Map Calculation disabled, and corresponding loca/locz information is missing in the command.

Error code: `IDNC - Input, Data Not Consistent, Corresponding loca/locz information is missing`

Validation rule: Consistent *loca/locz* for all low-order cross-connections using the same HO PTF at a MS-SPRING port

Cross-connection command processing shall deny commands, if a low-order cross-connection is created at a MS-SPRING port, and the *loca/locz* information specified in the command does not match the *loca/locz* values of already existing low-order cross-connections using the same HO PTF at the MS-SPRING port.

Error Code: `IDNC - Input, Data Not Consistent, Inconsistent loca/locz information`

Validation rule: SNC Type Compliance

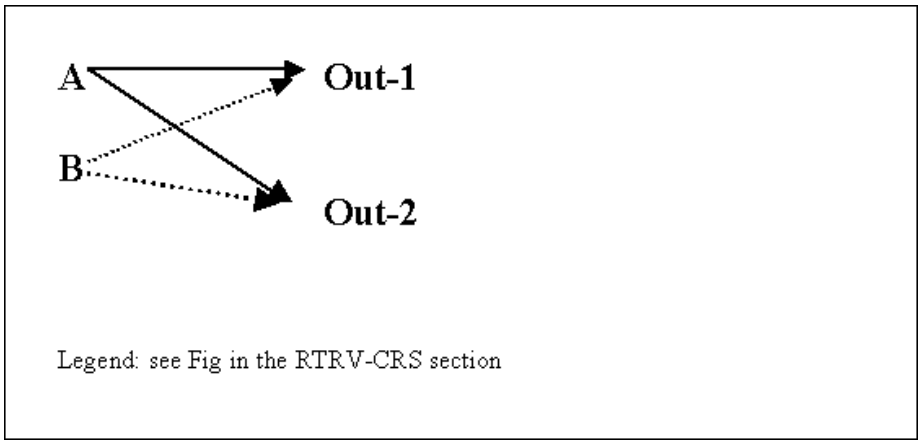
Cross-connection command processing verifies the following when establishing a higher-order path-protected cross-connection:

If there are any existing HO path protection groups that are *co-located* to the HO cross-connection to be established, then the SNC protection type parameter in the ENT-CRS command has the same value as the SNC protection type attribute of all of the *co-located* path protection groups.

A path protection group P is defined for this requirement to be *co-located* to a cross-connection C if any of the logical input tributaries of the cross-connections belonging to P are logical input tributaries of C – see the example below.

Error code: `IDNC - Input, Data, Not Consistent, SNC Type not compliant with existing path-protected cross-connection`

As an example consider the figure below: A path-protected cross-connection A, B $\rightarrow$ Out-1 may be established with the SNC-Type of e.g. SNCI; If then establishing another path-protected cross-connection A, B $\rightarrow$ Out-2, which has a common tributary (here tributary A) with the former path-protected cross-connection, the SNC-Type of this new one has to be SNCI as well.



Validation rule: No VCG-trib as *in_aid* (for path-protected cross-connection)

Cross-connection command processing verifies that for path-protected cross-connection no VCG-trib is used as *in_aid* or *in_aid2*. The case of path-protected cross-connection in conjunction with GEn only makes sense for both input-tribs (*in_aid* and *in_aid2*) being STS-tribs and the *out_aid* being VCG-trib.

Error code: `IDNC - Input Data Not Consistent, VGC-trib as input-trib in pathprotected crosconnection`

Validation rule: No OPT2G5 related trib as in_aid (for pathprotected cross-connection)

Cross-connection command processing verifies that for path-protected cross-connection no tributary from OPT2G5 is used as *in_aid* or *in_aid2*. The case of path-protected cross-connection in conjunction with OPT2G5 only makes sense for both input-tribs *(in_aid* and *in_aid2*) being non-OPT2G5 STS-tribs and the *out_aid* being a tributary on the OPT2G5 pack..

Error code: `IDNC - Input, Data Not Consistent, no OPT2G5-trib as input-trib in pathprotected crossconnection`

Validation rule: Maximum number of *ppgnames* exceeded

Cross-connection command processing verifies that for path-protected cross-connection the maximum number of ppgnames is not exceeded if a new (not already used *as ppgname* for another protection group) is specified.

Error code: `SSRE - Status, System Resources Exceeded, limit of ppgnames exceeded`

ONNS specific validation Rule: Tributaries must not belong to ports of *portClass* INNI

Cross-connection command processing shall verify, that all affected input and output tributaries do not belong to ports of *portClass* INNI.

Error Code: `SNVS - Status, Not in Valid State, Tributaries must not be on ports of portClass INNI`

ONNS specific validation Rule: LO Tributaries must not belong to ports of *portClass* INNI

For low-order cross-connections, cross-connection command processing shall verify, that all affected input and output tributaries do not belong to ports of *portClass* INNI.

Error Code: `IDNC - Input, Data Not Consistent, Tributaries must not be on ports of portClass INNI`

Related TL1 messages

- "DLT-CRS: Delete cross-connection" (p. 4-97)
- "ED-CRS: Edit cross-connection" (p. 4-213)
- "ENT-ROLL: Enter roll" (p. 4-1262)
- "RTRV-CRS: Retrieve cross-connection" (p. 4-1649)

References

GR-199-CORE

□

ENT-CRS notification

Output format

The ENT-CRS notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ENT-CRS-`*modifier*:*in_aid*,*out_aid*:*cct*,[*in_aid2*]:*spec-block*;

Output parameters

Command parameters

1. modifier
   This parameter indicates the cross-connection rate on which the ENT-CRS command acts on.
   For detailed description please refer to the "RTRV-CRS: Retrieve cross-connection" (p. 4-1649) command.
   Type: Alphanumeric value set.
   Range:
   - VC3
   - VC4
   - VC44C
   - VC416C
   - VC464C
   - STS1
   - STS3
   - STS12
   - STS48
   - STS192.
2. in_aid – Input Access Identifier
   The parameter in_aid (Input Access Identifier) specifies the tributary which is the source of the cross-connection.
   In case of a 1way cross-connection this parameter specifies the source of the cross-connection and is identical to the one used as input parameter.
   In case of a 2way cross-connection this parameter is identical to the one used as input parameter (Please refer also to the description of the input parameter *in_aid* of the RTRV-CRS command).
   In case of a path-protected cross-connection this parameter also is identical to the one used as input and may specify either the source of the working leg or the source of the protection leg - the distinction is made via the spec-block parameter

repleg (see below).
If in_aid specifies the working-leg part than in_aid2 (see below) specifies the protection-leg part and vice versa.
Type: STS1NumAID (when using OPn packs) or VCGNumAID (when using GEn)
Range: (″all″ values shall never occur as part of an output parameter)

3. out_aid – Output Identifier
   This parameter specifies the tributary which is the sink of the cross-connection.
   Type: GenTribAID or GenLOTribAID.
   Range: No use of the `all` or `usall` or `vall` values within the *out_aid* is allowed.
4. cct – cross-connection Topology
   This parameter specifies the topology of the cross-connection to be established via the ENT-CRS command.
   The topology defines
   - – the number of legs of the cross-connection
   - – whether both legs belong to the same tributary
   - – whether a path protection is included.

   The following values are possible:
   - 1WAY: the cross-connection consists of one leg given by the *in_aid* to the *out_aid*
   - 2WAY: the cross-connection consists of two legs given by the *in_aid* to the *out_aid* and the return leg given by the *out_aid* to the *in_aid*
   - 1WAYPPROT: the cross-connection consist of one leg (the worker leg) given by *in_aid* to *out_aid* and another leg (the protection leg) given by *in_aid2* to the *out_aid*. The path selector function is associated with the tributary of *out_aid*.

   Type: Alphanumeric value string.
   Range:
   - 1WAY
   - 2WAY (default)
   - 1WAYPPROT.
5. in_aid2 – Second Input Access Identifier
   This parameter is applicable to and is present for path-protected cross-connections only and specifies either the source of the protection leg or the source of the working leg.

This depends on the value of the *repleg* parameter:

- E.g. for the combination: *in_aid*=IN1, *out_aid*=OUT, *in_aid2*=IN2 and *repleg*=1WAYPSW the worker leg is given by IN1 -> OUT and the protection leg is given by IN2 -> OUT;
- for the combination: *in_aid*=IN1, *out_aid*=OUT,*in_aid2*=IN2 and *repleg*=1WAYPSP the worker leg is given by IN2 -> OUT and the protection leg is given by IN1 -> OUT.

Thus *in_aid* and *out_aid* specify one leg of the legpair of a path-protected cross-connection, while *in_aid2* and *out_aid* specify the second leg.
Type: STS1NumAID or GenLOTribAID.
STS1NumAID are used for high-order tributaries on e.g. OPn, EPn packs, GenLOTribAID are used for low-order tributaries on I/O packs e.g. OPn, EP155..
Note: Using VCGNumAID (when using e.g. GEn packs) is NOT applicable as those packs can not be the input to a path-protected cross-connection. Therefore STS1NumAID is mentioned instead of GenTribAID.
Range: n.a. (`all` and `usall` values shall never occur as part of an output parameter).

Spec block parameters

1. loca2 – Location-a-2
   This parameter specifies the TID of the node at which service is added to the BLSR.
   This parameter is required for BLSR THROUGH, INTER-BLSR and DROP connections.
   The *loca* parameter value is an empty string for ADD and non-BLSR connections. A 2way cross-connection is considered to be a DROP if the out_aid is a non BLSR tributary.
   Inter Ring Cross-connections with collapsed node: Note that beside the above described THROUGH case there can be also another situation where both *loca* and *locz* are different from the empty string: If two rings are interconnected in a collapsed node then *loca* refers to the (add-node of the) ring where the signal is dropped from, and *locz* refers to the (drop-node of the) ring where the signal is added to. In such cases the cross-connection cannot be provisioned as bidirectional, thus the information is still unambiguous.
   A note to the loca2 parameter: Although *loca2* (Location-a-2) is a parameter which is used in the ENT-CRS command, *loca2* is not retrieved explicitly. This is due to the fact that for path-protected cross-connections – and only for those this *loca2* is applicable – the retrieval will be on a leg-basis and not on a leg-pair basis. In other words: If a path-protected cross-connection is retrieved two entries will be sent, one for the working leg (incl. the *loca* and *locz* parameter) and one for the protection leg (incl. the *loca* parameter and the same *locz* parameter, and in this case the *loca* returned is the *loca2* as entered when establishing the path-protected cross-connection).
   The parameter *loca* is also required for EXTRA TRAFFIC connections. (In contrast to incoming references from other commands to this whole chapter it is exclusively

applicable for the command RTRV-CRS). For extra traffic the value will be generated automatically and thus it is only retrievable. For information about the automatic generation of *loca* refer to the parameter *sqfa*.
For lower-order cross-connections the parameter *loca* is the TID of that ring node in the direction towards the specified input tributary (upstream), where the HO path termination source function resides. If there is no such function in an upstream ring node then loca is the TID of the node where the related HO circuit is first added to the ring. The picture "Lower-order cross-connections" (p. 4-1661)shows an example of a LO path through a part of a ring. The LO path is added to/dropped from the ring in NE-1 and NE-2. 2-way cross-connections are considered to be either an Add or a Drop connection depending whether the input or the output tributary is at the ring port. In NE-3 there is a HO through connection, which contains the LO path. In NE-3 there is no HO path termination. In NE-4 there is a LO through connection. Consequently, there are HO path terminations in NE-4.
The fact that loca refers to the HO path terminations has the following consequences:

- All LO cross-connections through the same HO path termination at the MSSPRING port have the same loca value.
- Any LO through-connection will be treated as add/drop. loca will identify the node of the through connection, and not the node where the LO service is added to the ring.

Refer to figure "Lower-order cross-connections" (p. 4-1661)in section RTRV-CRS.
Type: TID or empty-string (default)
Range: 1 to 20 characters. Needs to be the same as defined in RTRV-HDR.

2. locz – Location-z
This parameter *locz* (Location-z) specifies the TID of the node at which service is dropped from the BLSR. This parameter is required for BLSR THROUGH, INTER-BLSR and ADD connections. The *locz* parameter value has to be omitted for DROP and non-BLSR connections.
A 2way crossconnection is considered to be a ADD if the in_aid is a non BLSR tributary.
Refer to figure "2-way scenario" (p. 4-1661)in the RTRV-CRS section for further explanation.
locz is also required for EXTRA TRAFFIC connections.
For extra traffic the value will be generated automatically and thus it is only retrievable. For information about the automatic generation of locz refer to the parameter *sqfz*.
For lower-order cross-connections the parameter *locz* is the TID of that ring node in the direction towards the specified output tributary (downstream), where the HO path termination sink function resides. If there is no such function in a downstream ring node then *locz* is the TID of the node, where the related HO circuit is last dropped from the ring. Refer to figure "Lower-order cross-connections" (p. 4-1661) in the RTRV-CRS section for further explanation.

The fact that locz refers to the HO path terminations has the following consequences:

- All LO cross connections through the same HO path termination at the MSSPRING port have the same *locz* value.
- Any LO through-connection will be treated as add/drop. *locz* will identify the node of the through connection, and not the node where the LO service is dropped from the ring.

Type: TID or empty-string (default)

Range: 1 to 20 characters. Needs to be the same as defined in RTRV-HDR.

3. omode – Output Mode

   This parameter specifies the output mode of the cross-connection:

   - for a 1-way cross-connection the output is clearly defined by the destination (*out_aid*)
   - for a 2-way cross-connection the output is defined as the source-to-destination direction (*in_aid* to *out_aid*)
   - NORM: this is the normal output i.e. the signal from the *in_aid* is passed through to the *out_aid*;
   - IDLE/UNEQ: this mode outputs an unequipped signal;
   - AIS: this mode outputs an AIS signal.

   Type: Alphanumeric value set.

   Range:

   - NORM (default)
   - IDLE/UNEQ
   - AIS

4. repleg – Reported Leg Pair

   This parameter provides compact information about the leg(s) of cross-connections and is derived, as shown in "Derivation of repleg" (p. 4-1662), from a combination of the following elementary parameter:

   - atomic cross-connection topology
   - leg status
   - path-protected group working leg (if applicable i.e. being part of a protection group).

   Type: Alphanumeric value set.

   Range

   - 1WAY
   - 2WAY
   - 1WAYPSW
   - 1WAYPSP.

   The values 1WAYPAP and 1WAYPAW are not supported in the initial release.

5. rtnomode – Return Output Mode
   The parameter *rtnomode* (return output mode) is only applicable for 2way cross-connection and is omitted for 1way and path-protected cross-connections.
   Type: Alphanumeric value set
   Range: NORM (default), IDLE/UNEQ, AIS
6. rtnxcappl – Return cross-connection application
   This parameter is a numeric value which indicates the application for which the return cross-connection is used in the context of compound cross-connection topologies.
   - for a 1-way cross-connection this parameter is not applicable and will thus be omitted.
   - for a 2-way cross-connection the parameter is present.

   Type: same as *xcappl.*
   Range: same as *xcappl.*
   Default: The default value is 0.
7. rtnxcnum – Return cross-connection number
   This parameter is a multiple-digit number identifying the cross-connection number for the return direction (destination to source i.e. *out_aid* to *in_aid*) of a 2-way cross-connection.
   - for a 1-way cross-connection this parameter is not applicable and will thus be omitted.
   - for a 2-way cross-connection the parameter is present.

   Type: same as *xcnum.*
   Range: same as *xcnum.*
   Default: The default value is 000000000.
8. xcappl – cross-connection application
   This parameter is a numeric value which indicates the application for which the cross-connection is used in the context of compound cross-connection topologies. The parameter is not further processed in the NE, but only stored (when establishing or modifying the cross-connection) and returned when retrieving the cross-connection.
   Type: numerical value set.
   Range: {0, 1, 2,..., 255}.
   Default: The default value is 0.
9. xcnum – cross-connection number
   This parameter is a 9 digit number, identifying each leg in a specific compound cross-connection. (Compound cross-connection are a composition of several atomic cross-connection in order to form complex scenarios like e.g. described in ″Example input/output″ section of the RTRV-CRS command like UPSR, DRI etc.). Like the *xcappl* parameter the *xcnum* parameter is not further processed in the NE, but only stored (when establishing or modifying the cross-connection) and returned when retrieving the cross-connection. It may be used by a manager to characterize and group cross-connections belonging to complex cross-connection topology (e.g.

compound cross-connections as used in ring interworking scenarios).
Type: numeric value set (9 digit).
Two digits for the bay, one digit for the shelf, two digits for the slot, one digit for the port, and three digits for the trib (where the digits values pertain to out_aid).
Range: 000000000 .. 999999999.
Default: The default value is 000000000.

10. xconcls – cross-connection class
    This parameter identifies, whether the cross-connection has been setup in the TRADITIONAL way by an operator via the ENT-CRS command or via the NN application as part of an ENT-PATH command. This parameter therefore also indicates who is the owner of the cross-connection and can modify or delete it.
    Type: alphanumeric value set.
    Range: TRADITIONAL, NN.

Example output

```
LT-UNITE-123 00-01-01 08:00:50
A 815 REPT DBCHG
   "TIME=08-00-12,DATE=00-01-01:ENT-CRS-VC4:
   1-1-#-#-1-1-1,\1-1-#-#-2-1-1:2WAY:lpbkstat=NO,
   omode=NORM,repleg=2WAY,\rtnomode=NORM,rtnxcappl=20,
   rtnxcnum=123456789012,\xconcls=TRADITIONAL,xcappl=20,
   xcnum=123456789012"
;
```

□

ENT-CRS-FECOM: Enter transparent DCC cross-connection

The ENT-CRS-FECOM can be initiated by the users to establish a transparent DCC cross-connection.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M3

Priority: 3

Abortable: No.

Input format

Command Syntax: `ENT-CRS-FECOM`*:tid:port_aid1,port_aid2,dcctype:ctag;*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
3. port_aid1 – DCC port 1
   This parameter indicates one (first) optical port AID of an OPn circuit pack which is used together with dcctype to identify the DCC channel which is involved in a transparent DCC cross-connection.
   Type: AID
   Range: SPortAID. The keyword ″all″ shall be allowed not.
4. port_aid2 – DCC port 2
   This parameter indicates one (second) optical port AID of an OPn circuit pack which is used together with dcctype to identify the DCC channel which is involved in a transparent DCC cross-connection.
   Type: AID.
   Range: SPortAID. The keyword ″all″ shall be allowed not.
5. dcctype
   This parameter specifies whether the LINE/MS or SECTION/RS transparent DCC cross-connection parameters of the OPn port is reported by the command.
   Type: alphanumeric value set.
   Range: LINE, SECTION.

Output format

In response to a valid ENT-CRS-FECOM command, the following output shall be returned:

```
    sid date time
 M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736) .

Detailed behavior description

The ENT-CRS-FECOM command establishes a transparent DCC cross-connection. The transparent DCC cross-connection will be established between *port_aid1* and *port_aid2* for the specified dcctype. The System supports only bidirectional transparent DCC cross-connections.

Update affected entities

The established bidirectional transparent DCC cross-connection will be reported via ENT-CRS-FECOM notification reporting the established transparent DCC cross-connection.

The update of the *dccstat* parameter of the two involved DCC channels will be reported via ED-FECOM notification for each port reporting the changed *dccstat* = TRANSPARENT and *scn_dccstat* = TRANSPARENT.

Example input/output

The following example shows ENT-CRS-FECOM commands where two transparent DCC cross-connections are established one for *dcctype* = SECTION and one for *dcctype* = LINE:

```
ENT-CRS-FECOM:NE-UNITE:1-1-#-#-1-1,1-1-#-#-2-1,LINE:12345;
    NE-UNITE 00-12-24 12:00:00
 M  123456 COMPLD
;
ENT-CRS-FECOM:NE-UNITE:1-1-#-#-1-1,1-1-#-#-2-1,SECTION:12345;
    NE-UNITE 00-12-24 12:00:00
 M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the ENT-CRS-FECOM command.

Validation rule: Different port AIDs

The AIDs of *port_aid1* and *port_aid2* must specify different ports.

Error Code: `IDNC - Input, Data Not Consistent, port_aid1 and port_aid2 not different`

Validation Rule: Maximum of DCC CCs exceeded with CTL/- or CTL/2

Operating on a CTL/- or CTL/2, the maximum number of bidirectional transparent DCC cross-connections is limited to 25.

Error Code: `SSRE - Status, System Resources Exceeded, limit of transparent DCC Cross Connectins exceeded`

Validation Rule: Maximum of DCC CCs exceeded with CTL/3

Operating on a CTL/3 the maximum number of bidirectional transparent DCC Cross Connections limited by the following equation: 2 * (nr. of enabled transparent MS/RS-DCC channels) + (nr. of enabled non-transparent MS/RS-DCC channels) ≤ 180.

Error Code: `SSRE - Status, System Resources Exceeded, limit of transparent DCC Cross Connectins exceeded`

Validation Rule: DCC channels enabled

One of the DCC channels is already enabled for DCC overhead processing.

Error Code: `SNVS - Status, Not in Valid State, DCC channel already enabled`

Validation Rule: DCC protection

One of the DCC channels is occupied the MSP/APS protection of DCC channels.

Error Code: `SNVS - Status, Not in Valid State, DCC channel occupied by MSP/APS DCC protection`

Validation rule: No DCC on transparent ports

The system shall not allow to use DCC on Transparent Ports, i.e. on ports with a rate of STM16T or OC48T.

Error Code: `IDNV - Input, Data Not Valid, DCC on Transparent Ports not allowed`

Validation rule: No DCC on DS3 ports

The system shall not allow to use DCC on DS3 Ports, i.e. on ports with a rate of T3.

Error Code: `IDNV - Input, Data Not Valid, DCC on DS3 Ports not allowed`

Validation rule: No DCC on EC1 ports

The system shall not allow to use DCC on EC1 Ports.

Error Code: IDNV - Input, Data Not Valid, DCC on EC1 Ports not allowed

Related TL1 messages

- "RTRV-CRS-FECOM: Retrieve transparent DCC cross-connection" (p. 4-1669)
- "DLT-CRS-FECOM: Delete transparent DCC cross-connection" (p. 4-107)
- "RTRV-FECOM: Retrieve DCC related parameters" (p. 4-1727)
- "ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)

□

ENT-CRS-FECOM notification

General

The ENT-CRS-FECOM notification shall use the general format of a REPT DBCHG (Report Database Change) notification.

Command syntax: `ENT-CRS-FECOM`*:port_aid1,port_aid2,dcctype*

Output parameters

Command parameters

1. port_aid1 – DCC port 1
   This parameter indicates one (first) optical port AID of an OPn circuit pack which is used together with dcctype to identify the DCC channel which is involved in a transparent DCC cross-connection.
   Type: AID
   Range: SPortAID. The keyword ″all″ shall be allowed not.
2. port_aid2 – DCC port 2
   This parameter indicates one (second) optical port AID of an OPn circuit pack which is used together with dcctype to identify the DCC channel which is involved in a transparent DCC cross-connection.
   Type: AID.
   Range: SPortAID. The keyword ″all″ shall be allowed not.
3. dcctype
   This parameter specifies whether the LINE/MS or SECTION/RS transparent DCC cross-connection parameters of the OPn port is reported by the command.
   Type: alphanumeric value set.
   Range: LINE, SECTION.

Example output

The following example shows ENT-CRS-FECOM notifications reporting established transparent DCC cross-connections:

```
    UNITE-NE 00-12-24 12:00:00
 A  000 REPT DBCHG
    ″TIME=12:00:00,DATE=00-12-24:ENT-CRS-FECOM:1-1-#-#-1-1,1-1-#-2-
     1,LINE″
;
    UNITE-NE 00-12-24 12:00:00
 A  000 REPT DBCHG
    ″TIME=12:00:00,DATE=00-12-24:ENT-CRS-FECOM:1-1-#-#-1-1,1-1-#-2-
     1,SECTION″
;
```

□

ENT-EC1 notification

The ENT-EC1 notification shall use the general format of a REPT DBCHG Report Database Change notification.

Output format

Command Syntax:

`ENT-EC1:`*aid::spec_block;*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID
   Range: EC1 port AID

Spec block parameters

1. crstat - Constituent Rates Status list
   This parameter shows the rates of the port signal.
   Type: numeric value set
   Range: 11 (1 xSTS1)
2. eif - Electrical Interface Type
   This parameter indicates the type of input the port has been provisioned to receive.
   Type: alphanumeric value set
   Range: EC1
3. felpm - Far-end Line PM Enable
   Enable or disable of the performance monitoring of the multiplex section/line.
   Type: alphanumeric value set.
   Range: ENABLE, DISABLE (default)
4. frcdus - Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message “do not use” will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range: ENABLE: set a forced DUS/DNU; DISABLE (default): clear a forced DUS/DNU
5. fsflpbkstat - Far Side Facility Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output aid.
   A far-side loopback means that the signal on the outgoing port is looped to the incoming port - this would thus correspond to loop via an external fibre cable,

connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed - if NO then there is no (far-side) loopback exististing for the aid. Note: not both loopbacks (lpbk and fsflpbkstat) can be set to YES at the same time.
Type: alphanumeric value set.
Range: YES, NO (default).

6. inputsig - Tributary Input Signal Rate List
   This parameter shall be a list of STSn rates across the port's bandwidth.
   Type: numeric value set
   Range: 11 (1 xSTS1)
7. istd - Interface Standard
   Interface standard of the synchronous EC1 interface.
   Type: alphanumeric value set
   Range: SONET
8. lbo - Line Build Out
   This parameter defines the cable length applicable for the EC1 port.
   Type: alphanumeric value set.
   Range:
   - SHORT (default): 0 ... 68.5 m (0 ... 225 ft)
   - LONG: 68.5 ... 137 m (225 ... 450 ft).
9. lpbk - Loopback
   This parameter specifies the current near-side loopback status of the considered output aid.
   A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed - if NO then there is no (near-side) loopback exististing for the port.
   Type: alphanumeric value set
   Range: YES, NO (default)
10. nelpm - Near-End Line PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set
    Range: ENABLE, DISABLE (default)
11. pmmsfeses - Performance Monitoring Line Far-End SES Threshold
    This parameter describes the Line Far-End SES threshold value. It indicates the number of code violations per second to declare a second as severly errored.
    Type: numeric value set.
    Range: 1 - 6400.
    Default: 51

12. pmmsneses - Performance Monitoring Line Near-End SES Threshold
    This parameter describes the Line Far-End SES threshold value. It indicates the number of code violations per second to declare a second as severly errored.
    Type: numeric value set
    Range: 1 - 6400.
    Default: 51
13. pmode - Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set.
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
14. pmrsneses - Performance Monitoring Section Near-End SES Threshold
    This parameter describes the Section Near-End SES threshold value. It indicates the number of code violations per second to declare a second as severly errored.
    Type: numeric value set.
    Range: 1 ... 64000
    Default: 52
15. portClass - Port Class
    This identifies the port class of the AID.
    Type: alphanumeric value set
    Range: TRADITIONAL
16. portControl - Port Control
    This identifies the administrative mode of the EC1 port. This parameter is not relevant for EC1 ports, because the portClass is always TRADITIONAL. The parameter can only be retrieved but not changed.
    Type: alphanumeric value set
    Range: NORMAL (default), LOCKOUT
17. ptype - Port Type
    This identifies the port type of the AID.
    Type: alphanumeric value set
    Range: EC1
18. sdthr - Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applys when sdsfmode=POISSON.
    Type: numeric value set.
    Range: (as exponents of 10): -5 -6 (default), -7, -8, -9

19. servcond - Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
20. sfthr - Signal Failure Threshold
    Retrieving of the excessive degrade/signal failure threshold in exponent of 10. This parameter is available when sdsfmode=POISSON
    Type: numeric value set
    Range: (as exponents of 10): -3 (default), -4, -5
21. sltca - Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
22. sonet - SONET ASAP
    SONET Alarm Severity Assignment Profile. This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH Alarm Severity Assignment Profile for SDH ports of corresponding line rate (see RTRV-STM4, output parameter sdhpn) to be compatible with current generation applications.
    Type: alphanumeric string
    Range: String with a maximum of 24 characters. A hyphen (-) is additionally allowed in the name.
    Default: DEFAULT.
23. spm - Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set
    Range: ENABLE, DISABLE (default).
24. strcfmt - Format of incoming J0
    The read format of J0, the incoming section trace (strc).
    Type: numeric string
    Range: 1 for specific repeating byte (SONET)
25. strcout - Value of outgoing J0
    This identifies the section trace message to be transmitted.
    Type: Hexadecimal digits
    Range: 1 byte string, One byte shall be expressed as two hexadecimal digits (example value: 6D).
    Default: 01Hex

26. strcwfmt - Format of outgoing J0
    The write format of J0, the outgoing section trace (*strcout*).
    Type: numeric string
    Range: 1 for specific repeating byte (SONET)
27. trbmd - Tributary mode
    This parameter indicates the tributary mode of the port. In the case of EC1 port, the only possible value is FIXED.
    Type: alphanumeric value set
    Range: FIXED
28. unequiposig - Unequipped Output Signal List
    Tributary Unequipped Output Signal Rate List.
    This parameter is a list of STSn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross-connection.
    Type: numeric value set
    Range: 11 (1 x STS1)

Example Output

```
   UNITE-NE 04-12-23 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=04-12-23:ENT-EC1:1-1-#-#-21-1::
   eif=EC1,ptype=EC1,sfthr=-3,sdthr=-6, pmode=MON,.....
   pmmsneses=51,pmrsneses=52"
;
```

□

ENT-EPORT notification

Output format

The ENT-EPORT notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: The ENT-EPORT notification has following specific syntax:

ENT-EPORT-modifier*:aid::spec_block;*

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter specifies the ethernet port to be operated on.
   Type: AID
   Range: EPortAID as defined in AID structure. The values
   - *all* for Simple_EPortAID and
   - *usall* for Simple_UnivSlotAID

   are accepted.

Spec block parameters

1. cnprole – Customer/Network Port Role
   This parameter specifies whether the addressed port is used as a customer LAN port or a network LAN port.
   Type: alphanumeric value set.
   Range: CUSTOMER (default), for a customer LAN port; NETWORK, for a network LAN port.
2. dftpri – Default User Priority
   This parameter specifies the default user priority acc. the IEEE 802.1Q tagging scheme.
   Type: alphanumeric value set.
   Range:
   - HIGH
   - LOW (default).
3. dftvlan – Default VLAN Identifier
   This parameter specifies the value of the VLAN identifier which is applied to frames (tagging) at LAN ingress (i.e. from LAN into the Ethernet-port). This only applies to frames carrying no VLAN identifier, yet. This parameter is also used to provision the customer tag (CID) to be used in transparent tagging mode.
   Type: alphanumeric value set.

Range:

- 1, 2, 3, ... 4092, 4093
- UNAVAILABLE (default).

To express the state UNAVAILABLE system internally the invalid VLAN ID 4094 is used.

4. enetpn – Ethernet Alarm Severity Assignment Profile
   This parameter points to a tributary ASAP profile name of type ENET for the designated AID.
   Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: 1 ... 24 characters length.
   Default: DEFAULT.
5. enettca – Ethernet TCA Profile
   This parameter specifies the name of the threshold crossing alert (TCA) profile used for Ethernet ports.
   Type: alphanumeric string
   Range: 1 ... 24 characters length
   Default: DEFAULT0
6. epmode – Ethernet Port Monitoring Mode
   This parameter specifies the monitoring mode of the Ethernet port. Alarms for this port will be reported if in state MON otherwise not. The configuration of epmode will change from AUTO to MON if a valid signal is applied to that port.
   Type: alphanumeric value set.
   Range:
   - AUTO (default), for automatic
   - MON, for monitored
   - NMON, for not monitored.
7. eppm – Ethernet Port Performance Monitoring
   This parameter specifies whether the performance monitoring is enabled or disabled for this port.
   Type: alphanumeric value set.
   Range:
   - DISABLE (default)
   - ENABLE
8. fcmd – Flow Control Mode
   This parameter specifies the configuration for the pause operation of this port. This parameter is applicable only if the bridge operates in backward-compatible mode (*vlantagmd* = BCMD).
   Type: alphanumeric value set.
   Range:
   - AUTO (default), for auto-negotiate
   - DISABLE, for pause mode disabled.

9. fsflpbkstat – Far Side Facility Loopback Status
   This parameter reports the configuration of the far-side facility loopback of this port. A far-side loopback means that the signal on the outgoing port is looped to the incoming port (Tx -> Rx). For GE1 there is only this type of facility loopback. For changing the loopback operation refer to OPR-LPBK of section Transmission and Cross-Connection Handling, Port
   Type: alphanumeric value set.
   Range:
   - YES, for enabled loopback
   - NO (default), for disabled loopback.
10. rptmode – Repeater Mode
    This parameter sets the bridge device for this LAN port into the repeater mode (promiscuous mode), valid for a point to point connection between one LAN and one WAN port. Operating in repeater mode imposes some restrictions. See detailed behaviour section. Option: This parameter is meaningful only if the bridge operates in backward-compatible mode (vlantagmd == BCMD).
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
11. servcond – Service Condition
    This parameter specifies the service condition for this port. Some configuration possibilities like loopbacks may be dependent on the state of *servcond*.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default)
    - OUTOFSERVICE.
12. stdis – Spanning Tree Protocol Disable
    This parameter allows to enable or disable the Spanning Tree Protocol for the given port. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: alphanumeric value set.
    Range:
    - DISABLE, STP is disabled, i.e. the port is not used in the spanning tree protocol
    - ENABLE (default), STP is enabled, i.e. the port is used in the spanning tree protocol.

13. stpcost – Spanning Tree Path Cost
    This parameter specifies the STP-related cost of the path egressing the given port. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: integer.
    Range: 1 to 200000000.
    Default: 20000.
14. stpp – Spanning Tree Port Priority
    This parameter specifies the priority of the given port for the Spanning Tree Protocol. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: integer.
    Range: 0 to 255.
    The stepping as recommended by the standard (steps of 16 starting at 0) should be implemented by the management system. The NE will accept any value in the range described above. This has the consequence, that also the range restriction ″0 to 240″ is not done by the NE.
    Default: 128.
15. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding. Two thresholding methods are applicable: TR-only. (also known as the implicit reset method), TR-RTR. (also known as the explicit reset method).
    Type: alphanumeric value set.
    Range: TR, TRRTR (default).
16. vrtswid – Virtual Switch Identifier
    This parameter identifiers the instance of the virtual switch.
    - A Virtual Switch ID is unique within a single circuit pack. When creating a new Virtual Switch, the system automatically assigns a unique ID to it.
    - There will be one virtual switch per physical switch, implicitly all LAN ports and all WAN ports on the physical switch are part of the single virtual switch. The ID of this virtual switch is fixed to 1. A future release may support multiple virtual switches per physical switch.

    Type: integer.
    Range: 1 - Currently this is the only allowed value.
    Default: 1.
    Option: This parameter is reported only if the virtual switch entity exists (i.e. the VLAN tagging mode *vlantagmd* of the slot the addressed EPort belongs to is set to 802.1TAG).

17. vvidls – Valid VLAN Identifier List (static)
    This parameter specifies a list of all static VLAN identifiers allowed for this port. The list shall be ampersand grouped (& and &&). The list shall be packed by the NE and the management systems as good as possible by using '&' and '&&' . The vlan identifier of an incoming frame must be a member of this static VLAN Id list or the dynamic VLAN Id list *vvidlsd*. Frames tagged by a vlan identifier not member of these lists will be discarded. The port VLAN identifier (refer to parameter dftvlan of RTRV-EPORT Output Parameters) is not part of this list. This parameter is also used in transparent tagging mode to specify the list of valid customer tags (CIDs) for network ports (cnprole == NETWORK).
    Type: alphanumeric string and the character '&'.
    Range:
    - Value of each single member (valid VLAN identifier) in the list 1, 2, ..., 4092, 4093
    - In case the list has no members (empty list) -1.

    The length of the list is limited only by the usual system limitations like e.g. TL1 line length. The number of entries in this list is limited to 64 by some NE-internal restrictions. Ranging and grouping by using the operators '&' and '&&' has no impact on the number of entries, it only reduces the length of the list being transported to/from CIT/EMS.
    Default: -1.
    Example 1:
    vvidls=-1. The list has no members (empty list).
    Example 2:
    vvidls=3&5&40&&45. This list has the members 3, 5, 40, 41, 42, 43, 44 and 45.
    Example 3:
    vvidls=1&&4093 This list has the members 1,2, 3, ..., 4092, 4093.

Example Output

```
   LT-UNITE 00-11-11 11:11:00
A  001 REPT DBCHG
   "TIME=11-10-30,DATE=00-11-11:ENT-EPORT-1GE:
   1-1-#-#-2-3::cnprole=CUSTOMER,dftpri=LOW,
   dftvlan=UNAVAILABLE,enetpn=DEFAULT, enettca=DEFAULT,
   epmode=AUTO,eportClass=TRADITIONAL,eportControl=NORMAL,
   eppm=DISABLE,fcmd=AUTO,fsflpbkstat=NO,rptmode=DISABLE,
   rstpmd=ENABLE,servcond=INSERVICE,stdis=DISABLE,
   stpcost=20000,stpp=128,tcamd=TR,vrtswid=1,vvidls=-1"
;
```

□

ENT-EQPT (CP) notification

Output format

The ENT-EQPT notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ENT-EQPT`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   The AID of an equipment.
   Type: AID
   Range:
   - CpAID ::= SlotAID-cp for circuit pack in any slot
   - LoxcAID::=UnivSlotAID-loxc for LOXC pack in universal slots.

   The keyword `usall` is not allowed for Simple_UnivSlotAID.
   The keyword `xcall` is not allowed for Simple_XCSlotAID.
   The keyword `ctlall` is not allowed for Simple_CTLSlotAID.
   The keyword `all` is not allowed for Simple_SlotAID.

Spec block parameters

1. eqptpn – Equipment ASAP Profile Name
   The name of the current ASAP profile of type EQUIP-UNPROT of the circuit pack. This parameter is reported for a CpAID , PowerAID, EciAID, TimingInterfaceAID and LoxcAID.
   Type: Alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: up to 24 characters.
   Default: DEFAULT.
2. eqptprotpn – Protected Equipment ASAP Profile Name
   The name of the current ASAP profile of type EQUIP-PROT for the equipment.
   Option: This parameter is only reported for a CpAID, LoxcAID or PowerAID..
   Type: Alphanumeric string.
   Range: up to 24 characters. A hyphen (-) is additionally allowed in the name.
   Default: DEFAULT
3. opstate – Operational State
   Each circuit pack has a retrievable attribute indicating whether circuit pack is operational for the system internal communication.
   Type: alphanumeric value set
   Range:
   - OS_ENABLED
   - OS_DISABLED (default).

4. loswcap – LOXC switch capacity
   Switch capacity of the LOXC pack. This parameter is relevant only for circuit packs of type LOXC (i.e. nvmname = LOXC).
   Type: value set
   Range:
   - 0 (default): LOXC in suspended state, initial value after LOXC CP creation
   - 15: LOXC active or member of equipment protection group, switch capacity 15 Gbit/s
5. lostd – LO tributary standard
   LO tributary standard supported by the LOXC pack. This parameter is relevant only for circuit packs of type LOXC (i.e. nvmname = LOXC),
   Type: value set
   Range:
   - SDH: LOXC supports SDH LO tributaries (VC3, VC12)
   - SONET: LOXC supports SONET LO tributaries (VT1.5)
   - UNDEFINED (default): no LO tributaries (loswcap = 0)

Example output

```
   UNITE-NE 00-11-14 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-14:ENT-EQPT:1-1-#-#-1-cp:::eqptpn=DEFAULT,eqptprotpn=D
```

□

ENT-EQPT (slot): Enter equipment (slot)

The ENT-EQPT command pre-provisions a slot for a dedicated circuit pack.

The CTL can not be pre-provisioned. It is always auto-provisioned.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: No.

Input format

Command Syntax: `ENT-EQPT`*:tid:aid:ctag:::[spec_block];*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   The AID of a slot.
   Type: AID
   Range: SlotAID
   The keyword `usall` is not allowed for Simple_UnivSlotAID.
   The keyword `xcall` is not allowed for Simple_XCSlotAID.
   The keyword `ctlall` is not allowed for Simple_CTLSlotAID.
   The keyword `all` is not allowed for Simple_SlotAID, Simple_UnivSlotAID, Simple_XCSlotAID, Simple_CTLSlotAID.
   The keyword `all` is not allowed on bay/shelf level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. nvmname – Circuit Pack Name
   This parameter specifies the name of the provisioned circuit pack of the slot. If no circuit pack is provisioned the default value is reported.
   Type: value set.
   Range: 12 character.
   Default: UNDEFINED.
2. nvmqual – Circuit Pack Qualifier
   This parameter specifies the qualifier of the provisioned circuit pack of the slot. If no circuit pack is provisioned the value UNDEF is reported.
   Type: value set.
   Range: 7 characters.
   The allowed values are:
   - UNDEF (default)
   - EXTD
   - all values as defined in SRD_ConfigurationManagement

   Note: The TL1-representation of the functional qualifier follows the following rules:
   - alphanumeric characters or the special character ’-’ only
   - special characters like ’/’ and ’.’ to be omitted.

Output format

If the ENT-EQPT command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of “RTRV-HDR: Retrieve header” (p. 4-1736).

Detailed behavior description

The command preprovisions a slot for a dedicated circuit pack. The following attributes of the slot entity is updated due to that operation:

1. *nvmname* as specified in the command input
2. *nvmqual* as specified in the command input.

The command is only allowed if the slot is not provisioned (*nvmname/nvmqual* = UNDEFINED/UNDEF).

The update is reported by means of an ED-EQPT notification for that slot.

Behaviour of *actlname* during provisioning

When a slot is provisioned for a dedicated circuit pack, then the actlname of the provisioned slot shall be updated and only contain the functional names of circuit packs which are allowed for reprovisioning. The parameter actlname shall at least contain the functional name of the provisioned circuit pack, independent if reprovisioning is supported for the provisioned circuit pack.

Behavior of preprovisioning of multislot circuit packs

The attribute *actlname* of the neighbor slots which are also covered by a multislot circuit pack (e.g. OP40) shall be modified and set to empty (i.e. the output contains one row with *actlname=""*, see also Example Input/output section of RTRV-EQPT(slot)).

The attributes *nvmname*, *nvmqual* of the neighbor slots which are also covered by a multislot circuit pack (e.g. OP40) shall be modified and set to *nvmname*, EXTD.

The update is reported by means of an ED-EQPT notification for those slots.

Behavior of preprovisioning on multislot circuit packs

The attribute *actlname* of the neighbor slot which can not be used anymore by a multislot circuit pack (the physical slot of e.g. an OP40) shall be modified and all multislot CPs shall be removed.

The update is reported by means of an ED-EQPT notification for this slot.

Changes for neighbour slots when provisioning double-density circuit packs

If the system parameter *swmaxcap* is set to LXC320 or LXC160 the provisioning of a double density pack in slot n shall clear the acceptable CP name list of the neighbour slot n-1. The update shall be reported by means of an ED-EQPT notification for slot n-1.

Update affected entities

The command creates in addition a set of entities of different types depending on the value of *nvmname* of command input as follows.

1. One instance of type circuit pack is created. This is reported by means of an ENT-EQPT notification for circuit pack.
2. Some instances of port STM-16 are created if *nvmname* of command equals *OP2G5* and attribute *istddflt* of the node equals *SDH*. This is reported by means of ENT-STM16 notification for port. The number of port instances to be created depends on the capabilities of the actual circuit pack.
3. Some instances of port OC-48 are created if *nvmname* of command equals *OP2G5* and attribute *istddflt* of the node equals *SONET*. This is reported by means of ENT-OC48 notification for port. The number of port instances to be created depends on the capabilities of the actual circuit pack.

4. One instance of port STM-64 is created if *nvmname* of command equals *OP10* and attribute *istddflt* of the node equals *SDH*. This is reported by means of ENT-STM64 notification for port.
5. One instance of port OC-192 is created if *nvmname* of command equals *OP10* and attribute *istddflt* of the node equals *SONET*. This is reported by means of ENT-OC192 notification for port.
6. One instance of port STM-256 is created if *nvmname* of command equals *OP40* and attribute *istddflt* of the node equals *SDH*. This is reported by means of ENT-STM256 notification for port.
7. One instance of port OC-768 is created if *nvmname* of command equals *OP40* and attribute *istddflt* of the node equals *SONET*. This is reported by means of ENT-OC768 notification for port.
8. 48, 192, 768 VC3 tributaries are created for each to the previously created SDH port according to the port rate. This is reported by means of ENT-VC3 notification for tributary.
9. 48, 192, 768 STS1 tributaries are created for each to the previously created SONET port according to the port rate. This is reported by means of ENT-STS1 notification for tributary.
10. Two dcc channels entities are created (one per type section/dccr and one type line/dccm) for each previously created SDH/SONET port. This is reported by means of ENT-FECOM notification for dcc channel.
11. One instance of 1+1 equipment protection group of type 'EQPTSWFBR' is created if nvmname of command equals *XC320* and another *XC320* circuit pack exists already. This is reported by means of ENT-PROTNGRP notification for 1+1 equipment protection group. The initial protection state is reported by means of a protection switch notification for the 1+1 equipment protection group.

Update affected entities – GE1

The command creates in addition a set of entities of different types depending on the value of *nvmname* of command input as follows.

1. One instance of type circuit pack is created. This shall be reported by means of an ENT-EQPT notification for circuit pack.
2. Four instances of entity EPORT are created if *nvmname* of command equals *GE1*. This shall be reported by means of ENT-EPORT notification.
3. Four instances of entity VCG are created if *nvmname* of command equals *GE1*. This shall be reported by means of ENT-VCG notification.
4. 7 VC-4 tributaries are created for each to the previously created VCG if attribute *istddflt* of the node equals 'SDH'. This is reported by means of ENT-VCGTRIB notification.
5. 21 STS-1 tributaries shall be created for each to the previously created VCG if attribute istddflt of the node equals 'SONET'. This is reported by means of ENT-VCGTRIB notification.

Update affected entities - Port Entities of OP622

In addition to the rules listed in ID 17111 the command shall create the following entities if nvmname equals OP622:

- Some instances of port STM-4 are created if the attribute *istddflt* of the node equals 'SDH'. This shall is by means of ENT-STM4 notification for port. The number of port instances to be created depends on the capabilities of the actual circuit pack.
- Some instances of port OC-12 are created if the attribute *istddflt* of the node equals 'SONET'. This is reported by means of ENT-OC12 notification for port. The number of port instances to be created depends on the capabilities of the actual circuit pack.
- 12 VC3 tributaries are created for each of the previously created SDH ports. This is reported by means of ENT-VC3 notifications for tributary.
  12 STS1 tributaries are created for each of the previously created SONET port. This is reported by means of ENT-STS1 notifications for tributary.

Update affected entities - Port Entities of OP155

In addition to the rules listed in ID 17111 the command shall create the following entities if nvmname equals OP155:

- Some instances of port STM-1 are created if the attribute *istddflt* of the node equals SDH. This is reported by means of ENT-STM1 notification for port. The number of port instances to be created depends on the capabilities of the actual circuit pack.
- Some instances of port OC-3 are created if the attribute *istddflt* of the node equals SONET. This is reported by means of ENT-OC3 notification for port. The number of port instances to be created depends on the capabilities of the actual circuit pack.
- 3 VC3 tributaries are created for each of the previously created SDH ports. This is reported by means of ENT-VC3 notifications for tributary.
- 3 STS1 tributaries are created for each of the previously created SONET port. This is reported by means of ENT-STS1 notifications for tributary.

Update affected entities - Port Entities of EP155

In addition to the rules listed in ID 17111 the command shall create the following entities if nvmname equals EP155:

- 8 STM-1E port instances of the actual circuit pack shall be created. This shall be reported by means of ENT-STM1E notification for port.
- 1 VC4 tributary shall be created for each of the previously created SDH ports. This shall be reported by means of ENT-VC3 notifications for tributary.

Update affected entities - OPLB

The command shall create following entities:

- One instance of type circuit pack shall be created. This shall be reported by means of an ENT-EQPT notification for circuit pack.
- Some instances of type socket shall be created for each socket contained on the circuit pack one. This shall be reported by means of ENT-EQPT notifications for sockets.

Update affected entities - OP2G5D

The command shall create following entities:

- One instance of type circuit pack shall be created. This shall be reported by means of an ENT-EQPT notification for circuit pack.
- Some instances of type socket shall be created for each socket contained on the circuit pack one. This shall be reported by means of ENT-EQPT notifications for sockets.

Update affected entities - OPT2G5

The command creates the following entities:

- One instance of type circuit pack shall be created. This shall be reported by means of an ENT-EQPT notification for circuit pack.
- Three instances of type socket shall be created (one for each socket contained on the circuit pack). This shall be reported by means of ENT-EQPT notifications for sockets.
- One instance of entity VCG-TRANS shall be created. This shall be reported by means of ENT-VCG-TRANS notification.
- 17 VC-4 tributaries shall be created for the previously created VCG-TRANS if the attribute istddflt of the node equals 'SDH'. This shall be reported by means of ENT-VCGTRIB notification.

Update affected entities - OP10D

The command creates the following entities:

- One instance of type circuit pack shall be created. This shall be reported by means of an ENT-EQPT notification for circuit pack.
- Some instances of type socket shall be created for each socket contained on the circuit pack one. This shall be reported by means of ENT-EQPT notifications for sockets.

Update affected entities - LOXC

The command creates the following entities:

- One instance of type circuit pack shall be created. This shall be reported by means of an ENT-EQPT notification for circuit pack.

Update affected entities - EP51

The command creates the following entities:

- One instance of type circuit pack shall be created. This shall be reported by means of an ENT-EQPT notification for circuit pack.
- 36 instances of port T3 shall be created. This shall be reported by means of ENT-T3 notification for port.
- 1 STS1 path termination shall be created for each of the previously created T3 ports. This shall be reported by means of ENT-PTF-STS notifications.

Group notification for STS-1/AU-3 tributaries

For efficiency reasons the notifications for tributaries are sent out as a single notification (so-called group notification) using a range over the aid which depends on the port rate of the associated port, i.e. the Simple_STS1NumAID field in the STS1NumAID is set to:

1&&-<N> with N is maximal legal STS-1/AU-3 number.

AID range for group notification: See STS-1/AU-3 Tributaries AID w.r.t. range for legal STS-1/AU-3 number.

See STS-1/AU-3 Tributaries AID w.r.t. range for legal STS-1/AU-3 number.

Example: The AID field in a group notification for a tributaries related to port 1 for a OP10 pack in slot 1 looks like: 1-1-#-#-1-1-1&&-192.

Group notification for VCG tributaries

For efficiency reasons the notifications for VCG tributaries are sent out as a single notification (so-called group notification) using a range over the aid which depends on the used mapping of the associated VCG port, i.e. the Simple_VCGNumAID field in the VCGNumAID is set to:

- 1&&-<N> for sequential range
- 1&-4 .. &-<N> for non-sequential range.

with N is maximal legal VCG tributary number.

AID range for group notification: See VCG Tributaries AID w.r.t. range for legal VCG number and sequential/non-sequential aid range.

Example: The AID field in a group notification for a VCG tributaries related to VCG port 1 for a GE1 pack in slot 1 looks like: 1-1-#-#-1-v1-1&&-21 (for STS-1/VC-3 mapping) 1-1-#-#-1-v1-1&-4&-7&-10&-13&-16&-19 (for STS-3c/VC-4 mapping).

Example input/output

```
ENT-EQPT:UNITE-NE:1-1-#-#-1:123456:::nvmname=OP10,
nvmqual=1.5LR1;
   UNITE-NE 98-01-01 08:00:00
M  123456 COMPLD
```

;

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the ENT-EQPT command.

Validation rule: Slot must not be provisioned

It should be check wether the slot is still auto or preprovisioned. Only a unprovisioned slot can be preprovisioned for a dedicated circuit pack. To preprovision a slot the *nvmname/nvmqual* shall be UNDEFINED/UNDEF (=unprovisioned).

Error code: `IDNV - Input, Data Not Valid, Slot still provisioned`

Validation rule: Check whether CP is acceptable

Check of the circuit pack type which is allowed for the slot.

Consistency shall be checked at two levels:

- between *actlname/actlqual* with *nvmname/nvmqual* at system level
- between actlname with nvmname at slot level.

Error code: `EATN - Status, incorrect equipage, unrecognized CP for this slot.`

Validation rule: Check whether system is maintenance condition

Preprovisioning is not allowed, when the system in maintenance condition (see "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720)).

Error code: `SNVS - Status, Not in Valid State, maintenance condition`

Validation rule: Reject Request for CTL slots

If *ctlw* or *ctlp* is specified as Simple_CTLSlotAID the command is rejected.

Error code: `IENE - Input, Entity Not Exists`

Related TL1 messages

- "ED-EQPT (slot): Edit equipment (slot)" (p. 4-267)
- "RTRV-EQPT (slot): Retrieve Equipment (slot)" (p. 4-1708)
- "DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116)
- "RTRV-ACTLCP: Retrieve acceptable circuit pack list" (p. 4-1590).

References

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□

ENT-EQPT (Socket): Enter equipment

The ENT-EQPT command preprovisions a socket for a dedicated module.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 1

Abortable: No.

Input format

Command Syntax: `ENT-EQPT`:*tid*:*aid*:ctag:::*[spec_block];*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   The AID of a socket.
   Type: AID.
   Range: SocketAID. The keywords *all* / *usall* / *scall* shall are not allowed on any level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. nvmname – Provisioned Module Name
   This parameter shall specify the name of the provisioned module of the socket. If no module is provisioned the default value is reported.
   Type: value set.
   Range: 12 character.
   Default: UNDEFINED.
2. nvmqual – Provisioned Module Qualifier
   This parameter shall specify the qualifier of the provisioned module of the slot. If no module is provisioned the default value is reported..
   Type: value set.
   Range: 7 characters.
   Default: UNDEF.

Note: The TL1-representation of the functional qualifier shall follow the rules as defined in SRD_ConfigurationManagement:

- alphanumeric characters or the special character '-' only
- special characters like '/' and '.' to be omitted.

Output format

If the ENT-EQPT command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The command shall preprovision a socket for a dedicated module.

The following attributes of the socket entity shall be updated due to that operation:

- *nvmname* as specified in the command input
- nvmqual as specified in the command input.

The command is only allowed if the socket is unprovisioned (nvmname/nvmqual = UNDEFINED/UNDEF).

The update shall be reported by means of an ED-EQPT notification for that socket.

Update acceptable modules list

If the command leads to a change of the Acceptable Modules List (list of actlname/actlqual), then the change shall be reported by means of an ED-EQPT notification. Since the creation of the module is not reported no ENT-EQPT notification for a module entity will be reported.

Update affected entities

The command creates in addition a set of entities of different types depending on the value of *nvmname* of command input as follows.

- One instances of port STM-16 shall be created if *nvmname* of command equals 'OM2G5' and attribute *istddflt* of the node equals 'SDH'. This shall be reported by means of ENT-STM16 notification for port.
- One instances of port OC-48 shall be created if *nvmname* of command equals 'OM2G5' and attribute *istddflt* of the node equals 'SONET'. This shall be reported by means of ENT-OC48 notification for port.

- One instance of port STM-64 shall be created if *nvmname* of command equals 'OM10' and attribute *istddflt* of the node equals 'SDH'. This shall be reported by means of ENT-STM64 notification for port.
- One instance of port OC-192 shall be created if *nvmname* of command equals 'OM10' and attribute *istddflt* of the node equals 'SONET'. This shall be reported by means of ENT-OC192 notification for port.
- One instance of port STM-4 shall be created if *nvmname* of command equals 'OM622' and attribute *istddflt* of the node equals 'SDH'. This shall be reported by means of ENT-STM4 notification for port.
- One instance of port OC-12 shall be created if *nvmname* of command equals 'OM622' and attribute *istddflt* of the node equals 'SONET'. This shall be reported by means of ENT-OC12 notification for port.
- One instance of port STM-1 shall be created if *nvmname* of command equals 'OM155' and attribute *istddflt* of the node equals 'SDH'. This shall be reported by means of ENT-STM1 notification for port.
- One instance of port OC-3 shall be created if *nvmname* of command equals 'OM155' and attribute *istddflt* of the node equals 'SONET'. This shall be reported by means of ENT-OC3 notification for port.
- 3, 12, 48, 192 VC3 tributaries shall be created for each to the previously created SDH port according to the port rate. This shall be reported by means of ENT-VC3 notification for tributary.
- 3, 12, 48, 192 STS1 tributaries shall be created for each to the previously created SONET port according to the port rate. This shall be reported by means of ENT-STS1 notification for tributary.
- Two dcc channels entities shall be created (one per type section/dccr and one type line/dccm) for each previously created SDH/SONET port. This shall be reported by means of ENT-FECOM notification for dcc channel.

Update affected entities - OPT2G5

If the socket resides on a OPT2G5 circuit pack, then the following entities shall be created:

- One instance of port STM-16T shall be created if the attribute istddflt of the node equals 'SDH'. This shall be reported by means of ENT-STM16T notification for port.
- One instance of port OC-48 shall be created if the attribute istddflt of the node equals 'SONET'. This shall be reported by means of ENT-OC48T notification for port.

Group notification for STS-1/AU-3 tributaries

For efficiency reasons the notifications for tributaries shall be sent out as a single notification (so-called group notification) using a range over the aid which depends on

the port rate of the associated port, i.e. the Simple_STS1NumAID field in the STS1NumAID is set to:

- 1&&-<N>

with N is maximal legal STS-1/AU-3 number.

See STS-1/AU-3 Tributaries AID w.r.t. range for legal STS-1/AU-3 number.

Example:

The AID field in a group notification for a tributaries related to port 1 for a OP10 pack in slot 1 looks like: 1-1-#-#-1-1-1&&-192.

Example input/output

This example shows an ENT-EQPT command for pre provisioning of a socket:

```
ENT-EQPT:UNITE-NE:1-1-#-#-5-sc2:123456:::nvmname=OM2G5,
nvmqual=13LR1;
   UNITE-NE 98-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the RTRV-HDR command Error responses section. The error responses listed there also apply to the ENT-EQPT command.

Validation rule: Socket must not be provisioned

It should be check wether the socket is still auto or preprovisioned. Only a unprovisioned slot can be preprovisioned for a dedicated module. To preprovision a socket the nvmname/nvmqual shall be UNDEFINED/UNDEF (=unprovisioned).

Error code: `IDNV - Input, Data Not Valid, Socket still provisioned`

Validation rule: Check whether system is maintenance condition

Preprovisioning shall not be allowed, when the system in maintenance condition. (See "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).)

Error code: `SNVS - Status, Not in Valid State, maintenance condition`

Related TL1 messages

- "DLT-EQPT (Socket): Delete equipment" (p. 4-125)
- "ED-EQPT (Socket): Edit equipment" (p. 4-276)
- "RTRV-EQPT (Socket): Retrieve equipment" (p. 4-1713)

References

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ENT-EQPT (Socket) notification

Output format

The ENT-EQPT notification uses the general format of a REPT DBCHG Report Database Change notification.

Syntax: `ENT-EQPT`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   The AID of a socket.
   Type: AID.
   Range: SocketAID. The keyword *usall* or *all* shall be allowed for Simple_UnivSlotAID. The keyword *scall* shall be allowed for Simple_SocketAID. The keyword *all* is not allowed on bay/shelf level.

Spec block parameters

1. eqptpn – Equipment ASAP Profile Name
   The name of the current ASAP profile of type EQUIP-PROT on socket level.
   Type: Alphanumeric string.
   Range: up to 24 characters. A hyphen (-) is additionally allowed in the name.
   Default: DEFAULT.
2. nvmname – Provisioned Module Name
   This parameter shall specify the name of the provisioned module of the socket. If no module is provisioned the default value is reported.
   Type: value set.
   Range: 12 character.
   Default: UNDEFINED.
3. nvmqual – Provisioned Module Qualifier
   This parameter shall specify the qualifier of the provisioned module of the slot. If no module is provisioned the default value is reported..
   Type: value set.
   Range: 7 characters.
   Default: UNDEF.

   Note: The TL1-representation of the functional qualifier shall follow the rules as defined in SRD_ConfigurationManagement:

   - alphanumeric characters or the special character ’-’ only
   - special characters like ’/’ and ’.’ to be omitted.

Example output

The following examples shows the case after pre-provisioning of slot 5 socket 2:

```
A 001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-14:ENT-EQPT:1-1-#-#-5-sc2::nvmname=OM2G5,nvmqual=15LR1
;
```

□

ENT-FECOM: Enter DCC channel related parameters

The ENT-FECOM command allows to enable or disable a DCC channel for a specific OSI node or the SCN node. It can also be used to modify the the type of LAPD service of an existing DCC channel.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S3

Priority: 1

Abortable: No.

Input format

Command Syntax: `ENT-FECOM`:*tid*::*ctag*::*port*[,*dcctype*]:[*spec_block*];

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
3. port
   This parameter indicates the port AID of a circuit pack which is used together with *dcctype* to identify the DCC channel.
   Type: AID.
   Range: SPortAID; the keyword `all` is not allowed.
4. dcctype
   This parameter specifies whether the LINE/MS or SECTION/RS DCC of the *port* is affected by the command.
   Type: Alphanumeric value set
   Range:
   - LINE
   - SECTION (default).

Spec block parameters

1. dccstat
   This parameter indicates whether communication over the DCC channel is enabled or disabled.
   Type: Alphanumeric value set.

Range:

- ENABLE
- DISABLE (default).

Note: One and only one of the parameters *dcn_stat* or *scn_dccstat* must be present in the command. It must be set to ENABLED when any other spec_block parameter is changed.

2. lapdmode
   This parameter indicates the type of LAPD service. Modes are AITS and UITS. Starting with R2.0 this parameter is also used to determine the service for the LinkID protocol.
   If dccstat = TRANSPARENT, scn_dccstat = TRANSPARENT, or scn_dccstat = ENABLE this parameter has no meaning and will not be reported.
   Type: Alphanumeric value set..
   Range:
   - UITS (default)
   - AITS.
3. lapdrl
   This parameter indicates the LAPD role. This parameter is also used to determine the service for the LinkID protocol. If *dccstat* = TRANSPARENT, *scn_dccstat* = TRANSPARENT, or *scn_dccstat* = ENABLE this parameter has no meaning and will not be reported.
   Type: Alphanumeric value set.
   Range:
   - USER-SIDE (default)
   - NETWORK-SIDE.
4. osinode
   Assignment of a DCC channel to an MCN node in the NE. This parameter must be supplied when dcc_stat = ENABLED and not the default osinode1 shall be used, in all other cases it shall be omitted.
   An NE can have up to 8 instances of the OSI stack. Node-1 is default and has a NSAP. Nodes 2-8 have a NET and no SEL (NSAP = NET + SEL, for NET:

SEL=00). Nodes 2-8 can be created and configured, see "ENT-ULSDCC-L3: Create a further OSI node" (p. 4-1391).
Type: AID.
Range: osinode{1-8}
Default: osinode1.

5. scn_dccstat
   This parameter indicates whether the DCC channel is used for communication over the SCN.
   Type: Alphanumeric value set.
   Range: ENABLE, DISABLE (default).
   Note: One and only one of the parameters *dcn_stat* or *scn_dccstat* must be present in the command. It must be set to ENABLED when any other spec_block parameter is changed.

Output format

If the ENT-FECOM is successful, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output Parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736) .

Detailed behavior description

The ENT-FECOM command can assign a DCC channel to a specified node and enable or disable it. Furthermore the type of LAPD service can be set respectively modified for UITS (default) or AITS.

The update is reported by means of ED-FECOM notification.

It seems to be odd that an ENT command leads to an ED notification. The rationale behind that is as follows: ENT-FECOM has edit semantics, but it wasn't going to be changed into an ED command due to backward compatibility to CG. The notification behavior was, however, clean-up. Additional DLT-FECOM, ENT-FECOM notification are defined to notify the deletion/creation of DCC channels upon CP deletion/creation or MSP DCC slaving enabled/disabled.

Note: If scn_node is set to ENABLED, the channel is implicitely assigned to the SCN node. The re-assignment of a dedicated DCC channel from an osinode to the scnnode or vice versa shall not be supported within one command execution.

A re-assignment from *osinode* to *scnnode* means: Set from *dccstat*=ENABLE to *scn_dccstat*={ENABLE|DISABLE}.

A re-assignment from *scnode* to *osinode* means: Set from *scn_dccstat*=ENABLE to *dccstat*={ENABLE|DISABLE}.

The re-assignment can be achieved in two steps:

- disable the channel for the old node
- enable the channel for a new node.

When *dccstat* is set from DISABLED to ENABLED, the system applies the default values for all spec block parameters which are not specified in the command.

In contrast to the general pre-provisioning concept, it is not possible to change any parameter when not one of *dccstat* or *scn_dccstat* is set to ENABLED.

Example input/output

The following example shows the result of ENT-FECOM:

```
ENT-FECOM:NE-UNITE::123456::1-1-#-#-5-1,
line:dccstat=enable,lapdmode=AITS,osinode=osinode5;
   LT-UNITE 00-12-24 12:00:00
M  123456 COMPLD
;
```

The following example shows the result of ENT-FECOM command which enables a DCC channel for the SCN:

```
ENT-FECOM:NE-UNITE::123456::1-1-#-#-5-1,line:scn_dccstat=ENABLE;
   LT-UNITE 00-12-24 12:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the ENT-FECOM command.

Validation rule: Check for that either dccstat or scn_dccstat is present

The command shall be rejected when none of the parameters dccstat or scn_dcnstat is present.

Error code: `IDNV - Input, Data Not Valid`

Validation rule: Check for enabled DCC channels

he command shall be rejected when any other parameter than dccstat or *scn_dccstat* is changed and dccstat or *scn_dccstat* is not set to ENABLED with the command.

Error code: `SNVS - Status, Not in Valid State`

Error code: Validation rule: Single occurence of *dccstat* or *scn_dccstat* parameter

The command will be rejected when more than one parameter of *dccstat* or *scn_dccstat* is present in the command.

Error code: `IDNC - Input, Data Not Consistent, only dccstat or scn_dccstat allowed`

Validation rule: Implicit status changes of *dccstat*, *scn_dccstat*

The command shall be rejected when another channel than the actual enabled channel is set to disabled, i.e.: When *dccstat* is ENABLE it is not allowed to set *scn_dccstat*=DISABLE, or when *scn_dccstat* is ENABLE it is not allowed to set *dccstat*=DISABLE.

Error Code: `SNVS - Status, Not in Valid State, implicit channel re-assignment`

Validation rule: Check for parameter osinode

The command shall be rejected when *dccstat* is set to ENABLED and *osinode* is not in the created state. This means a value for parameter *osinode* other than osinode1 is used in the command, which was not used for creation of a node via ENT-ULSDCC-L3 before.

Error code: `ENEQ - Equipage, Not EQuipped osinode`

Validation rule: DCC Protection

A port cannot be specified when it is protecting part of a 1+1 MSP group and DCC protection switching is enabled.

Error Code: `SNVS - Not in Valid State, part of 1+1 MSP protection`

When DCC protection switching is enabled, the RS/MS DCC channel objects of the protection port are deleted and not available.

Validation rule: Check for DCC Protection

Disabling of RS-DCC/MS-DCC shall be rejected when RS-DCC/MS-DCC protection dcc is enabled.

Error Code: `SNVS - Not in Valid State, DCC protection available`

Validation rule: DCC for 2 fiber BLSR/MS-SPRING

DCC-disabling on a port of a 2-fiber BLSR/MS-SPRING protection group shall be denied if no other DCC channel is available on that port although automatic ring discovery is enabled.

Error code: `SNVS - Not in Valid State, DCC needed for BLSR/MS-SPRING`

Validation rule: Worker port for 4 fiber BLSR/MS-SPRING

DCC-disabling on the port of the worker line of a symmetric span of a 4-fiber BLSR/MS-SPRING protection group shall be denied if no other DCC channel is available on that port although automatic ring discovery is enabled.

Error code: `SNVS - Not in Valid State, DCC needed for BLSR/MS-SPRING`

Validation rule: Protection port for 4 fiber BLSR/MS-SPRING

DCC-disabling on the port of the protection line of an asymmetric span of a 4-fiber BLSR/MS-SPRING protection group shall be denied if no other DCC channel is available on that port although automatic ring discovery is enabled.

Error code: `SNVS - Not in Valid State, DCC needed for BLSR/MS-SPRING`

Validation rule: Check for service condition

Enable DCC termination is not possible if port is in out-of-service state.

Error code: `SDNC - Status, Data Not Consistent, port is out-of-service`

Validation rule: Transparent DCC cross-connection

The DCC channel shall not be ENABLED or DISABLED if it is used in a transparent DCC cross-connection. *dccstat* and *scn_dccstat* cannot be changed until the existing transparent DCC cross-connection is deleted.

Error Code: `SNVS - Status, Not in Valid State, DCC channel used in transparent DCC cross connection`

Validation rule: Independent use of DCC channel for MCN or SCN

The command shall be rejected when another channel than the actual enabled channel is set to enabled, i.e.: When *dccstat* is ENABLE it is not allowed to set *scn_dccstat*=ENABLE, or when *scn_dccstat* is ENABLE it is not allowed to set *dccstat*=ENABLE.

Error Code: `SNVS - Status, Not in Valid State, DCC channel can not be assigned to MCN and SCN at the same time`

Validation rule: Maximum number of channels assigned to MCN and SCN on CTL/- or CTL/2

Operationg on a CTL/- or CTL/2, the system can support up to 64 DCC interfaces. It shall be checked that the max number of 64 DCC interfaces for MCN or SCN (i.e. dccstat=ENABLED or scn_dccstat=ENABLED) is not exceeded.

Error code: `SSRE - Status, System Resources Exceeded, overall limit of DCC channels exceeded`

Validation rule: Maximum number of channels assigned to MCN and SCN on CTL4

Operating on a CTL/4T or CTL/4S, the system can support up to 64 DCC interfaces. It shall be checked that the max number of 64 DCC interfaces for MCN or SCN (i. e. *dccstat*=ENABLED or *scn_dccstat*=ENABLED) is not exceeded.

Error code: `SSRE - Status, System Resources Exceeded, overall limit of DCC channels exceeded`

Validation rule: Maximum nr. of channels assigned to MCN and SCN on CTL/3

Operating on a CTL/3 the system can support up to 180 DCC interfaces according to the following rule: 2 * (nr. of enabled transparent MS/RS-DCC channels) + (nr. of enabled non-transparent MS/RS-DCC channels) ≤ 180. It shall be checked that this rule is not violated.

Error code: `SSRE - Status, System Resources Exceeded, overall limit of DCC channels exceeded`

Validation rule: No DCC on transparent ports

The system shall not allow to use DCC on Transparent Ports, i.e. on ports with a rate of STM16T or OC48T.

Error Code: `IDNV - Input, Data Not Valid, DCC on Transparent Ports not allowed`

Validation rule: No DCC on DS3 ports

The system shall not allow to use DCC on DS3 Ports, i.e. on ports with a rate of T3.

Error Code: `IDNV - Input, Data Not Valid, DCC on DS3 Ports not allowed`

Validation rule: No DCC on EC1 ports

The system shall not allow to use DCC on EC1 Ports.

Error Code: `IDNV - Input, Data Not Valid, DCC on EC1 Ports not allowed`

SCN specific validation rule: Check for provisioned SCN IP address

The command shall be rejected when scn_dccstat=ENABLED and no IP address has been configured for the SCN via ENT-ULS (ip_ad_astn).

Error code: `SNVS - Status, Not in Valid State, no SCN IP address provisioned`

SCN specific validation rule: Check combination of *osinode* parameter with *scn_dccstat*

The command shall be rejected when *scn_dccstat*=ENABLED and a value for parameter *osinode* is supplied.

Error Code: `SDNC - Status, Data Not Consistent, invalid combination of osinode parameter with dccstat, scn_dccstat`

SCN specific validation rule: RS-DCC not allowed for DCN

The command shall be rejected if *scn_dccstat*=ENABLED and *dcctype*=SECTION..

Error Code: `IDNV - Input, Data Not Valid, DCC type SECTION not allowed for SCN`

SCN specific validation rule: Check consistency of input parameters with *portClass* I

The command shall be rejected, if *scn_dccstat*=ENABLED and the port is not of *portClass* INNI.

Error Code: `IDNV - Input, Data Not Valid, portClass must be INNI`

SCN specific validation rule: Invalid input parameters

The command shall be rejected, if scn_dccstat=ENABLED and a value for *lapdmode* or a value for *lapdrl* is given.

Error Code: `IDNV - Input, Data Not Valid, provisioning of lapdmode and lapdrl not possible`

SCN specific validation rule: Prevent that both DCCs of a port are assigned to the SCN

The command shall be rejected, if it is tried to set *scn_dccstat*=ENABLED for a specific port and *dcctype* and for the same port *scn_dccstat* is already ENABLED for the other *dcctype*.

Error Code: `IDNV - Input, Data Not Valid, not possible to assign both channels to SCN`

SCN specific validation rule: Prevent that both DCCs of a port are assigned to the MCN, when *portClass* = INNI

The command shall be rejected, if *portClass*=INNI for port and it is tried to set *dccstat*=ENABLED for a specific port and *dcctype* and for the same port *dccstat* is already ENABLED for the other *dcctype*.

Error Code: `IDNV - Input, Data Not Valid, not possible for NNI port to assign both channels to MCN`

SCN specific validation rule: Maximum number of channels assigned to SCN

The scnnode can support up to 64 DCC interfaces. It shall be checked that the max number of 64 DCC interfaces for scnnode (i.e. *scn_dccstat*=ENABLED) is not exceeded.

Error code: `SSRE - Status, System Resources Exceeded, allowed limit of SCN DCC channels exceeded`

Related TL1 messages

- "RTRV-FECOM: Retrieve DCC related parameters" (p. 4-1727)
- "RTRV-CRS-FECOM: Retrieve transparent DCC cross-connection" (p. 4-1669)
- "ENT-CRS-FECOM: Enter transparent DCC cross-connection" (p. 4-1062)
- "DLT-CRS-FECOM: Delete transparent DCC cross-connection" (p. 4-107)

□

ENT-FECOM notification

Output format

The ENT-FECOM notification shall use the general format of a REPT DBCHG (Report Database Change) notification. Note: In contrast to RTRV-FECOM this notification will also be sent when dccstat=DISABLE, which is the default value after creation of a DCC channel.

The ENT-FECOM notification has the following specific syntax:

`ENT-FECOM`::*port*,*dcctype*:*spec_block*

Output parameters

Command parameters

1. port
   This parameter indicates the port AID of a circuit pack which is used together with *dcctype* to identify the DCC channel.
   Type: AID.
   Range: SPortAID; the keyword `all` is not allowed.
2. dcctype
   This parameter specifies whether the LINE/MS or SECTION/RS DCC of the *port* is affected by the command.
   Type: Alphanumeric value set
   Range:
   - LINE
   - SECTION (default).

Spec block parameters

1. dccprottp
   This parameter reports the protection type of the DCC channel. 0X1 means the port is not involved in a protection group or DCC protection switching is disabled. 1+1 means DCC protection switching is enabled: In these case only the active worker line is shown.
   Type: Alphanumeric value set.
   Range: 0X1 (default), 1+1.
2. dccstat
   This parameter indicates whether communication over the DCC channel is enabled or disabled.
   Type: Alphanumeric value set.

Range:

- ENABLE
- DISABLE (default).

Note: One and only one of the parameters *dcn_stat* or *scn_dccstat* must be present in the command. It must be set to ENABLED when any other spec_block parameter is changed.

3. lapdmode
   This parameter indicates the type of LAPD service. Modes are AITS and UITS. Starting with R2.0 this parameter is also used to determine the service for the LinkID protocol.
   If dccstat = TRANSPARENT, scn_dccstat = TRANSPARENT, or scn_dccstat = ENABLE this parameter has no meaning and will not be reported.
   Type: Alphanumeric value set..
   Range:
   - UITS (default)
   - AITS.
4. lapdrl
   This parameter indicates the LAPD role. This parameter is also used to determine the service for the LinkID protocol. If *dccstat* = TRANSPARENT, *scn_dccstat* = TRANSPARENT, or *scn_dccstat* = ENABLE this parameter has no meaning and will not be reported.
   Type: Alphanumeric value set.
   Range:
   - USER-SIDE (default)
   - NETWORK-SIDE.
5. osinode
   Assignment of a DCC channel to an MCN node in the NE. This parameter must be supplied when dcc_stat = ENABLED and not the default osinode1 shall be used, in all other cases it shall be omitted.
   An NE can have up to 8 instances of the OSI stack. Node-1 is default and has a NSAP. Nodes 2-8 have a NET and no SEL (NSAP = NET + SEL, for NET:

SEL=00). Nodes 2-8 can be created and configured, see "ENT-ULSDCC-L3: Create a further OSI node" (p. 4-1391).
Type: AID.
Range: osinode{1-8}
Default: osinode1.

6. scn_dccstat
This parameter indicates whether the DCC channel is used for communication over the SCN.
Type: Alphanumeric value set.
Range: ENABLE, DISABLE (default).
Note: One and only one of the parameters *dcn_stat* or *scn_dccstat* must be present in the command. It must be set to ENABLED when any other spec_block parameter is changed.

Example output

```
   NE-UNITE 00-11-03 01:00:00
A  000 REPT DBCHG
   "TIME=01-00-00,DATE=00-12-13:ENT-FECOM::1-1-#-#-5-2,
   line:dccprottp=0X1,dccstat=DISABLE,lapdmode=UITS,
   osinode=osinode1"
;
```

□

ENT-FECOM-LAN: Enter LAN related parameters

The ENT-FECOM-LAN command allows manually enable or disable IP or OSI on this LAN and set related parameters. It can also be used to modify parameters when IP or OSI is enabled.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S4

Priority: 1

Abortable: No.

Input format

Command Syntax: `ENT-FECOM_LAN`:*tid*:*aid*:*ctag*:::[*spec_block*];

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
2. aid – Access Identifier
   This parameter indicates the LAN port AID.
   Type: AID.
   Range: LanPort AID with one exception: the keyword `lanall` is not allowed.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.

Spec block parameters

If a LAN interface is being changed, all parameters not set explicitly in the command line will remain the actual values, except the parameter osinode, which shall be changed to the default value if the parameter is omitted.

1. ip_ad – IP Address
   This parameter indicates the assigned IP address for the LAN interface.
   The IP-address includes both, a router address and a HOST address. The HOST address that will will be used for FTP depends on the LAN interface where the related TCP connection request originates.

Note: Setting of ip_ad comes only into effect when ip_lanstat is ENABLE and must be consistent with ip_snm (see also validation rules).
Type: 32-bit IPv4 address: Four dot separated numeric strings.
Range: For first numeric string: 0 .. 223 For second to fourth numeric string: 0 .. 255.

2. ip_lanstat - IP-LAN Status
   This parameter indicates whether IP communication over the external LAN channel is enabled or disabled. Note: Enabling has no effect if *lanstat* is disabled for that interface.
   Type: Alphanumeric value set
   Range: ENABLE or DISABLE for LAN1, LAN2, LAN3
   Default: DISABLE for LAN1, LAN2, LAN3.
3. ip_snm – IP Mask
   This parameter indicates the assigned IP subnet mask (32-bit IPv4) for the LAN interface. The full IP-address is needed as host-address. Each LAN needs its own IP-address and IP-mask, indicating that all IP-addresses that match the prefix (Unmasked part) are grouped as the subnet-ID for this LAN-subnet.
   Type: 32-bit IPv4 address: Four dot separated numeric strings or empty string. The empty string value is used as indication for an invalid/undefined IP subnet mask.
   Range: For each numeric string: 0 .. 255.
   Default: For LAN1, LAN2 and LAN3: empty string.
   Note: Setting of *ip_snm* comes only into effect when *ip_lanstat* is ENABLE and must be consistent with ip_ad (see also validation rules).
4. isis_stat – (I) IS-IS Status
   This parameter indicates whether (integrated) IS-IS is enabled or disabled on the LAN port specified by the input *aid*.
   Note: Enabling has no effect if lanstat is disabled for that interface.
   Type: Alphanumeric value set.
   Range: ENABLE (default), DISABLE.
5. lanrpri – LAN Designated Router Priority
   This parameter sets the relative priority for the node in the election for designed router on this LAN. There is a separate election for each separate LAN to which the node is connected. A higher value indicates a higher probability to be selected as designated router. A designated router is selected per area (between the nodes on that LAN with the same area address) and for the Level-2 nodes on the LAN.
   Note: When osinode=scnnode modification of this parameter has no effect.
   Type: numeric string.
   Range: 1 – 127.
   Default: 64.

6. lanstat – LAN Status
   This parameter indicates whether physical communication over the external channel is enabled or disabled.
   Note: Disabling of an interface also affects usage of protocols over this interface, see *lan_stat* and *osi_stat.*
   Type: Alphanumeric value set.
   Range: ENABLE for lan1; ENABLE, DISABLE for lan2, lan3:
   Default: ENABLE for lan1 and lan2; DISABLE for lan3.
7. lantlss – LAN TARP Storm Suppression
   This parameter indicates the enhanced TARP propagation rules that suppress TARP LAN storms.
   Type: Alphanumeric value set.
   Range:
   - ENABLE (default)
   - DISABLE.
8. osinode
   Assignment of LAN port to an OSI-node or the SCN node in the NE. A UNITE NE can have up to 8 instances of the OSI stack and has one SCN node. Node-1 is the default and has a NSAP. Nodes 2-8 have a NET and no SEL (NSAP = NET + SEL, for NET: SEL=00). Node 1 is always present, the SCN node is created when the ASTN IP address is configured. Node 2-8 can be created and configured, see command ENT-ULSDCC-L3.
   Type: AID.
   Range: For LAN1: osinode1 (fixed value).
   For LAN2 and LAN3: osinode{1-8} | scnnode.
   Note: If this parameter is set to scnnode lanstat and ip_lanstat must be ENABLED. The parameter *osinode* is mandatory. This means, that the parameter will be changed to the default value if it is not specified.
9. osi_lanstat - OSI LAN Status
   This parameter indicates whether OSI communication over the external channel is enabled or disabled.
   Type: Alphanumeric value set.
   Range: ENABLE for LAN1, LAN2, LAN3

Output format

If the ENT-FECOM-LAN is successful, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736) .

Detailed behavior description

The command set the condition of a LAN interface respectively or modify concerning parameters. Result should be an update of the parameters for the specified LAN interface as set in the spec_block of the command line.

The update is reported by means of ENT-FECOM-LAN notification.

Modification of the parameters *ip_ad*, *ip_snm*, *lantlss*, *isis_stat* leads to a reset of the DCF controller.

Setting lanstat to disabled shall implicitely set the following parameters to disabled:

- *osi_lanstat*
- *ip_lanstat.*

as changing *isis_stat* results in a reboot of the DCF there shall be no implicit change of this attribute.

Example input/output

The following example shows the result of ENT-FECOM-LAN:

```
ENT-FECOM-LAN:NE-UNITE:1-1-lan2:123456:::
ip_lanstat=enable,ip_ad=135.248.206.64,
ip_snm=255.255.0.0,lanstat=enable,osinode=osinode8;
   NE-UNITE 00-12-23 11:59:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the ENT-FECOM-LAN command.

Validation rule for parameter osinode

The command shall be rejected when a OSI node is not in a created state. This means a value for parameter osinode is used in the command, which is different from osinode1 or scnnode and was not used for creation of a node via ENT-ULSDCC-L3 before.

Error code: `ENEQ - Equipage, Not EQuipped, osinode`

Validation rule: Can't disable LAN1

If it is tried to set *lanstat*, or *osi_lanstat* to DISABLE for LAN1, the command will be rejected.

Error code: `SNVS - Status, Not in Valid State, LAN1 can not be disabled`

Validation rule: Can't enable *lanstat* when *ip_lanstat* and *osi_lanstat* are DISABLED

If it is tried to set *lanstat*=ENABLE for a specific LAN, while both *osi_lanstat* and *ip_lanstat* are set to DISABLE for the same LAN, the command will be rejected.

Error code: `IDNC - Input, Data, Not Consistent`

Validation rule: Can't enable *ip_lanstat* and/or *osi_lanstat* when lanstat is disabled

If it is tried to set osi_lanstat=ENABLE and/or ip_lanstat=ENABLE without setting lanstat=ENABLE and *lanstat* is currently disabled, then the command will be rejected.

Error Code: `IDNC - Input, Data, Not Consistent`

Validation rule: Check IP configuration

If it is tried to set *ip_lanstat* to ENABLE for a LAN (LAN1, LAN2, LAN3) without a valid IP address *ip_ad* and subnetwork mask *ip_snm*, the command shall be denied. Valid means:

- any 32 bit IPv4 address in the range of 0.0.0.0 to 255.255.255.255.

Error code: `SNVS - Status, Not in Valid State, invalid IP configuration`

The validation rule does not cover the configuration rules for IP networks. These rules may be different for each network. In many networks the following rules are applicable:

- ip_ad must not be a multicast group address or reserved special case address, i.e. in the range of 0.0.0.0 to 223.255.255.255.
- ip_snm shall be in a format of one or more '1' bits, followed by zero or more '0' bits (i.e. all '1' are near the most significant bit, all '0' are near the least significant bit).

Additionally the following constraints between ip_ad and ip_snm must be true:

- (ip_ad AND ip_snm) shall not be equal to 0. This means that the Subnet ID shall not be 0.
- ((ip_ad AND ip_snm) OR NOT ip_snm) shall not be equal to 255.255.255.255. This means that the Subnet ID shall not consist of all 1s.
- (ip_ad AND NOT ip_snm) shall not be equal to 0. This means that the Host ID shall not be 0.
- ((ip_ad AND NOT ip_snm) OR IP_mask) shall not be equal to 255.255.255.255. This means that the Host ID shall not consist of all 1s.
- (ip_ad AND 255.0.0.0) shall not be equal to 127.0.0.0. This means that the IP address shall not be the (reserved) loopback address.

The AND, OR, NOT operations above are meant as bitwise logical operations on all 32 bits of *ip_ad*, *ip_snm*.

Validation rule: only *osinode1*, *scnnode* supports IP

If it is tried to set *ip_lanstat* to ENABLE while the LAN port is assigned to OSI node 2...8, the command shall be rejected.

Error code: `SNVS - Status, Not in Valid State, Assigned Node not allowed for IP`

Validation rule: Assignmet of OsiNode without IP support

If it is tried to (re-)assign a LAN port to OsiNode2 til OsiNode8, then *ip_lanstat* must be set to disabled.

Error Code: `SNVS - Status, Not in Valid State, Assigned Node not allowed for IP`

Validation rule: only osinode1 for LAN 1

If it is tried to assign another osinode as osinode1 for LAN1, the command shall be rejected.

Error code: `IDNV - Input Data Not Valid, osinode cannot be changed for LAN1`

Validation rule: all or no traffic for SCN node

For the SCN node it is only allowed to have all - lanstat, ip_lanstat, osi_lanstat and isis_stat - either enabled or disabled. Any attempt to set (any combination of) lanstat, ip_lanstat, osi_lanstat or isis_stat that would result in a violation of this rule shall be rejected with.

Error Code: `IDNC - Input, Data Not Consistent`

Validation rule: can't enable *isis_lanstat* without enabling *osi_lanstat*

If it is tried to set isis_lanstat to enabled without also enabling osi_lanstat while osi_lanstat is disabled , the command shall be rejected with.

Error Code: `IDNC - Input, Data Not Consistent`

Validation rule: check of the maintenance condition

The system must be in maintenance condition (MCOND=YES) for change of:

- ip_ad
- ip_snm.

Note::

- ip_lanstat
- osinode
- isis_stat

- osi_lanstat
- lanstat
- lantlss
- lanrpri.

are independent of the maintenance condition.

Error Code: `SNVS - Status, Not in Valid State`

Validation rule: IP disabling while T-TD or FTTD is enabled

If it is tried to set *ip_lanstat* to DISABLE on all LAN ports while either *tl1tcpipgw* or *ftamftpgw* is set to ENABLE, the command shall be rejected.

Error Code: `SNVS - Status, Not in Valid State, cannot disable IP on all LAN ports while T-TD or FTTD is enabled`

Validation rule: Can't assign LAN to *scnnode* when no ASTN IP address is provisioned

Setting *osinode*=scnnode shall only be allowed when a valid ASTN IP address is provisioned (see ip_ad_astn in ENT/RTRV-ULS) and the SwiSS application is enabled (xcsetup=NN in ED/RTRV-EQPT).

Error Code: `SNVS - Status, Not in Valid State, no SCN IP address provisioned`

Validation rule: Can't assign LAN to SCN Node when T-TD or FTTD is enabled and no other LAN port with IP configuration is available

Setting *osinode*=scnnode for LAN2 or LAN3 while T-TD or FTTD is enabled shall not be allowed if there is no other LAN port with valid IP configuration which is assigned to *osinode1*.

Error Code: `SNVS - Status, Not in Valid State, no other LAN port with IP enabled for T-TD or FTTD available`

Validation rule: Can't assign same IP address to several LANs

Setting the IP address of a LAN shall be rejected if this IP address is already assigned to another LAN of the NE.

Error Code: `IDNC - Input, Data, Not Consistent`

Validation rule: Check for IP default router LAN

Assigning a LAN to SCN node shall be rejected if this LAN is used as IP default router LAN.

Error Code: `SNVS - Status, Not in Valid State, wrong IP configuration`

Validation rule: IP disabling while used as IP Default Router LAN

Setting ip_lanstat to DISABLE shall be rejected if this LAN is used as IP default router LAN (see RTRV-ULS).

Error Code: `SNVS - Status, Not in Valid State, LAN is in use for Default Router`

Related TL1 messages

- "RTRV-FECOM-LAN: Retrieve LAN channel related parameters" (p. 4-1732)

□

ENT-FECOM-LAN notification

Output format

The ENT-FECOM-LAN notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: The ENT-FECOM-LAN notification has the following specific syntax:

`ENT-FECOM-LAN:`*aid*`::`*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter indicates the LAN port AID.
   Type: AID.
   Range: LanPort AID with one exception: the keyword `lanall` is not allowed.

Spec block parameters

1. ip_ad – IP Address
   This parameter indicates the assigned IP address for the LAN interface.
   The IP-address includes both, a router address and a HOST address. The HOST address that will will be used for FTP depends on the LAN interface where the related TCP connection request originates.
   Note: Setting of ip_ad comes only into effect when ip_lanstat is ENABLE and must be consistent with ip_snm (see also validation rules).
   Type: 32-bit IPv4 address: Four dot separated numeric strings.
   Range: For first numeric string: 0 .. 223 For second to fourth numeric string: 0 .. 255.
2. ip_lanstat - IP-LAN Status
   This parameter indicates whether IP communication over the external LAN channel is enabled or disabled. Note: Enabling has no effect if *lanstat* is disabled for that interface.
   Type: Alphanumeric value set
   Range: ENABLE or DISABLE for LAN1, LAN2, LAN3
   Default: DISABLE for LAN1, LAN2, LAN3.
3. ip_snm – IP Mask
   This parameter indicates the assigned IP subnet mask (32-bit IPv4) for the LAN interface. The full IP-address is needed as host-address. Each LAN needs its own IP-address and IP-mask, indicating that all IP-addresses that match the prefix (Unmasked part) are grouped as the subnet-ID for this LAN-subnet.
   Type: 32-bit IPv4 address: Four dot separated numeric strings or empty string or empty string
   Range: For each numeric string: 0 .. 255.
   Default: For LAN1, LAN2 and LAN3: empty string.

4. isis_stat – (I) IS-IS Status
   This parameter indicates whether (integrated) IS-IS is enabled or disabled on the LAN port specified by the input *aid*.
   Type: Alphanumeric value set.
   Range: ENABLE (default), DISABLE.
5. lanrpri – LAN Designated Router Priority
   This parameter sets the relative priority for the node in the election for designed router on this LAN. There is a separate election for each separate LAN to which the node is connected. A higher value indicates a higher probability to be selected as designated router. A designated router is selected per area (between the nodes on that LAN with the same area address) and for the Level-2 nodes on the LAN.
   Type: numeric string.
   Range: 1 – 127.
   Default: 64.
6. lanstat – LAN Status
   This parameter indicates whether physical communication over the external channel is enabled or disabled.
   Type: Alphanumeric value set.
   Range: ENABLE for lan1; ENABLE, DISABLE for lan2, lan3:
   Default: ENABLE for lan1 and lan2; DISABLE for lan3.
7. osinode
   Assignment of LAN port to an OSI-node or the SCN node in the NE. A UNITE NE can have up to 8 instances of the OSI stack and has one SCN node. Node-1 is the default and has a NSAP. Nodes 2-8 have a NET and no SEL (NSAP = NET + SEL, for NET: SEL=00).
   Node 1 is always present, the SCN node is created when the ASTN IP address is configured. Node 2-8 can be created and configured, see command ENT-ULSDCC-L3.
   Type: AID.
   Range: For LAN1: osinode1 (fixed value).
   For LAN2 and LAN3: osinode{1-8} | scnnode.
8. osi_lanstat - OSI LAN Status
   This parameter indicates whether OSI communication over the external channel is enabled or disabled.
   Type: Alphanumeric value set.
   Range: ENABLE for LAN1, LAN2, LAN3

Example output

```
   NE-UNITE 00-11-03 01:59:00
A  000 REPT DBCHG
   "TIME=02-00-59,DATE=00-12-23:ENT-FECOM-LAN:1-1-lan2
   ::ip_lanstat=ENABLE,ip_ad=135.248.206.64,
   ip_snm=255.255.0.0,lanstat=ENABLE,lanrpri=64,
   lantlss=ENABLE,osinode=osinode5"
```

;

□

ENT-IP-MAP: Enter TCP/IP map

The ENT-IP-MAP can be used to create entries in the IP map.

The ENT-IP-MAP command allows to enter a manager IP address and its application context ID to provide T-TD access to the NE via one of the LANs assigned to node 1. To map multiple managers the command has to be executed for each manager. The *tl1tcpipgw* parameter in the ED-NE command enables or disables the mapping feature.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S3

Priority: 1

Abortable: No.

Input format

Command Syntax: **ENT-IP-MAP**:*tid::ctag:::spec_block;*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.

Spec block parameters

1. ip – IP Address
   This parameter shall be used to set or retrieve the IP address(es) of the manager(s) of the NE.
   Type: IPv4 address: four dot separated numeric strings.
   Values: IPv4 address: Each numeric string: 0 .. 255. Number of entries: Mmaximum of 20 entries allowed.
   Default: null.
2. acid – Application Context ID
   This parameter shall be used to set or retrieve the application context ID to be assigned to a particular manager IP address.
   Type: Alphanumeric string of length 0 .. 23.
   Range: TL1MAINTENANCE, TL1MEMORYADMINISTRATION, TL1TEST, TL1OTHER1, TL1PEERCOMM.
   Default: TL1PEERCOMM.
   Although acid is a mandatory parameter it will not be evaluated in the NE. The parameter is present for backward compatibility.

Output format

If the ENT-IP-MAP request is successful, the following normal completion message shall be returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output Parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736) .

Detailed behavior description

The command shall set the parameters as specified for the input spec_block parameters.

Example input/output

The following example shows the result of an ENT-IP-MAP command:

```
ENT-IP-MAP:LT-UNITE::123456:::acid=TL1MEMORYADMINISTRATION,
ip=198.78.46.8;
   LT-UNITE 00-11-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the ENT-IP-MAP command.

Validation rule: Check for correct IP configuration

The adding of an entry to the IP map shall only be allowed if there is already a valid IP configuration (ip_ad - IP address of LAN, ip_snm - subnet mask of LAN) provisioned for at least one LAN port.

Error code: `SNVS - Status, Not in Valid State, incomplete IP configuration`

Validation rule: Check for duplicate entries

The adding of an entry to the IP map shall not be allowed, if the IP address is already contained in one of the existing entries.

Error Code: `IDNV - Input, Data Not Valid, duplicate IP Map entry`

Validation rule: Check if limit of 20 IP MAP entries exceeded

The adding of an entry to the IP map shall not be allowed, if the IP map contains already 20 entries.

Error code: `SSRE - Status, System Resources Exceeded, limit of IP-MAP entries exceeded.`

Related TL1 messages

- "RTRV-IP-MAP: Retrieve TCP/IP map" (p. 4-1750)
- "DLT-IP-MAP: Delete TCP/IP map" (p. 4-134)

□

ENT-IP-MAP Notification

Output format

The ENT-IP-MAP command shall not generate a REPT DBCHG notification. This is due to a potential security hazard: any listening manager who receives this notification could otherwise fake its own IP address to get access to the T-TD.

□

ENT-LONIM notification

The ENT-LONIM notification shall use the general format of a REPT DBCHG Report Database Change notification.

Output format

Command Syntax:

`ENT-LONIM-`*modifier*:*aid*::*spec_block*,

Output parameters

Command parameters

1. modifier
   The modifier shall specify the type of the low-order tributary. The purpose is to distinguish between: - SDH/SONET tributaries.
   Type: alphanumeric value set
   Range:
   - LOVC
   - LOVT
2. aid – Access Identifier
   The access identifier shall specify a low-order tributary to be operated on.
   Type: AID
   Range: GenLOTribAID as defined in SRD_TL1_AID.
   Following wildcard values shall be accepted:
   - *all*, *usall* in Simple_UnivSlotAID,
   - *all* in Simple_SPortAID,
   - *all* in Simple_PTNumAID,
   - *all* in Simple_LONumAID.

   The motiviation to allow a retrieval of all low-order tributaries at once (in combination with the ALL modifier) is that NE internally all slots and ports must be queried anyway to fill the response. If the retrieve command would be more restrictive then multiple commands would be necessary to retrieve all low-order tributaries which results internally to an unnecessary multiple full query.

Spec Block Parameters

1. crslpbkstat - Crossconnect Loopback Status
   This parameter shall report the configuration of the crossconnection loopback of this triburay. For changing the loopback operation refer to OPR-LPBK.
   Type: alphanumeric value set

Range:

- YES: for enabled loopback
- NO: for disabled loopback.

2. degthr - Signal Degrade Threshold
   This parameter shall specify the exponent to base 10 for building the degraded threshold level. Note that only the POISSON mode is supported by HW for low-order tributaries. Therefore this parameter will be always valid (i.e. in contrast to RTRV-VCGTRIB, RTRV-VC3, RTRV-STS1).
   Type: integer
   Range: -5, -6 (default), -7, -8, -9; i.e. range is 10exp-9 to 10exp-5
3. dexcthr - Excessive Degrade Threshold
   This parameter shall specify the exponent to base 10 for building the excessive threshold level. Note that only the POISSON mode is supported by HW for low0order tributaries. Therefore this parameter will be always valid (i.e. in contrast to RTRV-VCGTRIB, RTRV-VC3, RTRV-STS1).
   Type: integer
   Range: -3 (default), -4, -5; i.e. range is 10exp-5 to 10exp-3
4. explptrc - Expected LO Path Trace Identifier
   This parameter shall specify the Expected Low Order Path Trace Identifier (J1 or J2). The first byte value shall be in the range from 80 to FF (MSB always set to 1). The other byte values shall be in the range from 00 to 7F (MSB always set to 0). This parameter is only useful if ptrcrfmt is set to 16.
   Type: hexadecimal number without a preceeding 'H'.
   Range: length: 32 hexadecimal; digits: value specific string acc. ITU/ETSI mode 1
   Default: 89000000000000000000000000000000
5. feppm - Far End Path PM Enable
   This parameter shall specify whether the performance monitoring for the far end is enabled or disabled for this tributary.
   Type:alphanumeric value set
   Range: DISABLE (default), ENABLE.
6. lonimpn - LO NIM ASA Profile Name
   This parameter points to a tributary ASAP profile name pfname for the designated AID.
   Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: 1 ... 24 characters
   Default: DEFAULT.
7. lptimmon - LO Path Trace Identifier Mismatch Monitor
   This parameter shall specify if the mode of the TIM detection. This parameter is relevant only if the related trace read format ptrcrfmt is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set
   Range: DISABLE (default), ENABLE.

8. neppm - Near End Path PM Enable
   This parameter shall specify whether the performance monitoring for the near end is enabled or disabled for this tributary.
   Type: alphanumeric value set
   Range: DISABLE (default), ENABLE
9. pmlpfeses - PM LO Path Far End SES Threshold
   This parameter shall specify the Low Order Path Far End Severely Errored Seconds Performance Monitioring Threshold for errored frames. If errored frames are crossing this threshold this will result in an SES count for the far end. The behaviour depends on interface standard specified by istd for the related port owning this tributary and the transmission rate of this low-order tributary. For definition of istd refer to RTRV-rr Output Parameters. The transmission rate can only be derived from the parameter inputsig of the related PTF entity.
   Type: integer
   Range:

   The range depends on the tributary type in input direction, which can be derived from inputsig of the related PTF:

   - 1, 2, 3, ..., 7998, 7999, 8000 (if the entity represents a LO-VC3 tributary)
   - 1, 2, 3, ..., 1998, 1999, 2000 (if the entity represents a VC12 tributary)
   - 1, 2, 3, ..., 3998, 3999, 4000 (if the entity represents a VT1.5 tributary)

   Default: The default value depends on the tributary type in input direction, which can be derived from inputsig of the related PTF: 2400 (if the entity represents a LO-VC3 tributary) 600 (if the entity represents a VC12 or VT1.5 tributary).
10. pmlpneses - PM LO Path Near End SES Threshold
    This parameter shall specify the Low Order Path Near End Severely Errored Seconds Performance Monitioring Threshold for errored frames. If errored frames are crossing this threshold this will result in an SES count for the near end. The behaviour depends on interface standard specified by istd for the related port owning this tributary and the transmission rate of this low-order tributary. For definition of istd refer to RTRV-rr Output Parameters. The transmission rate can only be derived from the parameter inputsig of the related PTF entity.
    Type: integer
    Range:

    The range depends on the tributary type in input direction, which can be derived from inputsig of the related PTF:

    - 1, 2, 3, ..., 7998, 7999, 8000 (if the entity represents a LO-VC3 tributary)
    - 1, 2, 3, ..., 1998, 1999, 2000 (if the entity represents a VC12 tributary)
    - 1, 2, 3, ..., 3998, 3999, 4000 (if the entity represents a VT1.5 tributary).

    Default: The default value depends on the tributary type in input direction, which can be derived from inputsig of the related PTF: 2400 (if the entity represents a LO-VC3 tributary) 600 (if the entity represents a VC12 or VT1.5 tributary).

11. ptca - Path TCA Profile Pointer
    The parameter ptca shall specify the name of the threshold crossing alert (TCA) profile used for this tributary.
    Type: alphanumeric string
    Range: 1 ... 24 characters
    Default: DEFAULT0
12. ptrcrfmt - Path Trace Read Format
    This parameter shall specify the format of the path trace (J1 or J2 byte) to be received (sink).
    Type: numeric string
    Range:
    - 2 (default), for non-specific repeating byte
    - 16, for 16 byte specific string
    - 64, for 64 byte string (only applicable if the entity represents a LO-VC3 tributary).

    To check whether the entity represents a LO-VC3 tributary or not, the parameter inputsig of the related PTF entity must be checked.
13. tcamd - TCA mode
    This parameter is only available for SDH mode and will therefore only be reported if the output parameter aidtype is LOVC. The parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable for SDH:
    - TR-only. (also known as the implicit reset method)
    - TR-RTR. (also known as the explicit reset method).

    For SONET the parameter tcamd does not exist. SONET ports only support ″TR-only″ mode. Thus the mode must be internally set to ″TR-only″.
    Type: alphanumeric value set
    Range: TR, TRRTR
    Default:
    - SDH mode: TRRTR
    - SONET mode: TR (internal).

    For SONET the parameter tcamd does not exist. SONET ports only support ″TR-only″ mode. Thus the mode must be internally set to ″TR-only″.
14. tmonmd - Tributary Monitoring Mode
    This parameter shall specify the monitoring mode for the tributary.
    Type: alphanumeric value set
    Range: MON, NMON (default).

Example output

Example of a ENT-LONIM notification when creating a SDH substructure:

```
   LT-UNITE 00-11-11 11:11:00
A  001 REPT DBCHG
```

```
   "TIME=11-10-30,DATE=00-11-11:ENT-LONIM-LOVC:\
    1-1-#-#-39-16-1-1&&-63::\
    crslbkstat=NO,degthr=-6,dexcthr=-3,\
    explptrc=8900000000000000000000000000000,
    feppm=DISABLE,\
    lptimmon=DISABLE,lonimpn=DEFAULT,neppm=DISABLE,
    pmlpfeses=600,\pmlpneses=600,ptca=DEFAULT0,
    ptrcrfmt=1,tcamd=TRRTR,tmonmd=NMON"
;
```

Example of a ENT-LONIM notification when creating a SONET substructure:

```
   LT-UNITE 00-11-11 11:11:00
A  001 REPT DBCHG
   "TIME=11-10-30,DATE=00-11-11:ENT-LONIM-LOVT:
   1-1-#-#-39-16-3-1&&-28::\crslbkstat=NO,degthr
   =-6,dexcthr=-3,\explptrc=8900000000000000000000000000000,
   feppm=DISABLE,\lptimmon=DISABLE,lonimpn=DEFAULT,
   neppm=DISABLE,pmlpfeses=600,\pmlpneses=600,ptca=DEFAULT0,
   ptrcrfmt=1,tmonmd=NMON"
;
```

Error responses

Refer to the RTRV-HDR command Error Responses section. The error responses listed there apply to the RTRV-LONIM command, too.

Validation rule: Check LONIM::modifier against PTF::istd

If the command is applied with a modifier which does not match to the interface standard parameter istd of the owning PTF entity then the command shall be denied.

Error code: `IENE - Input, Entity Not Exists`

Following combinations are allowed: *modifier istd*:

LOVC, SDH LOVT, SONET ALL, SDH or SONET.

Validation rule: Check *aid* and *dyn* consistency

If the command is applied with an aid parameter containing wildcards (all at any position) and the dyn parameter is set to YES then the command shall be denied.

Error code: `IDRG - Input, Data Range Error`

Example: Given the aid refers to 1-1-#-#-39-16-1-all and the dyn parameter is set to YES then the command will be rejected.

Related TL1 messages

- "ED-LONIM: Edit Low Order Non-Intrusive Monitor" (p. 4-304)

□

ENT-OC3 notification

Output format

The ENT-OC3 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ENT-OC3`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID.
   Range: OC3 port AID.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....255
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. It is the pointer processor setup if adaptive mode (*trbmd* = ADAPTIVE) is selected.
   When switching *trbmd* from FIXED to ADAPTIVE or when creating a port newly *crstat* inherits the current value of *inputsig* until the system delivers an up-to-date value from the pointer processor. If no value is available from the pointer processor the latest known value is retained.

For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the Tributary Input Rate Signal List.
Type: numeric value set.
Range: NX-NX-NX-...
N is the number of Xs. X can be 1 or 3 representing STS1 or STS3C.

5. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
6. felpm – Far-end Line PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
7. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU
8. fsflpbkstat – Far Side Facililiy Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output *aid.*
   A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
   Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).

9. inputsig – Tributary Input Signal Rate List
   This parameter is a list of STSn rates across the port's bandwidth.
   If *trbmd* is FIXED, then *inputsig* constrains the cross-connection rates that can be entered for the port. If *trbmd* is ADAPTIVE, then *inputsig* is setable and retrievable as in fixed mode but does not influence the port behavior.
   Type: numeric value set.
   Range: NX-NX-NX-...
   N is the number of Xs. X can be 1 or 3 representing STS1 or STS3C.
   Default: 31.
   Example: An O-3 signal might be represented by 31 which implies 3 STS1's or 13 which implies 1 STS3C.
10. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter istddflt.
    Type: alphanumeric value set.
    Range: SDH.
    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
11. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
12. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS3 (default), STS1.
13. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS1 (default), STS3.

14. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
15. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
16. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN. If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″
17. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.

neighborPortID is introduced specifically for use by NN application.
Type: Four dash separated numeric string.
Range: Each numeric string: 0...255.
Default: 0-0-0-0.
Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.

18. nelpm – Near-End Line PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
19. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-1/OC-3: 1 – 192000.

    Default: The default values differ for SDH and SONET:
    - STM1: 28800
    - OC3: 154.
20. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-1/OC-3: 1 – 192000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM1: 28800
    - OC3: 154.

21. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
22. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000.
    Default: The default values differ for SDH and SONET and the different rates:
    - STM1: 2400
    - OC3: 155.
23. portClass – Port Class
    This identifies the port class of the AID.
    portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.
24. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
    portControl is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.

25. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(sedault) ...25. The unit of this value is ″milliseconds″.
26. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable consequent action for TIM
    - DISABLE (default): disable consequent action for TIM.
27. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
28. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST
    - POISSON (default).
29. sdthr – Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
30. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.

Range:

- INSERVICE (default): Provisioning values for service are accepted
- OUTOFSERVICE: Provisioning values for service are not accepted.

31. sfthr – Signal Failure Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
32. sltca – Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
33. sonet – SONET ASAP
    SONET Alarm Severity Assignment Profile. This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH ASAP for SDH ports of corresponding line rate (see "RTRV-STM4: Retrieve STM4 port" (p. 4-2086), output parameter *sdhpn*) to be compatible with current generation applications.
    Type: alphanumeric string.
    Range: String with a maximum of 24 characters. A hyphen (-) is additionally allowed in the name.
    Default: DEFAULT.
34. spm – Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
35. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    srlgList is introduced specifically for use by ONNS application. The order of the three identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only

one or two identities are provisioned, the remaing one shall be set to the default value 0, e.g. 3-0-0.
Type: Three numeric strings separated by dashes.
Range: Each numeric string: 0...65535.
Default: 0-0-0.

36. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
37. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
38. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)

- 16: for 16 byte specific string (ITU/ETSI mode 1).
- 64: for 64 byte string (SONET).

39. unequiposig – Unequipped Output Signal List
    This parameter is a list of STSn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need to have the identical setting. Mixed rates for tx and rx side of the port are allowed. If *trbmd* is ADAPTIVE, then *unequiposig* is settable and retrievable as in fixed mode but does not influence the port behavior.
    Type: numeric value set.
    Range: NX-NX-NX-...
    N is the number of Xs. X can be 1 or 3 representing STS1 or STS3C.
    Default: 3 1 = all STS1.
40. z0outmode – Mode of outgoing Z0 byte insertion
    The Z0 insertion is configurable to support interworking with old SONET equipment for STS-M interfaces (M=3, 12, 48).
    Type: alphanumeric value set.
    Range:
    - FIXEDCC (default): for inserting the fixed value CChex
    - STSID: for inserting the STS-Id of the current frame.

Example output

```
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ENT-OC3:1-1-#-#-1-1::servcond=ENABLE,
     sdsfmode=POISSON,sdthr=-6,brstthr=30,....,istd=SONET,inputsig=31,unequiposig=3
;
```

□

ENT-OC12 notification

Output format

The ENT-OC12 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ENT-OC12`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID.
   Range: OC-12 port AID.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....255
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. It is the pointer processor setup if adaptive mode (*trbmd* = ADAPTIVE) is selected.
   When switching *trbmd* from FIXED to ADAPTIVE or when creating a port newly *crstat* inherits the current value of *inputsig* until the system delivers an up-to-date value from the pointer processor. If no value is available from the pointer processor the latest known value is retained.

For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the Tributary Input Rate Signal List.
Type: numeric value set.
Range: NX-NX-NX-...
N is the number of Xs. X can be 1, 3 or 12 representing STS1, STS3C or STS12C.

5. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
6. felpm – Far-end Line PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
7. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU
8. fsflpbkstat – Far Side Facililiy Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output *aid.*
   A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
   Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).

9. inputsig – Tributary Input Signal Rate List
   This parameter is a list of STSn rates across the port's bandwidth.
   If *trbmd* is FIXED, then *inputsig* constrains the cross-connection rates that can be entered for the port. If *trbmd* is ADAPTIVE, then *inputsig* is settable and retrievable as in fixed mode but does not influence the port behavior.
   Type: numeric value set.
   Range: NX-NX-NX-...
   N is the number of Xs. X can be 1, 3 or 12 representing STS1, STS3C or STS12C.
   Default: 121.
   Example:
   An OC12 signal might be represented by 31-33 which implies 3 STS1's, 3 STS3C's.
10. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter istddflt.
    Type: alphanumeric value set.
    Range: SDH.
    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
11. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
12. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS12 (default), STS3, STS1.

13. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS1 (default), STS3, STS12.
14. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
15. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
16. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN. If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″

17. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborPortID is introduced specifically for use by NN application.
    Type: Four dash separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0-0-0-0.
    Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.
18. nelpm – Near-End Line PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
19. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-4/OC-12: 1 – 768000.

    Default: The default values differ for SDH and SONET:
    - STM4: 115200
    - OC12: 615.
20. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.

Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

- STM-4/OC-12: 1 – 768000.

Default: The default values differ for SDH and SONET and the different rates:

- STM4: 115200
- OC3: 615.

21. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
22. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000.
    Default: The default values differ for SDH and SONET and the different rates:
    - STM4: 2400
    - OC12: 616.
23. portClass – Port Class
    This identifies the port class of the AID.
    portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.
24. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
    portControl is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.

25. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(sedault) ...25. The unit of this value is ″milliseconds″.
26. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable consequent action for TIM
    - DISABLE (default): disable consequent action for TIM.
27. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
28. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST
    - POISSON (default).
29. sdthr – Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
30. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.

Range:

- INSERVICE (default): Provisioning values for service are accepted
- OUTOFSERVICE: Provisioning values for service are not accepted.

31. sfthr – Signal Failure Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
32. sltca – Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
33. sonet – SONET ASAP
    SONET Alarm Severity Assignment Profile. This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH ASAP for SDH ports of corresponding line rate to be compatible with current generation applications.
    Type: alphanumeric string.
    Range: String with a maximum of 24 characters. A hyphen (-) is additionally allowed in the name.
    Default: DEFAULT.
34. spm – Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
35. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    srlgList is introduced specifically for use by ONNS application. The order of the three identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only one or two identities are provisioned, the remaing one shall be set to the default value 0, e.g. 3-0-0.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0.

36. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
37. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
38. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).

39. unequiposig – Unequipped Output Signal List
    This parameter is a list of STSn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need to have the identical setting. Mixed rates for tx and rx side of the port are allowed. If *trbmd* is ADAPTIVE, then *unequiposig* is settable and retrievable as in fixed mode but does not influence the port behavior.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 1, 3 or 12 representing STS1, STS3C or STS12C.
    Default: 121 = all STS1 (fixed).
40. z0outmode – Mode of outgoing Z0 byte insertion
    The Z0 insertion is configurable to support interworking with old SONET equipment for STS-M interfaces (M=3, 12, 48).
    Type: alphanumeric value set.
    Range:
    - FIXEDCC (default): for inserting the fixed value CChex
    - STSID: for inserting the STS-Id of the current frame.

Example output

```
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ENT-OC12:1-1-#-#-1-1::
   servcond=ENABLE, sdsfmode=POISSON,sdthr=-6,
   brstthr=30,....,istd=SONET,inputsig=121,
   unequiposig=121"
;
```

□

ENT-OC48 notification

Output format

The ENT-OC48 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ENT-OC48`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID.
   Range: OC-48 port AID.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....255
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. It is the pointer processor setup if adaptive mode (*trbmd* = ADAPTIVE) is selected.
   When switching *trbmd* from FIXED to ADAPTIVE or when creating a port newly *crstat* inherits the current value of *inputsig* until the system delivers an up-to-date value from the pointer processor. If no value is available from the pointer processor the latest known value is retained.
   For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter

inputsig showing the Tributary Input Rate Signal List.
Type: numeric value set.
Range: NX-NX-NX-…
N is the number of Xs. X can be 1, 3, 12, 48 representing STS1, STS3C, STS12C, STS48C.

5. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
6. felpm – Far-end Line PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
7. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU
8. fsflpbkstat – Far Side Facililiy Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output *aid.*
   A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
   Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).

9. inputsig – Tributary Input Signal Rate List
   This parameter is a list of STSn rates across the port's bandwidth.
   If *trbmd* is FIXED, then *inputsig* constrains the cross-connection rates that can be entered for the port. If *trbmd* is ADAPTIVE, then *inputsig* is settable and retrievable as in fixed mode but does not influence the port behavior.
   Type: numeric value set.
   Range: NX-NX-NX-...
   N is the number of Xs. X can be 1, 3, 12 or 48 representing STS1, STS3C, STS12C or STS48C.
   Default: 481.
   Example: An OC-48 signal might be represented by 91-13-112-241 which implies 9 STS1's, 1 STS3C, 1 STS12C, 24 STS1's.
10. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter istddflt.
    Type: alphanumeric value set.
    Range: SDH.
    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
11. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
12. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS48 (default), STS12, STS3, STS1.

13. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS1 (default), STS3, STS12, STS48.
14. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
15. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass = INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd = MAN.
    If ndetmd = MAN, this parameter shall indicate the value set by the operator. If ndetmd = AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
16. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass = INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd = MAN. If ndetmd = MAN, this parameter shall indicate the value set by the operator. If ndetmd = AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass* = INNI, the default value shall have the meaning of ″no neighbor discovered″

17. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass* = INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd = MAN.
    If *ndetmd* = MAN, this parameter shall indicate the value set by the operator. If *ndetmd* = AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborPortID is introduced specifically for use by NN application.
    Type: Four dash separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0-0-0-0.
    Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.
18. nelpm – Near-End Line PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
19. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.

20. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.
21. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
22. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000
    Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392

- SONET OC192: 8554
- SONET OC768: 22776.

23. portClass – Port Class
    This identifies the port class of the AID.
    portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.
24. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
    portControl is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.
25. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass* = INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(sedault) ...25. The unit of this value is ″milliseconds″.
26. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable consequent action for TIM
    - DISABLE (default): disable consequent action for TIM.
27. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.

Range:

- ENABLE: enable TIM Monitor
- DISABLE (default): disable TIM Monitor

28. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST
    - POISSON (default).
29. sdthr – Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
30. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
31. sfthr – Signal Failure Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
32. sltca – Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
33. sonet – SONET ASAP
    This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH Alarm Severity Assignment Profile for SDH ports to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.

34. spm – Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
35. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    srlgList is introduced specifically for use by ONNS application. The order of the three identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only one or two identities are provisioned, the remaing one shall be set to the default value 0, e.g. 3-0-0.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0.
36. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
37. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.

Range:

- 1 byte string
- 16 bytes string
- 64 bytes string.

Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
Default: 01Hex

38. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
39. unequiposig – Unequipped Output Signal List
    This parameter is a list of STSn rates across the port's bandwidth. It determines the rate(s) of the *unequipped* signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need to have the identical setting. Mixed rates for *tx* and *rx* side of the port are allowed. If *trbmd* is ADAPTIVE, then *unequiposig* is settable and retrievable as in fixed mode but does not influence the port behavior.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 1, 3, 12 or 48 representing STS1, STS3C, STS12C or STS48C.
    Default: 481 = all STS1 (fixed).
40. z0outmode – Mode of outgoing Z0 byte insertion
    The Z0 insertion is configurable to support interworking with old SONET equipment for STS-M interfaces (M=3, 12, 48).
    Type: alphanumeric value set.
    Range:
    - FIXEDCC (default): for inserting the fixed value CChex
    - STSID: for inserting the STS-Id of the current frame.

Example output

```
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
```

```
   "TIME=08-00-12,DATE=00-11-28:ENT-OC48:
   1-1-#-#-1-1::servcond=ENABLE, sdsfmode=POISSON,
   sdthr=-6,brstthr=30,....,istd=SONET,
   inputsig=481,unequiposig=481"
;
```

□

ENT-OC48T notifications

Output format

The ENT-OC48T notification shall use the general format of a REPT DBCHG notification.

Syntax

`ENT-OC48T`*:aid::spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID.
   Range: OC-48 port AID.

Spec block parameters

1. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
   For ENT-OC48T Notification this parameter refers to the incoming (ingress) direction.
2. exprstrcout - Value of Expected J0 in outgoing direction
   Expected regenerator section trace identifier in outgoing (egress) direction.
   The parameter expstrcout specifying the expected path trace is only relevant for the section trace supervision in outgoing direction when the related trace read format strcfmtout is set to 16 (16-byte-specific-string mode).
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte shall be expressed as two hexadecimal digits (example value: 6D). The first byte value shall be in the range from 80 to FF. The other byte values shall be in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex

3. fsflpbkstat - Far Side Facility Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output *aid.*
   A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
   Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).
4. istd – Interface Standard
   Each synchronous optical interface can be set to SDH or SONET.
   Type: alphanumeric value set.
   Range: SONET.
   Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
5. lpbk - Loopback
   This parameter specifies the current near-side loopback status of the considered output *aid*.
   A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).
6. pmode – Port Mode
   This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
   Type: alphanumeric value set
   Range:
   - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
   - MON indicates that alarm monitoring is taking place on the port.
   - NMON means that alarm monitoring is not occurring on the port.

7. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
   This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET.
   Type: numeric value set.
   Range (superset of allowed ranges for SDH and SONET):1 – 64000
   Default: The default values differ for SDH and SONET and the different rates:
   - SDH (all rates): 2400
   - SONET OC48: 2392
   - SONET OC192: 8554
   - SONET OC768: 22776.

   For ENT-OC48T Notification this parameter refers to the incoming (ingress) direction.
8. pmrsnesesout - Performance Monitoring Section/RS Near-End SES Threshold in Outgoing Direction
   This parameter describes the Section/RS Near-End SES threshold value for the outgoing (egress) direction. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severly errored. The default value depends on the interface standard and may differ between SDH and SONET.
   Type: numeric value set
   Range (superset of allowed ranges for SDH and SONET): 1 - 64000
   Default:
   The default values differ for SDH and SONET and the different rates:
   - SDH (all rates): 2400
   - SONET OC48: 2392
9. rstimmon – RS TIM Monitor Enable
   Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
   This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
   Type: alphanumeric value set.
   Range:
   - ENABLE: enable TIM Monitor
   - DISABLE (default): disable TIM Monitor

   For ENT-OC48T Notification this parameter refers to the incoming (ingress) direction.

10. rstimmonout - RS TIM Monitor Enable in Outgoing direction
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0) in outgoing (egress) direction. This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set
    Range: ENABLE - enable TIM Monitor, DISABLE (default) - disable TIM Monitor
11. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
12. sltca – Section and Line TCA Profile Pointer
    Definition of the section and line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
13. sonet – SONET ASAP
    This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH Alarm Severity Assignment Profile for SDH ports (*sdhpn*) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
14. spm – Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).

    For ENT-OC48T this parameter refers to the incoming (ingress) direction.
15. spmout - Section PM Enable in Outgoing Direction
    Enable or disable section performance monitoring for the outgoing (egress) direction.
    Type: alphanumeric value set.
    Range: ENABLE, DISABLE (default).

16. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).

    For ENT-OC48T this parameter refers to the incoming (ingress) direction.
17. strcfmtout - Format of outgoing J0
    The read format of J0 in outgoing (egress) direction, the outgoing section trace (*strcout*) and the expected section trace (*exprstrcout*).
    Type: numeric string
    Range:
    - 1, for specific repeating byte (SONET)
    - 2 (default), for non-specific repeating byte (ITU/ETSI mode 2)
    - 16, for 16 byte specific string (ITU/ETSI mode 1)
    - 64, for 64 byte string (SONET).

Example output

```
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ENT-OC48T:
   1-1-#-#-1-1::servcond=ENABLE,pmode=MON,....,
   istd=SONET,pmrsneses=30,pmrsnesesout=30"
;
```

□

ENT-OC192 notification

Output format

The ENT-OC192 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ENT-OC192`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Access Identifier of the OC192 port.
   Type: AID.
   Range: SPortAID of OC192 port.
   The keyword `all` is not allowed.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....255
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. It is the pointer processor setup if adaptive mode (*trbmd* = ADAPTIVE) is selected.
   When switching *trbmd* from FIXED to ADAPTIVE or when creating a port newly *crstat* inherits the current value of *inputsig* until the system delivers an up-to-date value from the pointer processor. If no value is available from the pointer processor the latest known value is retained.

For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the tributary input rate signal list.
Type: numeric value set.
Range: NX-NX-NX-...
N is the number of Xs. X can be 1, 3, 12, 48, 192 representing STS1, STS3C, STS12C, STS48C, STS192C.

5. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
6. fec – FEC Enable
   Forward Error Correction Enable. Enable to include the FEC information in the outgoing signal.
   Type: alphanumeric value set.
   Range:

   DISABLE (only) for:

   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics
   - OC192 / STM64 low cost intra office 1310nm optics
   - Basic OC768 / STM256 low cost intra office (2 km).

   ENABLE / DISABLE for:

   - OC192 / STM64 OLS800G compatible 80 colour optics
   - OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G
   - OC768 / STM256 Long Reach / Long Haul 1.5æ optics with strong FEC (80km)
   - OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

   Default:

   DISABLE (only) for:

   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics

- OC192 / STM64 Long Reach / Long Haul 1550 nm optics
- OC192 / STM64 low cost intra office 1310nm optics
- Basic OC768 / STM256 low cost intra office (2 km).

ENABLE / DISABLE for:

- OC192 / STM64 OLS800G compatible 80 colour optics
- OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G
- OC768 / STM256 Long Reach / Long Haul 1.5æ optics with strong FEC (80km)
- OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

7. felpm – Far-end Line PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
8. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU
9. fsflpbkstat – Far Side Facililiy Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output *aid.*
   A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
   Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).
10. inputsig – Tributary Input Signal Rate List
    This parameter is a list of STSn rates across the port's bandwidth.
    If *trbmd* is FIXED, then *inputsig* constrains the cross-connection rates that can be entered for the port. If *trbmd* is ADAPTIVE, then *inputsig* is settable and retrievable as in fixed mode but does not influence the port behavior.

Type: numeric value set.
Range: NX-NX-NX-...
N is the number of Xs. X can be 1, 3, 12, 48, 192 representing STS1, STS3C, STS12C, STS48C or STS192C.
Default: 1921.

11. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter istddflt.
    Type: alphanumeric value set.
    Range: SDH.
    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
12. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
13. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS192 (default), STS48, STS12, STS3, STS1.
14. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS1 (default), STS3, STS12, STS48, STS192.
15. msrei – MS-REI mode
    Definition: An special extended MS REI mode is standardized for STM64/OC192 interfaces. To support the interworking with older STM64/OC192 interfaces the single byte mode (non-extended) should also be supported.
    Type: alphanumeric value set.

Range:

- SINGLE
- EXTENDED (default).

16. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
17. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
18. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN. If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″
19. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if

ndetmd=MAN.
If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
neighborPortID is introduced specifically for use by NN application.
Type: Four dash separated numeric string.
Range: Each numeric string: 0...255.
Default: 0-0-0-0.
Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.

20. nelpm – Near-End Line PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
21. och – optical channel enable
    Enable or disable of the optical channel. If the optical channel is disabled the further optical channel parameters don't have any impact on transmission.
    Type: alphanumeric value set.
    Range:
    - for OP10 packs, which support to enable or disable OCH: ENABLE: enable optical channel; DISABLE: disable optical channel
    - for OP40 packs, which cannot support OCH: DISABLE: disable optical channel
    - for OP40 packs, which only support OCH: ENABLE: enable optical channel.

    Default:
    - for OP10 packs, which cannot support OCH: DISABLE
    - for OP40 packs, which cannot support OCH: DISABLE
    - for OP40 packs, which only support OCH: ENABLE.
22. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.

Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

- STM-16/OC-48: 1 – 3072000
- STM-64/OC-192: 1 – 12288000
- STM-256/OC-768: 1 – 49152000.

Default: The default values differ for SDH and SONET and the different rates:

- STM16: 460800
- STM64: 1843200
- STM256: 7372800
- SONET OC48: 2459
- SONET OC192: 9835
- SONET OC768: 39340.

23. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.
24. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set

Range:

- AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
- MON indicates that alarm monitoring is taking place on the port.
- NMON means that alarm monitoring is not occurring on the port.

25. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
Type: numeric value set.
Range (superset of allowed ranges for SDH and SONET):1 – 64000
Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392
    - SONET OC192: 8554
    - SONET OC768: 22776.
26. polynomial - Optical Channel Scrambling Polynomial
This parameter is used by the Wavewrapper scrambler on the optical channel. This parameter is relevant only if the optical channel is enabled (och == ENABLE).
Type: numeric value set.
Range: 1x7 + x + 1; 2x16 + x12 + x3 + x + 1.
Default: 2.
27. portClass – Port Class
This identifies the port class of the AID.
portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
Type: alphanumeric value set.
Range: TRADITIONAL (default), INNI, EDGE.
28. portControl – Port Control (PortAdministrative Mode)
This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
portControl is introduced specifically for use by ONNS application.
Type: alphanumeric value set.
Range: NORMAL (default), LOCKOUT.

29. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(sedault) ...25. The unit of this value is ″milliseconds″.
30. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable consequent action for TIM
    - DISABLE (default): disable consequent action for TIM.
31. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
32. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST
    - POISSON (default).
33. sdthr – Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
34. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.

Range:

- INSERVICE (default): Provisioning values for service are accepted
- OUTOFSERVICE: Provisioning values for service are not accepted.

35. sfthr – Signal Failure Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
36. sltca – Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
37. sonet – SONET ASAP
    This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH Alarm Severity Assignment Profile for SDH ports (*sdhpn*) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
38. spm – Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
39. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    srlgList is introduced specifically for use by ONNS application. The order of the three identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only one or two identities are provisioned, the remaing one shall be set to the default value 0, e.g. 3-0-0.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0.

40. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
41. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
42. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)

- 16: for 16 byte specific string (ITU/ETSI mode 1).
- 64: for 64 byte string (SONET).

43. unequiposig – Unequipped Output Signal List
    This parameter is a list of STSn rates across the port's bandwidth. It determines the rate(s) of the *unequipped* signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need to have the identical setting. Mixed rates for tx and rx side of the port is allowed. If *trbmd* is ADAPTIVE, then *unequiposig* is settable and retrievable as in fixed mode but does not influence the port behavior.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 1, 3, 12, 48 or 192 representing STS1, STS3C, STS12C, STS48C or STS192C.
    Default: 1921 = all STS1 (fixed).

Example output

```
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ENT-OC192:1-1-#-#-1-1::servcond=ENABLE,
     sdsfmode=POISSON,sdthr=-6,brstthr=30,....,istd=SONET,
inputsig=1921,unequiposig=1921"
;
```

□

ENT-OC768 notification

Output format

The ENT-OC768 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ENT-OC768`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Access Identifier of the OC768 port.
   Type: AID.
   Range: SPortAID of OC768 port.
   The keyword `all` is not allowed.

Spec block parameters

1. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
2. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
3. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. It is the pointer processor setup if adaptive mode (*trbmd* = ADAPTIVE) is selected.
   When switching *trbmd* from FIXED to ADAPTIVE or when creating a port newly *crstat* inherits the current value of *inputsig* until the system delivers an up-to-date value from the pointer processor. If no value is available from the pointer processor the latest known value is retained.
   For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the tributary input rate signal list.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 1, 3, 12, 48, 192 representing STS1, STS3C, STS12C, STS48C, STS192C.

4. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
5. fec – FEC Enable
   Forward Error Correction Enable. Enable to include the FEC information in the outgoing signal.
   Type: alphanumeric value set.
   Range:
   DISABLE (only) for:
   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics
   - OC192 / STM64 low cost intra office 1310nm optics
   - Basic OC768 / STM256 low cost intra office (2 km).

   ENABLE / DISABLE for:
   - OC192 / STM64 OLS800G compatible 80 colour optics
   - OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G
   - OC768 / STM256 Long Reach / Long Haul 1.5æ optics with strong FEC (80km)
   - OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

   Default:
   DISABLE (only) for:
   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics
   - OC192 / STM64 low cost intra office 1310nm optics
   - Basic OC768 / STM256 low cost intra office (2 km).

ENABLE / DISABLE for:

- OC192 / STM64 OLS800G compatible 80 colour optics
- OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G
- OC768 / STM256 Long Reach / Long Haul 1.5æ optics with strong FEC (80km)
- OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

6. felpm – Far-end Line PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
7. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU
8. fsflpbkstat – Far Side Facililiy Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output *aid.*
   A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
   Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).
9. inputsig – Tributary Input Signal Rate List
   This parameter is a list of STSn rates across the port's bandwidth.
   If *trbmd* is FIXED, then *inputsig* constrains the cross-connection rates that can be entered for the port. If *trbmd* is ADAPTIVE, then *inputsig* is settable and retrievable as in fixed mode but does not influence the port behavior.
   Type: numeric value set.
   Range: NX-NX-NX-...
   N is the number of Xs. X can be 1, 3, 12, 48, 192 representing STS1, STS3C, STS12C, STS48C or STS192C.
   Default: 7681.

10. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter istddflt.
    Type: alphanumeric value set.
    Range: SDH.
    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
11. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
12. nelpm – Near-End Line PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
13. och – optical channel enable
    Enable or disable of the optical channel. If the optical channel is disabled the further optical channel parameters don't have any impact on transmission.
    Type: alphanumeric value set.
    Range:
    - for OP10 packs, which support to enable or disable OCH: ENABLE: enable optical channel; DISABLE: disable optical channel
    - for OP40 packs, which cannot support OCH: DISABLE: disable optical channel
    - for OP40 packs, which only support OCH: ENABLE: enable optical channel.

    Default:
    - for OP10 packs, which cannot support OCH: DISABLE
    - for OP40 packs, which cannot support OCH: DISABLE
    - for OP40 packs, which only support OCH: ENABLE.

14. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.
15. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.

16. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
17. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000
    Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392
    - SONET OC192: 8554
    - SONET OC768: 22776.
18. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable consequent action for TIM
    - DISABLE (default): disable consequent action for TIM.
19. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor

20. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST
    - POISSON (default).
21. sdthr – Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
22. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
23. sfthr – Signal Failure Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
24. sltca – Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
25. sonet – SONET ASAP
    This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH ASAP for SDH ports (*sdhpn*) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
26. spm – Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.

Range:

- ENABLE
- DISABLE (default).

27. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
28. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
29. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)

- 16: for 16 byte specific string (ITU/ETSI mode 1).
- 64: for 64 byte string (SONET).

30. unequiposig – Unequipped Output Signal List
    This parameter is a list of STSn rates across the port's bandwidth. It determines the rate(s) of the *unequipped* signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need to have the identical setting. Mixed rates for *tx* and *rx* side of the port is allowed. If *trbmd* is ADAPTIVE, then *unequiposig* is settable and retrievable as in fixed mode but does not influence the port behavior.
    Type: numeric value set.
    Range: NX-NX-NX-...
    N is the number of Xs. X can be 1, 3, 12, 48 or 192 representing STS1, STS3C, STS12C, STS48C or STS192C.
    Default: 7681 = all STS1 (fixed).

Example output

```
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ENT-OC768:1-1-#-#-4-1::
   servcond=ENABLE, sdsfmode=POISSON,sdthr=-6,brstthr=30,
   ....,istd=SONET,inputsig=7681,unequiposig=7681"
;
```

□

ENT-OUC: Enter ONNS to UPSR/SNCP constructs

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 3

Abortable: No.

Input format

Command Syntax:

`ENT-OUC:`*tid:wrk_aid,prt_aid:ctag::[ouc_dir][:spec_block];*

Input parameters

Command parameters

1. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The *tid* is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
2. wrk_aid – Working Tributary Access Identifier
   This parameter specifies the working tributary of the OUC.
   Type: STS1NumAID
   Range: n.a. (`all` values shall never occur as part of an output parameter)
3. prt_aid – Protection Tributary Access Identifier
   Protection Tributary Access Identifier. Specifies the protection tributary of the OUC.
   Type: STSNumAID
   Range: n.a. (`all` values shall never occur as part of an output parameter)
4. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the network element in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters. Note: Current implementation also allows ’0’ as valid CTAG, which is an extension to GR-831.
5. ouc_dir – OUC Directionality
   Directionality of the OUC
   Type: alphanumeric value set

Range:

- BIDIR (default)
- UNIDIR-ADD
- UNIDIR-DROP.

Spec block parameters

1. htmr – Hold Off Timer
   This parameter specifies the hold-off time for automatic protection switching used by the protection state machine of the path protection groups created via OUC creation.
   Type: numeric string [ms]
   Range: 0 -.. 99 msec in 1 msec steps and 100 ..- 10000 msec in100 msec steps
   Default: 0
2. rme – Revertive Mode Enable
   This parameter specifies, whether revertive or non-revertive mode is used as operation mode of the protection groups created via OUC creation. The value ENABLE is used if the protection operates in revertive mode. The value DISABLE is used if the protection operates in non-revertive mode.
   Type: alphanumeric value set
   Range: ENABLE, DISABLE (default).
3. snctype – SNCP Type
   This parameter specifies the type of the path protection w.r.t. switch criterias used by the protection state machine of the path protection groups created via OUC creation.
   The value SNCI (Inherent) shall be used if server signal fail is used as switch criteria.
   The value SNCN (Non-Instrusive) shall be used if server signal fail and defects supervised by a non-intrusive path monitor are used as switch criteria
   The value NA shall be used if the tributary inputs are related to ports operating in SONET mode.
   Type: alphanumeric value set
   Range: SNCI, SNCN, NA
   Default:
   - SNCN, if affected tributaries are related to ports operating in SDH mode
   - NA, if affected tributaries are related to ports operating in SONET mode.
4. wtr – Wait To Restore Time
   This parameter specifies the wait to restore time used by the protection state machine operating in revertive mode of the path protection groups created via OUC creation.
   Type: numeric string [minute]
   Range: 0 - 60.
   Default: 5

Output format

If the ENT-OUC command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid, date, time* and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Example input/output

A bidirectional OUC between working tributary 4 of a 10G SDH EDGE port in slot 01 and protection tributary 7 of 2G5 SDH EDGE port 3 in slot 34 will be established by:

```
ENT-OUC:UNITE-NE:1-1-#-#-1-1-4,1-1-#-#-34-3-7:
123456::BIDIR:htmr=3000,rme=ENABLE,snctype=SNCI,wtr=10;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
;
```

A unidirectional drop OUC between working tributary 4 of 2G5 SONET EDGE port 1 in slot 10 and protection tributary 7 of 2G5 SONET EDGE port 3 in slot 34 will be established by the following command: (note that spec block parameter *snctype* can be omitted in the SONET case and spec block parameter *wtr* can be omitted due to *rme* being DISABLE)

```
ENT-OUC:UNITE-NE:1-1-#-#-10-1-4,1-1-#-#-34-3-7:123456::
UNIDIR-DROP:htmr=3000,rme=DISABLE;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
;
```

A unidirectional add OUC between working tributary 2 of a 10G SONET EDGE port in slot 10 and protection tributary 3 of 2G5 SONET EDGE port 3 in slot 34 will be established by the following command: (note that for a UNIDIR-ADD OUC no path protection group from the EDGE tribs towards the INNI trib(s) is needed and thus none will be created. A UNIDIR-ADD OUC just consists of one-way point-to-point cross-connections and possible path-protected cross-connections from the INNI trib(s) to the EDGE tribs)

```
ENT-OUC:UNITE-NE:1-1-#-#-10-1-2,1-1-#-#-34-3-3:
123456::UNIDIR-ADD;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
;
```

Error responses

Validation rule: Tributaries must exist

OUC command processing shall verify the tributaries specified in the command do exist.

Error code: `IENE - Input, Entity Not Exists, Specified tributary/tributaries do not exist`

Validation rule: Tributaries must belong to ports of *portClass* EDGE

OUC command processing shall verify, that both affected tributaries belong to ports of *portClass* EDGE.

Error code: `SNVS - Status, Not in Valid State, Tributaries must be on ports of portClass EDGE`

Validation rule: Tributaries must belong to ports of equal interface standards

OUC command processing shall deny requests to establish OUCs where the ports of the tributaries are not provisioned for the same standard, either SONET or SDH - this is due to different switching criteria.

Error code: `SNVS - Status, Not in Valid State, Different interface standards for working and protection tributaries`

Validation rule: SNC Type must comply with interface standard of affected EDGE ports

OUC command processing shall deny requests to establish OUCs when a value for parameter SNC Type is given, that does not comply with the interface standard of the affected EDGE ports.

Error code: `SNVS - Status, Not in Valid State, Parameter value for SNC Type not compliant to interface standard of working and protection tributaries`

Validation rule: NN connection of matching directionality must exist on working tributary

OUC command processing shall deny requests to establish OUCs, if on the working tributary given no NN connection exists, which is of the same directionality as the OUC requested.

Error code: `SNVS - Status, Not in Valid State, No matching NN cross connection existing on working tributary`

This means, that on a bidirectional NN connection only a bidirectional OUC can be established, while it would be possible to establish two different unidirectional OUCs on two unidirectional NN connections using the same tributary.

Validation rule: No interfering cross connection must exist on protection tributary

OUC command processing shall deny requests to establish OUCs, if on the protection tributary given any cross connection already exists interfering with the directionality of the OUC requested.

Error code: `SNVS - Status, Not in Valid State, Interfering cross connection existing on protection tributary`

This means, that the protection tributary must not be blocked by any cross-connection at all if a bidirectional OUC is requested, and that it must not be blocked by a unidirectional add (drop) cross-connection, if a unidirectional add (drop) OUC is requested. A unidirectional add (drop) OUC would be allowed, if e.g. the tributary is blocked only by a unidirectional drop (add) cross-connection.

To be blocked by a cross-connection means for a tributary, that there must not be a cross-connection existing directly on that trib, that the trib must not be part of a cross-connection of higher bandwidth and that no ″part″ of the trib must be blocked by a cross connection of smaller bandwidth.

Validation rule: No OUC must already exist on working tributary to different protection tributary

OUC command processing shall deny requests to establish OUCs, if on the working tributary an OUC already exists to a different protection tributary.

Error code: `SNVS - Status, Not in Valid State, OUC to different protection tributary already exists`

This means, that it shall not be possible to e.g. establish a unidirectional add OUC between a working and a protection tributary and a unidirectional drop OUC between the same working and a different protection tributary.

Validation rule: No conflicting OUC must already exist between working and protection tributary

OUC command processing shall deny requests to establish OUCs, if between the working and the protection tributary an OUC already exists that cannot coexist with the OUC requested.

Error code: `SNVS - Status, Not in Valid State, Conflicting OUC already exists`

This covers the following cases:

- No additional OUC can be established, if a BIDIR OUC is already existing between both tribs.
- No BIDIR OUC can be established, if a UNIDIR-ADD or UNIDIR-DROP OUC is already existing between both tribs.
- No UNIDIR-ADD or UNIDIR-DROP OUC can be established, if an OUC of equal directionality is already existing between both tribs.

Due to internal system architecture there may be a state of an OUC, where it is still existing for some time after it has been deleted, before the deletion is really completed. In such a state the OUC will still be reported after RTRV-OUC. While such an OUC is existing, commands to create a new OUC on the affected working tributary or to again delete this OUC may be rejected inconsistently with error codes defined. No special validations and error codes are defined for this case.

Validation rule: Affected EDGE ports must not be in a line or equipment protection scheme

OUC command processing shall deny requests to establish OUCs, if one or both of the EDGE ports affected is involved in a line protection scheme like MSP or BLSR/MSSPRING or an equipment protection scheme.

Error code: `SNVS - Status, Not in Valid State, EDGE ports must not be in line or equipment protection schemes`

Validation rule: Affected EDGE port the EDGE-prt tributary is located on must not be in LOCKOUT state

OUC command processing shall deny requests to establish OUCs, if the EDGE port the EDGE-prt tributary is located on is in LOCKOUT state.

Error code: `SNVS - Status, Not in Valid State, EDGE port carrying EDGE-prt must not be in LOCKOUT`

Validation rule: No path protection group parameters must be given for Setup of a unidirectional-add OUC

OUC command processing shall deny requests to establish unidirectional-add OUCs, if any path protection group parameter is given.

Error code: `IDNV - Input, Data Not Valid, No path protection group parameters allowed for directionality UNIDIR-ADD`

□

ENT-OUC notification

The ENT-OUC notification will notify only the creation of the OUC itself. Cross-connections and path protection groups that are created implicitly via an OUC creation shall be notified via corresponding ENT-CRS-modifier and ENT-PROTN-GRP notifications.

Output format

The ENT-OUC notification shall use the general format of a REPT DBCHG Report Database Change notification.

Syntax:

ENT-OUC:*wrk_aid,prt_aid:ouc_dir;*

Output parameters

Command parameters

1. wrk_aid – Working Tributary Access Identifier
   This parameter specifies the working tributary of the OUC.
   Type: STS1NumAID
   Range: n.a. (*all* values shall never occur as part of an output parameter)
2. prt_aid – Protection Tributary Access Identifier
   This parameter specifies the protection tributary of the OUC.
   Type: STSNumAID
   Range: n.a. (*all* values shall never occur as part of an output parameter)
3. ouc_dir – OUC Directionality
   Directionality of the OUC
   Type: alphanumeric value set
   Range:
   - BIDIR (default)
   - UNIDIR-ADD
   - UNIDIR-DROP

Example input/output

```
      LT-UNITE-123 00-01-01 08:00:50
A  815 REPT DBCHG
   "TIME=08-00-12,DATE=00-01-01:ENT-OUC:1-1-#-#-1-1-1,
   1-1-#-#-2-1-1:BIDIR"
;

      LT-UNITE-123 00-01-01 08:00:50
A  815 REPT DBCHG
   "TIME=08-00-12,DATE=00-01-01:ENT-OUC:1-1-#-#-1-1-1,
   1-1-#-#-2-1-1:UNIDIR-ADD"
```

```
;

      LT-UNITE-123 00-01-01 08:00:50
A  815 REPT DBCHG
   "TIME=08-00-12,DATE=00-01-01:ENT-OUC:1-1-#-#-1-1-1,\
   1-1-#-#-2-1-1:UNIDIR-DROP"
;
```

ENT-PATH: Create ONNS path connection

Overview

The ENT-PATH -protClass command is used to establish one or more optical transmission path(s) between two valid client routers or traditional nodes in the network that are attached to Host NE EDGE ports.

ENT-PATH creates an optical connection with specified connection bandwidth between two client devices connected to the optical network using ONNS ports / tribs on ONNS controlled Host NE nodes.

The *protClass* of the ENT-PATH command indicates what type of protection should be provided with the light path(s) to be established.

The path setup commands are:

- ENT-PATH-UNPROT
- ENT-PATH-N1PLUS1
- ENT-PATH-YCONN
- ENT-PATH-AUTO
- ENT-PATH-MBYN.

ENT-PATH-UNPROT sets up an unprotected path from source *srcNID*, *srcPortID* to destination *destNID*, *destPortID*. This is a basic ONNS connection with no ONNS protection response to failure except a REPT-PTHEVT. ENT-PATH-UNPROT shall set up a group of unprotected connections from srcNID, srcPortID to destination destNID, destPortID, if srcPortID specifies a list of VCG tributaries of one and the same EDGE VCG in srcNID and destPortID specifies an EDGE VCG in destNID.

For the setup of a group of unprotected connections with ENT-PATH-UNPROT the parameter grpSetupType can be used to specify, whether the total cost of all connections of the grouped setup or the number of routes taken by the connections of the grouped setup shall be minimized. This parameter shall be ignored, if the grouped setup actually only consists of the setup of one single unprotected connection, as in this case both alternatives will lead to equal results. This parameter shall also be ignored, if explicit routing is requested by setting parameter nodeListUsage1 to EXPLICIT, as also in this case both alternatives would make no difference.

ENT-PATH-AUTO sets up an auto-rerouting nonrevertive protected path.

ENT-PATH-AUTO, non-revertive: This is an ONNS nonrevertive auto-rerouting connection that ONNS will restore using ONNS mesh restoration techniques. The failed path will be bridged with a new path that satisfies all constraints applied to the connection. The new connection will be verified that it meets the service level agreements (SLA), and the failed path will be torn down. Link resources of the failed path will be returned to the available resource pool. ENT-PATH-AUTO, nonrevertive,

shall set up a group of nonrevertive restoration protected connections from *srcNID*, *srcPortID* to destination *destNID*, *destPortID*, if *srcPortID* specifies a list of VCG tributaries of one and the same EDGE VCG in srcNID and *destPortID* specifies an EDGE VCG in *destNID*.

ENT-PATH-AUTO, revertive: This is an ONNS revertive auto-rerouting connection that ONNS will restore using ONNS mesh restoration techniques. The failed path will be bridged with a new path that satisfies all constraints applied to the connection. The new connection will be verified that it meets the service level agreements (SLA), and the resources of the original path will be kept. When the original path becomes good again, reversion takes places and the restoration path will be torn down.
ENT-PATH-AUTO, revertive, shall set up a group of revertive restoration protected connections from *srcNID*, *srcPortID* to destination *destNID*, *destPortID*, if *srcPortID* specifies a list of VCG tributaries of one and the same EDGE VCG in *srcNID* and *destPortID* specifies an EDGE VCG in *destNID*.

ENT-PATH-N1PLUS1 sets up both paths of a network 1+1 protected connection. ONNS sets up two node disjoint and (if applicable) SRLG-diverse paths through the network that share a common ingress(/egress) port (/connPoint) on the source NE node and a common egress (/ingress) port (/connPoint) on the destination NE node. The N1PLUS1 setup shall support the setting of the path protection group parameters:

- revertive / non-revertive mode
- wait to restore timer
- hold off timer.

These parameters will be set consistently at both ends of the 1+1 connection in case of bidirectionality. The setup of the path protection group parameters via ENT-PATH-N1PLUS1 simplifies the provisioning of these parameters for ONNS 1+1 protection connections. These parameters are part of the path protection group and still provisionable via ED-PROTN-GRP. These parameters are not administrated by ONNS and for this reason are not specified as TL1 output parameters.

ENT-PATH-N1PLUS1 shall set up a group of 1+1 protected connections from *srcNID*, *srcPortID* to destination *destNID*, *destPortID*, if *srcPortID* specifies a list of VCG tributaries of one and the same EDGE VCG in *srcNID* and *destPortID* specifies an EDGE VCG in *destNID*.

ENT-PATH-YCONN sets up both paths of a bridged Y-connection from one source NE node to two different destination NE nodes. ONNS sets up two node disjoint and (if applicable) SRLG-diverse paths through the network that share a common ingress(/egress) port (/connPoint) on the source NE node, but terminating at two different destination NE nodes with its own egress(/ingress) port (/connPoint).

ENT-PATH-MBYN shall set up a group of connections consisting of a number of working connections and a number of protecting connections from source *srcNID* with a list of tributaries to destination destNID with a list of tributaries.

The list of tributaries are given as:

- a list of *srcPortIDs* with a single, a list or a range of tributaries per *srcPortID* for the source
- one *srcPortID* with a list or a range of tributaries for the source
- a list of *destPortIDs* with a single, a list or a range of tributaries per *destPortID* for the destination
- one *destPortID* with a list or a range of tributaries for the destination.

ENT-PATH-MBYN shall add one working connection to an existing M:N protected connection group identified by its connection group identity (nodeIDgroupIndex) from source *srcNID*, *srcPortID* to destination *destNID*, *destPortID*. The requested working connection shall have the same bandwidth, characteristics and constraints as the existing connections of the M:N protected connection group. A protection connection is setup according to the protection ratio M:N given by the existing M:N protected connection group if necessary.

User Defined Connection Alias: A user defined connection alias (an alternate name) may be optionally specified with the ENT-PATH command. The alias is specified in the spec block via the parameter *connAlias*. If *connAlias* is not specified, the system will treat it as NULL. If the specified *connAlias* already exists in the source node, the command will be denied. *connAlias* is also returned as an output parameter. If none was defined a NULL is returned.

User Defined Connection Alias when setting up VCG connection groups: If a user defined connection alias (an alternate name) is specified with an ENT-PATH command setting up a group of connections, this alias is inherited to the connections of the group in the following way for VCG connection groups: Each connections shall get as connection alias the alias given in the command appended by "_" (underscore) and the tributary number of the corresponding tributary in the A-node (consisting of 2 digits), i.e. 3 characters are appended to the connection alias string. If the string resulting from appending the 3 characters to the alias string given in the command would exceed the total length allowed for a connection alias, the original string given in the command will first be truncated at its tail by such a number of characters, so that the length of the resulting connection alias (i.e. appended by 3 characters) will have the maximum length allowed. If such a connection alias will not be unique any more in the node, the setup of the corresponding connection shall be denied.

User Defined Connection Alias when setting up M:N connection groups: If a user defined connection alias (an alternate name) is specified with an ENT-PATH command setting up a group of connections, this alias is inherited to the connections of the group in the following way for M:N protected connection groups: Each working connection

shall get as connection alias the alias given in the command appended by "_wrk_" and an index unique within the working connections in the group (consisting of 3 digits with leading zeroes), i.e.8 characters are appended to the connection alias string. Each protecting connection shall get as connection alias the alias given in the command appended by "_prt_" and an index unique within the protecting connections in the group (consisting of 3 digits with leading zeroes), i.e. 8 characters are appended to the connection alias string. If the string resulting from appending the 6 to 8 characters to the alias string given in the command would exceed the total length allowed for a connection alias, the original string given in the command will first be truncated at its tail by such a number of characters, so that the length of the resulting connection alias (i.e. appended by 8 characters) will have the maximum length allowed. If such a connection alias will not be unique any more in the node, the setup of the corresponding connection group shall be denied.

User Defined Connection Alias when adding M:N connections: If a user defined connection alias (an alternate name) is specified for a connection extension of a M:N protection group, this alias is inherited to the added connection of the group in the following way: The added working connection shall get as connection alias the user defined alias appended by ″_wrk_″ and a free index unique within the working connections with the same alias (consisting of 3 digits with leading zeroes), i.e. 8 characters are appended to the connection alias string. A possible new protecting connection shall get as connection alias the user defined alias appended by ″_prt_″ and a free index unique within the protecting connections with the same alias (consisting of 3 digits with leading zeroes), i.e. 8 characters are appended to the connection alias string. If the string resulting from appending the 6 to 8 characters to the alias string given in the command would exceed the total length allowed for a connection alias, the original string given in the command will first be truncated at its tail by such a number of characters, so that the length of the resulting connection alias (i.e. appended by 8 characters) will have the maximum length allowed.

Properties

Login Privilege: User Privilege Code: (UCFC/UCAL): P3

Abortable: No

Input format

Command Syntax: `ENT-PATH-UNPROT:`*srcTid:[srcAid]:ctag::[srvID]:pdir: bandwidth:maxDelay:srcNID:srcPortID:destNID: destPortID:[nodeListUsage1,nodeList1]:[srlgExcludeList], [linkInclude][::specBlock]*;

Command Syntax: `ENT-PATH-AUTO:`*srcTid:[srcAid]:ctag::[srvID]:pdir: bandwidth:maxDelay:srcNID:srcPortID:destNID:destPortID: [nodeListUsage1,nodeList1]:[srlgExcludeList] ,[linkInclude] [::specBlock]*;

Command Syntax: `ENT-PATH-N1PLUS1:`*srcTid:[srcAid]:ctag::[srvID]:pdir: bandwidth:maxDelay:srcNID: srcPortID:destNID:destPortID: [nodeListUsage1,nodeList1]: [srlgExcludeList],[linkInclude]: [nodeListUsage2,nodeList2] [:specBlock]*;

Command Syntax: `ENT-PATH-YCONN:`*srcTid:[srcAid]:ctag::[srvID]:pdir: bandwidth:maxDelay:srcNID: srcPortID:destNID,brDestNID: destPortID,brDestPortID:[nodeListUsage1,nodeList1]: [srlgExcludeList],[linkInclude]:[nodeListUsage2,nodeList2] [:specBlock]*;

Command Syntax: `ENT-PATH-MBYN:`
srcTid:srcAid:ctag::[srvID]:[connID]:pdir:bandwidth:maxDelay:srcNID: srcPortID[,srcPortID1,...,srcPortID63]:destNID:destPortID[,destPortID1,..., destPortID63]:[nodeListUsage1,nodeList1]: [srlgExcludeList],[linkInclude]::specBlock;

Input parameters

Command parameters

1. protClass - (modifier of ENT-PATH)
   Path protection class defines the type of restoration protection assigned to the path connection during path setup.
   UNPROT: path from source to destination is un-protected.
   AUTO: path from source to destination is auto-reroute path connection.
   N1PLUS1: paths from source to destination is set up as a network 1+1 connection.
   YCONN: paths from the same source to two different destinations are set up as a bridged connection.
   MBYN: group of M:N protected working and protecting paths from the same source node to the same destination node.
2. srcTid
   Target Identifier of the source node is the logical name of the Host NE. ONNS uses the same *tid* used by Host NE.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: The *srcTid* parameter is a case insensitive ASCII character string of up to 20 characters with the allowed character set as described above.
3. srcAid
   Source node ONNS application access identifier of the ONNS controller OS command interface port.
   Range: Source node Access IDentifier parameter of the source node controller ONNS command interface entity has the allowed values shown here: snn.

4. ctag – Correlation Tag
   This parameter is included in the command by the TL1 user and is repeated by the NE in the response to allow the TL1 user to associate the command and response messages.
   The *ctag* parameter is a character strings of up to 6 ASCII characters. The allowed ASCII character string is comprised of alphanumeric characters beginning with a letter, or decimal numerals (a decimal numeral is a string of decimal digits with an optional non-trailing ".").
5. srvID – Service Identifier
   This parameter is a logical tag for the group of connections associated with a service defined by the Service Manager system (or other management entity).
   The *srvID* parameter is an integer value range = 1 - 20,000,000. Only one *srvID* is accepted. ALL is not supported.
6. connID - Connection ID
7. pdir – Path Direction Topology
   Uni-direction A-Z (1WAY) or Bi-direction - (2WAY).
   Range: 1WAY (default), 2WAY
8. bandwidth – Requested bandwidth / signalRate
   ONNS bandwidth is equal to or greater than the minimum cross connect rate (minXCrate) of the port type. Note: Only SONET switching levels in enumeration. For actual cross-connections ONNS adapts to SDH formats automatically if the ingress port is SDH.
   Values: STS1, STS3, STS12, STS48, STS192.
9. maxDelay - Maximum transport delay
   Maximum transport delay through all nodes in the path. Total path delay must not exceed this value.
   Range: 0 (default), is used to select no delay limit; >0, maximum transport delay in milliseconds.
10. srcNID – Source nodeID
    ONNS source nodeID. Together with the following srcPortID field defines the associated Ingress connPoint that connects the source node to the edge/gateway switch or client router.
    Range: Four dot seperated numeric strings. 0 - 255 for each numeric string.
11. srcPortID - Source PortID
    ONNS source node ingress portID. The portID consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # of the *srcNID* ingress *connPoint*. ONNS assumes a bidirectional port pair.
    Value: dash-seperated list of 5 numeric strings
    Example: 1-1-3-1-4
    Range, if port # specifies a VCG: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 4), Tributary # List (Any sequence of Tributary # or Tributary # Range sep. by & and in ascending order), Tributary # Range (Tributary#1&&Tributary#2), Tributary # (1 - 21).

Example: 1-1-3-1-1&3&5&&7&9&13&&18&21. The port AID 1-1-3-1 must denote a VCG.
Range, if protClass is equal ″MBYN″: Bay/Frame #(1), Shelf #(1), Slot/Pack #(1..39), Port #(1..16), Tributary # List (Any sequence of Tributary # or Tributary # Range sep. by &). Tributary # Range (Tributary#1&&Tributary#2). Tributary #(1..768).
Example: 1-1-3-1-1&2&8&13&&18&6&20&3&&5. The port AID 1-1-3-1 must not be a VCG In this example the bandwidth is supposed to be VC3/STS1
If *protClass* is equal ″MBYN″ the *srcPortID* can be a list up to 64 *portIDs*. If *protClass* is equal ″MBYN″ and a valid M:N *groupID* in the *connID* parameter was given only one *srcPortID* with one tributary shall be allowed.

12. destNID - Destination nodeID
    ONNS destination nodeID. Together with the following *destPortID* field defines the associated Engress *connPoint* that connects the destination node to the edge/gateway switch or client router.
    Type: Four dot seperated numeric strings. 0 - 255 for each numeric string.
13. destPortID - Destination PortID
    ONNS destination node egress portID. The portID consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # of the destNID egress *connPoint*.
    Value: dash-seperated list of 5 numeric strings
    Range, if Port # specifies a VCG: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 4), Tributary # (ALL).
    The ALL qualifier for Tributary # in *destPortID* must be given, when a Tributary # List with more than 1 entry is given in *srcPortID*.
    Range, if *protClass* is equal ″MBYN″: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1..39), Port # (1..16), Tributary # List (any sequence of Tributary # or Tributary # Range separated by &), Tributary # Range (Tributary#1&&Tributary#2), Tributary # (1..768).
    Example: -1-3-1-1&2&8&13&&18&6&20&3&&5. The port AID 1-1-3-1 must not be a VCG. In this example the bandwidth is supposed to be VC3/STS1.
    If *protClass* is equal ″MBYN″ the *destPortID* can be a list up to 64 portIDs. If *protClass* is equal ″MBYN″ and a valid M:N *groupID* in the *connID* parameter was given only one destPortID with one tributary shall be allowed.
14. brDestNID - Bridged Destination NodeID
    ONNS bridged destination nodeID. Together with the following brDestPortID field defines the second associated Egress connPoint that connects the destination node to the edge/gateway switch or client router in case of protectionClass YCONN.
    Type: Four dot seperated numeric strings. 0 - 255 for each numeric string.

15. brDestPortID - Bridged Destination PortID
    ONNS bridged destination node egress *portID* in case *protectionClass* = YCONN. The *portID* consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # of the brDestNID egress connPoint. 4.1; 5; 6
    Value: dash-seperated list of 5 numeric strings
    Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).
16. nodeListUsage1 - Node List Usage 1
    For connection setup NN used/uses the list of nodes included in the *nodeList1* array block in a manner specified by the *nodeListUsage1* variable. Both, *nodeListUsage1* and *nodeList1*, fields belong together and shall be reported when supplied as input to the ENT-PATH command.
    An EXCLUDE list usage applies to all paths created (as in a N1PLUS1NR or N1PLUS1RV). A non-existent *nodeID* will be ignored in EXCLUDE *nodeList1* during path setup. A non-existent *nodeID* will cause setup failure in EXPLICIT *nodeList1* during path setup.
    Range:
    - EXPLICIT, *nodeList1* contains the intermediate NE nodes of the path in the explicit order they are to be used. (An empty list will force a direct path from source to destination.)
    - EXCLUDE, nodes in the *nodeList1* must all be excluded from the path created. In the case when the *protectionClass* is either YCONN, N1PLUS1NR or N1PLUS1RV the nodes in the *nodeList1* below also apply to the second or restoration path.
17. nodeList1 - Node List 1
    When *nodeListUsage1* = EXPLICIT: List of intermediate nodes that specify the path in the exact node order specified in the input. Source and destination nodes are assumed to be included implicitly. The *nodeID* values are shown in the form: nid1([&nid2& ...&nidx]).
    When *nodeListUsage1* = EXCLUDE: List of nodes that must all be excluded from both paths. The *nodeID* values are shown in the from: nid1([&nid2& ...&nidx]).
    If the preceding required *nodeListUsage1* field is not supplied, this field must not be present. If user specifies empty EXCLUDE *nodeList1*, the connection should use indirect path from source node to destination node (i.e., at least one intermediate node is needed). If user specifies empty EXPLICIT *nodeList1*, the connection should use a direct path from source to destination node (i.e., no intermediate node is allowed).
    Type: &-seperated list of nodeIDs. A *nodeID* is represented as four dot seperated numeric string with each numeric string between 0 - 255.
    Example: 135.13.196.203&135.13.42.23&135.213.242.133&135.13.196.123
    Range: nid1([&nidx])* or empty list (where X <= 25 when *nodeListUsage1* = EXPLICIT) (where X <= 25 when *nodeListUsage1* = EXCLUSIVE)

18. srlgExcludeList - SRLG Exclude List
    List of Shared Risk Link Group identifiers that are to be used to exclude links from the connection path(s) being created.
    Type: &-seperated list of numeric strings | empty | 0
    Example: 33&49&64
    Range: up to 10 numeric strings, each in the range 1 - 65535. The value 0 (default) or an empty field indicates no constraint are applied.
19. linkIncludeID - VPN Identifier
    A connection constraint link property such as *linkIncludeID* that must be valid to include the link in the connection path(s) to be created. *linkIncludeID* is a link connection property that can be used to group and classify links. VPNID is a special case of this associative property.
    Range: 1 - 65535. 0 (default) or an empty field indicates no VPN constraint is applied.
    Note: Since the corresponding value is not supported as Host port parameter any input different from 0 will lead to DENY of the command.
20. nodeList Usage2 - Node List Usage 2
    For connection setup NN used/uses the list of nodes included in the *nodeList2* array block in a manner specified by the *nodeListUsage2* variable. Both, *nodeListUsage2* and *nodeList2*, fields belong together and shall be reported when supplied as input to the ENT-PATH command. A non-existent *nodeID* will cause setup failure in EXPLICIT *nodeList1* during path setup. This parameter is only be used when *protectionClass* is N1PLUS1 or YCONN.
    Range: EXPLICIT, *nodeList2* contains the intermediate NE nodes of the path in the explicit order they are to be used. (An empty list will force a direct path from source to destination.).
21. nodeList2 - Node List 2
    When nodeListUsage2=EXPLICIT: List of intermediate nodes that specify the path in the exact node order specified in the input. Source and destination nodes are assumed to be included implicitly. The nodeID values are shown in the form: nid1([[&nid2& ...&nidx]]).
    If the preceding required *nodeListUsage2* field is not supplied, this field must not be present. If user specifies empty EXPLICIT *nodeList2*, the connection should use a direct path from source to destination node (i.e., no intermediate node is allowed). This parameter is only be used when *protectionClass* is N1PLUS1 or YCONN.
    Type: &-seperated list of *nodeIDs*. A *nodeID* is represented as four dot seperated numeric string with each numeric string between 0 - 255.
    Example: 135.13.196.203&135.13.42.23&135.213.242.133&135.13.196.123
    Range: nid1([&nidX])* or empty list where X <= 8 when *nodeListUsage1* = EXPLICIT.

Spec block parameters

1. connMode - Connection Mode
   This paramter specifies whether revertive or non-revertive mode is used as operation mode of the auto-reroute or 1+1 protected connection. This parameter can be used with the ENT-PATH-AUTO and ENT-PATH-N1PLUS1 command.
   Type: alphanumeric value set
   Range:
   - NONREVERTIVE (default)
   - REVERTIVE.
2. rstrPriority - Restoration Priority
   This parameter describes the restoration priority of the connection.
   Range: 0 (default) - 7. Lower values represent higher priority.
3. connAlias - connection alias
   This parameter specifies a user defined string as an alternate name for the connection instead of *connID*.
   Type: Character string up to length 83.
   Range: The string consists of printable ASCII characters+NULL. The following characters cannot be used in the string: colon, semi-colon, comma, double quotes.
4. disjointness
   The disjointness determines the path calculation logic.
   Type: alphanumeric value set.
   Range:
   - COMPLETE: fully node and SRLG disjoint path
   - FULLYSRLG: maximal node and fully SRLG disjoint path
   - MAXIMAL: maximal node disjoint path.

   When protClass is set to N1PLUS1 or YCONN, only the disjointness parameter values COMPLETE and FULLYSRLG shall be allowed.
   Default:
   - COMPLETE: for protectionClass N1PLUS1 and YCONN.
   - MAXIMAL: for protectionClass AUTONR and AUTORV.

   The parameter is only applicable when *protectionClass* != UNPROT.
5. grpSetupType - grouped Setup Type
   The grouped Setup Type specifies, whether for all NN connections of a grouped setup the total cost of all connections or the number of routes used by the connections shall be minimized.

Both alternatives will lead to equal results in the following cases:

- Only one connection is setup with a grouped setup
- There is enough bandwidth available via the cheapest route for all connections of a grouped setup.

Type: alphanumeric value set
Range: MINCOST (default): the total cost for all connections of the grouped setup shall be minimized. MINROUTES: the number of routes used by the connections of the grouped setup shall be minimized.

6. protRatio - Protection ratio
   For each working or protecting connection of an M:N protected connection group this parameter will report the concrete protection ratio as specified on creation of the group. For connections not being member of an M:N protected connection group, this parameter shall not be reported at all.
   Type:alphanumeric value set
   Range. BY1 (ratio of 1 to 1 in number of protecting and working connections), 1BY2 (ratio of 1 to 2 in number of protecting and working connections), 1BY3 (ratio of 1 to 3 in number of protecting and working connections).
7. wtr - Wait to Restore Timer
   This parameter specifies the value of the wait-to-restore time for 1+1 protection switching. The parameter shall specify the wait to restore time used by the protection state machine operating in revertive mode.
   Type: numeric string [minute]
   Range: 0 - 60.
   The path protection groups at the A and Z nodes of the connection are created with default values, if the parameter is not present in the spec_block.
8. htmr - Hold Off Timer
   This parameter specifies the value of the hold-off timer for 1+1 protection switching. The parameter shall specify the hold-off time for automatic protection switching used by the protection state machine.
   Type: numeric string [ms]
   Range for high order path protection groups:
   - 0 -99 msec in 1 msec steps
   - 100 -10000 msec in100 msec steps

   Range for low order path protection groups:
   - 0, 25, 50, 75 msec (thus in steps of 25 msec)
   - 100 -10000 msec in 100 msec steps.

Output format

System response format to ENT-PATH-protClass on grouped setup of VCG connections

For the ENT-PATH request for setting up a group of VCG connections the response shall be as follows:

- If the command as a whole is denied due to e.g. syntax or input failure, the command shall be denied simply giving completion code DENY together with the error reason
- If setting up of all connection of the group succeded, the command shall be completed giving completion code COMPLD and all connections of the group shall be listed. For each connection the parameters shall be given as would be given in a reply to a successful ENT-PATH-protClass command for a single connection.
- If not all connections could be set up successfully, but the setup of a number of connections failed, the command shall be completed giving completion code PRTL and giving a list of the following informations: For each connection whose setup succeeded the parameters shall be given as would be given in a reply to a successful ENT-PATH-protClass command for a single connection. For each connection whose setup failed the tributary ID shall be given together with the error reason for the failure as would be given in a reply to a failed ENT-PATH-protClass command for a single connection.
- If the setup of all connections failed individually, the command shall be denied giving completion code DENY and all connections of the group shall be listed. For each connection the tributary ID shall be given together with the error reason for the failure as would be given in a reply to a failed ENT-PATH-protClass command for a single connection.

System response format to ENT-PATH MBYN

The ENT-PATH-MBYN request for setting up an M:N protected group of connections normally will result in the setup of multiple working and protecting connections.

The following system response behaviour shall be valid:

- If the command as a whole is denied due to e.g. syntax or input failure, the command shall be denied simply giving completion code DENY together with the error reason
- If it is not possible to setup all required connections but only a part of them, the whole group cannot be created and thus connections of the group that have already been setup must be torn down again (roll-back). In this case the command shall be denied giving completion code DENY together with one entry for each connection the setup of which failed together with the error reason. Additionally the reply shall contain one entry for each connection that had been setup successfully but had to

be torn down for roll-back reason indicated by the specific error reason E061. Each working connection in such a reply shall be identified by the corresponding EDGE tributary AID as ″tribAID=<tributaryAID>″. Each protecting connection in such a reply shall be identified using the index of its connection ID by ″tribAID=#&<index>″

- If setting up of all connections of the group succeded, the command shall be completed giving completion code COMPLD and all connections of the group shall be listed. For each connection the parameters shall be given as would be given in a reply to a successful ENT-PATH-UNPROT command for a single connection.

System response format to ENT-PATH-MBYN for a added connection

The ENT-PATH-MBYN request for setting up a additional connection to a M:N protected group of connections will result in the setup of a working connection and possibly in the setup of a protecting connection. The following system response behaviour shall be valid:

- If the command as a whole is denied due to e.g. syntax or input failure, the command shall be denied simply giving completion code DENY together with the error reason
- If it is not possible to setup possible protection connection or the working connection, the already setup connection must be torn down again (roll-back). In this case the command shall be denied giving completion code DENY together with an entry for the connection of which failed together with the error reason. Additionally the reply shall contain one entry for the connection that had been setup successfully but had to be torn down for roll-back reason indicated by the specific error reason E061.
  The working connection in such a reply shall be identified by the corresponding EDGE tributary AID as ″tribAID=<tributary AID>″. The protecting connection in such a reply shall be identified using the index of its connection ID by ″tribAID=#&<index>″
- If setting up of the added connections to the group together with a possible setup of a protection connection succeded, the command shall be completed giving completion code COMPLD and both additional connections of the group shall be listed. For both connection the parameters shall be given as would be given in a reply to a successful ENT-PATH-UNPROT command for a single connection.

System response format to ENT-PATH-N1PLUS1

The ENT-PATH-N1PLUS1 shall respond with the completion code PRTL if the path protection group parameters (revertive mode, wait to restore timer or hold off timer) setup with ENT-PATH-N1PLUS1 request are not successfully provisioned. The response shall contain the normal system response format to ENT-PATH-N1PLUS1 and additionally a failure information about the missing path protection group parameter provisioning.

If the ENT-PATH (-AUTO/-UNPROT) request completes successfully, the following normal completion response is returned:

```
   srcTid date time
M  ctag COMPLD
   "ConnID=connID,ConnStatus=connStatus,pdir,protectionClass,
   bandwidth,ConnAlias=connAlias,
   MaxDelay=maxDelay,[SrvID=srvID],Exclude=Node5ID&Node6ID,,
   [SrlgExclude=srg1&srg2&..&srg8],IncludeID=0,[SpecBlock],,
   SrcNID=srcNID,srcPortID,DestNID=destNID,destPortID:
   PathID=pathID1,State=pst1&sst1&tst1,NodeList=pNodeList1"
;
```

Note: *nodeListUsage1*= will be translated to either *Exclude*= or *Explicit*=, depending on which type of *nodeList1* was received as input. In the example the nodeList1 = Node5ID&Node61D.

If the ED-PATH-N1PLUS1 request completes successfully, the following normal completion response is returned:

```
   srcTid date time
M  ctag COMPLD
   "ConnID=connID,ConnStatus=connStatus,pdir,protectionClass,
   bandwidth,ConnAlias=connAlias,
   MaxDelay=maxDelay,[SrvID=srvID],[nodeListUsage1=nodeList1],
   [nodeListUsage2=nodeList2],SrlgExclude=SRG1&SRG2&SRG3&SRG23,
   IncludeID=vpnID,[SpecBlock],,
   SrcNID=srcNID,srcPortID,DestNID=destNID,destPortID:
   PathID=pathID1,State=pst1&sst1&tst1,NodeList=pNodeList1:
   PathID=pathID2,State=pst2&sst2&tst2,NodeList=pNodeList2"
;
```

If the ENT-PATH-YCONN request completes successfully, the following normal completion response is returned:

```
   srcTid date time
M  ctag COMPLD
   "ConnID=connID,ConnStatus=connStatus,pdir,
   protectionClass,bandwidth,ConnAlias=connAlias,
   MaxDelay=maxDelay,[SrvID=srvID],[nodeListUsage1=
   nodeList1],[nodeListUsage2=nodeList2],
   SrlgExclude=SRG1&SRG2&SRG3&SRG23,IncludeID=vpnID,
   [SpecBlock],,SrcNID=srcNID,srcPortID,DestNID=destNID,
   destPortID,brDestNID=brDestNID,brDestPortID:
   PathID=pathID1,State=pst1&sst1&tst1,NodeList=pNodeList1:
   PathID=pathID2,State=pst2&sst2&tst2,NodeList=pNodeList2"
;
```

If the ENT-PATH request for setting up a group of N connections completes successfully for all connections, the following normal completion response is returned:

Note: There is no restriction wrt the order of the connection information sent within the reply. If one reply would exceed the maximum length allowed for a TL1 message, whole connection records shall be distributed into separate messages:

```
ENT-PATH-AUTO:srcTid:[srcAid]:ctag::srvID:pdir:
bandwidth:maxDelay:srcNID:srcPortID:destNID:destPortID:
exclude,Node5IP&Node6IP:srlgExcludeList,linkIncludeID::
specBlock;
   srcTid date time
M  ctag COMPLD
   "ConnID=1connID,ConnStatus=1connStatus,pdir,
   protectionClass,bandwidth,ConnAlias=1connAlias,
   MaxDelay=maxDelay,[SrvID=srvID],Exclude=Node5ID&
   Node6ID,[nodeListUsage2=nodeList2],[SrlgExclude=
   srg1&srg2&..&srg8],IncludeID=0,[SpecBlock],
   SrcNID=srcNID,1srcPortID,DestNID=destNID,1destPortID:
   PathID=1pathID1,State=1pst1&sst1&tst1,
   NodeList=1pNodeList1"
   "ConnID=2connID,ConnStatus=2connStatus,pdir,
   protectionClass,bandwidth,ConnAlias=2connAlias,
   MaxDelay=maxDelay,[SrvID=srvID],Exclude=Node5ID&
   Node6ID,[nodeListUsage2=nodeList2],[SrlgExclude=
   srg1&srg2&..&srg8],IncludeID=0,[SpecBlock],,
   SrcNID=srcNID,2srcPortID,DestNID=destNID,2destPortID:
   PathID=2pathID1,State=2pst1&sst1&tst1,
   NodeList=2pNodeList1"
   .
   .
   .
   "ConnID=NconnID,ConnStatus=NconnStatus,pdir,
   protectionClass,bandwidth,ConnAlias=NconnAlias,
   MaxDelay=maxDelay,[SrvID=srvID],Exclude=Node5ID&
   Node6ID,[nodeListUsage2=nodeList2],[SrlgExclude=
   srg1&srg2&..&srg8],IncludeID=0[SpecBlock],,
   SrcNID=srcNID,NsrcPortID,DestNID=destNID,NdestPortID:
   PathID=NpathID1,State=Npst1&sst1&tst1,
   NodeList=NpNodeList1"
;
```

If the ENT-PATH-MBYN request for setting up an M:N protected group of connections completes successfully for all connections, the following normal completion response is returned: Note: There is no restriction wrt the order of the connection information sent within the reply. If one reply would exceed the maximum length allowed for a TL1 message, whole connection records shall be distributed into separate messages. In this example it is assumed that 2 working connections to be 1:2 protected are setup.

```
ENT-PATH-MBYN:srcTid:[srcAid]:ctag::srvID:pdir:
bandwidth::srcNID:srcPortID:destNID:destPortID::::
specBlock;
```

```
   srcTid date time
M  ctag COMPLD
   "ConnID=1wrkconnID,ConnStatus=1wrkconnStatus,pdir,
   protectionClass=MBYNWRK,bandwidth,
   ConnAlias=1wrkconnAlias,,
   [SrvID=srvID],,,,,[SpecBlock],,SrcNID=srcNID,
   1wrksrcPortID,DestNID=destNID,1wrkdestPortID:
   PathID=1wrkpathID1,State=1wrkpst1&sst1&tst1,
   NodeList=1wrkpNodeList1"
   "ConnID=2wrkconnID,ConnStatus=2wrkconnStatus,pdir,
   protectionClass=MBYNWRK,bandwidth,
   ConnAlias=2wrkconnAlias,,
   [SrvID=srvID],,,,,[SpecBlock],,SrcNID=srcNID,
   2wrksrcPortID,DestNID=destNID,2wrkdestPortID:
   PathID=2wrkpathID1,State=2wrkpst1&sst1&tst1,
   NodeList=2wrkpNodeList1"
   "ConnID=1prtconnID,ConnStatus=1prtconnStatus,pdir,
   protectionClass=MBYNPRT,bandwidth,
   ConnAlias=1prtconnAlias,,
   [SrvID=srvID],,,,,[SpecBlock],,SrcNID=srcNID,
   1prtsrcPortID,DestNID=destNID,1prtdestPortID:
   PathID=1prtpathID1,State=1prtpst1&sst1&tst1,
   NodeList=1prtpNodeList1"
;
```

For adding a working connection the optional parameter *connID* is provisioned. The reply will contain the parameters of the setup working connection and possibly of a setup protection connection.

Output parameters

Command parameters

1. srcTid
   Target Identifier of the source node is the logical name of the Host NE. ONNS uses the same *tid* used by Host NE.
   Type: identifier, in addition the special character underscore ("_") and the password characters are allowed.
   Range: The *srcTid* parameter is a case insensitive ASCII character string of up to 20 characters with the allowed character set as described above.
2. date
   This parameter is set to the date when the output message is generate: YYYY-MM-DD where YYYY=2000-2099, MM=01-12, DD=01-31.
3. time
   This parameter is set to the time when the output message is generated: HH:MM:SS where HH=00-23,MM=00-59, SS=00-59.

4. ctag
   This parameter is included in the command by the TL1 user and is repeated by the NE in the response to allow the TL1 user to associate the command and response messages.
   The *ctag* parameter is a character strings of up to 6 ASCII characters. The allowed ASCII character string is comprised of alphanumeric characters beginning with a letter, or decimal numerals (a decimal numeral is a string of decimal digits with an optional non-trailing ".").
5. completionCode
   Standard TL1 completion code result:
   - COMPLD: for success (default)
   - PRTL: for partial success / failure, see section ERROR RESPONSES for details
   - DENY: in case of errors, see section ERROR RESPONSES for details
6. connID - Connection ID
   This parameter reports only the connections originating at the specified source node. *connID* is formed from the *SrcNodeIP* and IngressPort# and an index # where LambdaUNITE uses bay = 1 = shelf.
   Type: Character string of length up to 35.
   Range: nodeID&Tributary AID range - if port # specifies a VCG to retrieve a connection group, with
   - nodeID: four dot separated numeric strings: each string 0..255
   - Tributary AID: five dash seperated numeric strings representing Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # with:
     Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 4), ALL - special value to retrieve all connection records associated with the port ID.

   Example: 135.13.196.203&1-5-13-4-ALL The port AID 1-5-13-4 must denote a VCG.
7. connAlias - Connection Alias
   This parameter specifies a user defined string as an alternate name for the connection instead of *connID*.
   Type: Character string up to length 83.
   Range: The string consists of printable ASCII characters+NULL. The following characters cannot be used in the string: colon, semi-colon, comma, double quotes.
8. connStatus - Connection Status
   ConnStatus = pst&sst(&tst) Connection status is the overall status of the connection connID which may be different than the status of an individual *pathID* in that connection.
   connStatus is composed out of
   - pst (PrimaryState)
   - sst (SecondaryState)
   - tst (TertiaryState, optional).

   Type: up to three &-seperated value sets.

Range *pst* values:

- CON: Connected
- DLT: Deleted
- NOCON: Not Connected
- MAINT: Maintenence Mode
- UNKNOWN: Conn state unknown.

Range *sst* & *tst* values

- OK: Conn good
- FAILED: Conn failed
- SETUP: Conn SetUp occurring
- TRDOWN: Conn teardown occurring
- NO-IN: Conn failed, signal in bad
- RSTOR: path restore occurring
- RSTRD: Conn restored
- RSTRFL: Conn restore failed
- DLT-FL: Delete operation Failed
- UNKNOWN: Conn state unknown
- WTORSTR: Waiting to restore path
- PREMPT: Path pre-empted
- SETUPFL: Connection SetUp Failed
- FL-NVM: Not saved in NVM
- WTORV: Waiting to revert path
- EPRTFLEDGE: Port Failed
- BAD-IN Conn failed, Bad signal in
- BRDGD Path bridged

Note: Some states listed in this list will only occur within a DLT-PATH command response or within a REPT PTHCHG or REPT PTHEVT notification message.

9. pdir – Path Direction Topology
   Uni-direction A-Z (1WAY) or Bi-direction - (2WAY).
   Range: 1WAY (default), 2WAY
10. protectionClass - Path Protection Class
    This parameter defines the type of restoration protection assigned to the path connection during path setup or after path modification.
    Range:
    - UNPROT (path from source to destination is un-protected)
    - AUTONR (path from source to destination is a non-revertive auto-reroute path connection)

- N1PLUS1 (paths from source to destination is set up as a network 1+1 connection)
- AUTORV (path from source to destination is a revertive auto-reroute path connection)
- YCONN (paths from the same source to two different destinations are set up as a bridged connection)
- MBYNWRK (working connection in an M:N connection group)
- MBYNPRT (protecting connection in an M:N connection group).

11. bandwidth - - Requested bandwidth/signalRate
    ONNS bandwidth is equal to or greater than the minimum cross connect rate (minXCrate) of the port type. Note: Only SONET switching levels in enumeration. For actual cross-connections ONNS adapts to SDH formats automatically if the ingress port is SDH.
    Values: STS1, STS3, STS12, STS48, STS192.
12. maxDelay - Maximum transport delay
    Maximum transport delay through all nodes in the path. Total path delay must not exceed this value.
    Range: 0 (default), is used to select no delay limit; >0, maximum transport delay in milliseconds.
    This shall be an optional output parameter in the ENT-PATH command reply.
13. srvID - Service Identifier
    This parameter is a logical tag for the group of connections associated with a service defined by the Service Manager system (or other management entity).
    The *srvID* parameter is an integer value range = 1 - 20,000,000. Only one *srvID* is accepted. ALL is not supported.
14. nodeList Usage1 - Node List Usage 1
    For connection setup NN used/uses the list of nodes included in the *nodeList1* array block in a manner specified by the *nodeListUsage1* variable. Both, *nodeListUsage1* and *nodeList1*, fields belong together and shall be reported when supplied as input to the ENT-PATH command.
    An EXCLUDE list usage applies to all paths created (as in a N1PLUS1NR or N1PLUS1RV). A non-existent *nodeID* will be ignored in EXCLUDE *nodeList1* during path setup. A non-existent *nodeID* will cause setup failure in EXPLICIT *nodeList1* during path setup.

Range:

- EXPLICIT, *nodeList1* contains the intermediate NE nodes of the path in the explicit order they are to be used. (An empty list will force a direct path from source to destination.)
- EXCLUDE, nodes in the *nodeList1* must all be excluded from the path created. In the case when the *protectionClass* is either YCONN, N1PLUS1NR or N1PLUS1RV the nodes in the *nodeList1* below also apply to the second or restoration path.

This shall be an optional output parameter in the ENT-PATH command reply.

15. nodeList1 - Node List 1
    When *nodeListUsage1* = EXPLICIT: List of intermediate nodes that specify the path in the exact node order specified in the input. Source and destination nodes are assumed to be included implicitly. The *nodeID* values are shown in the form: nid1([&nid2& ...&nidx]).
    When *nodeListUsage1* = EXCLUDE: List of nodes that must all be excluded from both paths. The *nodeID* values are shown in the from: nid1([&nid2& ...&nidx]).
    If the preceding required *nodeListUsage1* field is not supplied, this field must not be present. If user specifies empty EXCLUDE *nodeList1*, the connection should use indirect path from source node to destination node (i.e., at least one intermediate node is needed). If user specifies empty EXPLICIT *nodeList1*, the connection should use a direct path from source to destination node (i.e., no intermediate node is allowed).
    Type: &-seperated list of nodeIDs. A *nodeID* is represented as four dot seperated numeric string with each numeric string between 0 - 255.
    Example: 135.13.196.203&135.13.42.23&135.213.242.133&135.13.196.123
    Range: nid1([&nidx])* or empty list (where X <= 8 when *nodeListUsage1* = EXPLICIT) (where X <= 15 when *nodeListUsage1* = EXCLUSIVE)
    This shall be an optional output parameter in the ENT-PATH command reply.
16. nodeList Usage2
    For connection setup NN used/uses the list of nodes included in the *nodeList2* array block in a manner specified by the *nodeListUsage2* variable. Both, *nodeListUsage2* and *nodeList2*, fields belong together and shall be reported when supplied as input to the ENT-PATH command. A non-existent *nodeID* will cause setup failure in EXPLICIT *nodeList1* during path setup. This parameter is only be used when *protectionClass* is N1PLUS1 or YCONN.
    Range: EXPLICIT, *nodeList2* contains the intermediate NE nodes of the path in the explicit order they are to be used. (An empty list will force a direct path from source to destination.).
    This shall be an optional output parameter in the ENT-PATH command reply.This shall be an optional output parameter in the ENT-PATH command reply.This shall be an optional output parameter in the ENT-PATH command reply.
    This shall be an optional output parameter in the ENT-PATH command reply.

17. nodeList2
    When nodeListUsage2=EXPLICIT: List of intermediate nodes that specify the path in the exact node order specified in the input. Source and destination nodes are assumed to be included implicitly. The nodeID values are shown in the form: nid1([[&nid2& ...&nidx]]).
    If the preceding required *nodeListUsage2* field is not supplied, this field must not be present. If user specifies empty EXPLICIT *nodeList2*, the connection should use a direct path from source to destination node (i.e., no intermediate node is allowed). This parameter is only be used when *protectionClass* is N1PLUS1 or YCONN.
    Type: &-seperated list of *nodeIDs*. A *nodeID* is represented as four dot seperated numeric string with each numeric string between 0 - 255.
    Example: 135.13.196.203&135.13.42.23&135.213.242.133&135.13.196.123
    Range: nid1([&nidX])* or empty list where X <= 8 when *nodeListUsage1* = EXPLICIT.
    This shall be an optional output parameter in the ENT-PATH command reply.
18. srlgExcludeList
    List of Shared Risk Link Group identifiers that are to be used to exclude links from the connection path(s) being created.
    Type: &-seperated list of numeric strings | empty | 0
    Example: 33&49&64
    Range: up to 10 numeric strings, each in the range 1 - 65535. The value 0 (default) or an empty field indicates no constraint are applied.
    This shall be an optional output parameter in the ENT-PATH command reply.
19. linkIncludeID - VPN Identifier
    A connection constraint link property such as *linkIncludeID* that must be valid to include the link in the connection path(s) to be created. *linkIncludeID* is a link connection property that can be used to group and classify links. VPNID is a special case of this associative property.
    Range: 1 - 65535. 0 (default) or an empty field indicates no VPN constraint is applied.
    Note: Since the corresponding value is not supported as Host port parameter any input different from 0 will lead to DENY of the command.
    This shall be an optional output parameter in the ENT-PATH command reply.
20. srcNID - Source nodeID
    ONNS source nodeID. Together with the following srcPortID field defines the associated Ingress connPoint that connects the source node to the edge/gateway switch or client router.
    Range: Four dot seperated numeric strings. 0 - 255 for each numeric string.

21. srcPortID - Source portID
    ONNS source node ingress portID. The portID consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # of the *srcNID* ingress *connPoint*. ONNS assumes a bidirectional port pair.
    Value: dash-seperated list of 5 numeric strings
    Example: 1-1-3-1-4
    Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).
22. destNID - Destination nodeID
    ONNS destination nodeID. Together with the following *destPortID* field defines the associated Engress *connPoint* that connects the destination node to the edge/gateway switch or client router.
    Type: Four dot seperated numeric strings. 0 - 255 for each numeric string.
23. destPortID - Destination PortID
    ONNS destination node egress portID. The portID consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # of the destNID egress *connPoint*.
    Value: dash-seperated list of 5 numeric strings
    Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).
24. pathID1 - Path ID 1
    The PathID of the 1st path that was created.
    Type: character string of length up to 20.
    Range: nodeID-Index (nodeID: four dot separated numeric strings: each string 0 - 255) (Index: Numeric string).
    Example: 135.13.196.203-432165
25. pathState1 - Path State 1
    Path State1 = *pst*& *sst*[*&tst*]. pathState1 represents the status of the first path of the connection which may be different than the status of the overall connection in *connStatus*.
    PathState1 is composed out of *pst* (PrimaryState), *sst* (SecondaryState) and *tst* (TertiaryState, optional) Up to two of the allowed values are simultaneously permitted as a sst/tst parameter.The two values must be separated by an ampersand (″&″). Individual status values are 7 characters or less.
    Type: up to three &-seperated value sets.
    Range *pst* values:
    - CON: Connected
    - NOCON: Not Connected
    - DLT: Deleted
    - MAINT: Maintenance mode.

    Range *sst* & *tst* values
    - OK: Conn good
    - FAILED-PATH: failed

- SETUP: Conn SetUp occurring
- TRDOWN: Conn teardown occurring
- NO-IN: Conn failed, signal in bad
- RSTOR: path restore occurring
- RSTRD: Conn restored
- RSTRFL: Conn restore failed
- DLT-FL: Delete operation Failed
- UNKNOWN: Conn state unknown
- WTORSTR: Waiting to restore path
- SETUPFL: Connection SetUp Failed
- RVRTFL: Conn revert failed
- PREMPTD: Preempted
- WTORV: Waiting to revert path
- BRDGD: Path bridged
- EPRTFLEDGE: Port Failed
- BAD-IN: path failed, Bad signal in
- FLT: Fault.

Note: Some states listed in this list will only occur within a DLT-PATH command response or in a REPT-PTHCHG / PTHEVT notification.

26. pNodeList1 - Path Node List 1
    The path node list contains the list of nodes that the 1st path (*pathID1*) traverses in A-Z order from the source node.
    Type: &-seperated list of nodeIDs. A nodeID is represented as four dot seperated numeric string with each numeric string between 0 - 255.
    Range: nid1([&nidX])*
    Example: 135.13.196.203&135.13.42.23&135.213.242.133&135.13.196.123
27. pathID2 - Path ID 2
    The PathID of the 2nd path (if existing) that was created.
    Type: character string of length up to 20.
    Range: nodeID-Index (nodeID: four dot separated numeric strings: each string 0 - 255), (Index: Numeric string).
    Example: 135.13.196.203-432165
    This shall be an optional output parameter in the ENT-PATH command reply.
28. pathState2 - Path State 2
    pathState2 = pst&sst[&tst]. *pathState2* represents the status of the second path (if existing) of the connection which may be different than the status of the overall connection in *connStatus*.

PathState2 is composed out of

- pst (PrimaryState)
- sst (SecondaryState)
- tst (TertiaryState, optional).

Up to two of the allowed values are simultaneously permitted as a sst/tst parameter.The two values must be separated by an ampersand (″&″). Individual status values are 7 characters or less.
Type: up to three &-seperated value sets
Range *pst* values:

- CON: Connected
- NOCON: Not Connected
- DLT: Deleted
- MAINT: Maintenance mode.

Range *sst* & *tst* values

- OK: Conn good
- FAILED-PATH: failed
- SETUP: Conn SetUp occurring
- TRDOWN: Conn teardown occurring
- NO-IN: Conn failed, signal in bad
- RSTOR: path restore occurring
- RSTRD: Conn restored
- RSTRFL: Conn restore failed
- DLT-FL: Delete operation Failed
- UNKNOWN: Conn state unknown
- WTORSTR: Waiting to restore path
- SETUPFL: Connection SetUp Failed
- RVRTFL: Conn revert failed
- PREMPTD: Preempted
- WTORV: Waiting to revert path
- BRDGD: Path bridged
- EPRTFLEDGE: Port Failed
- BAD-IN: path failed, Bad signal in
- FLT: Fault.

Note: Some states listed in this list will only occur within a DLT-PATH command response or in a REPT-PTHCHG / PTHEVT notification.
This shall be an optional output parameter in the ENT-PATH command reply.

29. pNodeList2 - Path Node List 2
    The path node list contains the list of nodes that the 2nd path (pathID1, if existing) traverses in A-Z order from the source node.
    Type: &-seperated list of nodeIDs. A *nodeID* is represented as four dot seperated numeric string with each numeric string between 0 - 255.
    Range: nid1([&nidX])*
    Example: 135.13.196.203&135.13.42.23&135.213.242.133&135.13.196.123
    This shall be an optional output parameter in the ENT-PATH command reply.
30. brDestNID - Bridged Destination NodeID
    ONNS bridged destination nodeID. Together with the following brDestPortID field defines the second associated Egress connPoint that connects the destination node to the edge/gateway switch or client router in case of protectionClass YCONN.
    Type: Four dot seperated numeric strings. 0 - 255 for each numeric string.
31. brDestPortiD - Bridged Destination PortID
    ONNS bridged destination node egress *portID* in case *protectionClass* = YCONN. The *portID* consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # of the brDestNID egress connPoint. 4.1; 5; 6
    Value: dash-seperated list of 5 numeric strings
    Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).
32. tribAID - Tributary AID
    The *connPoint* on the reporting port of the cross-connection *connPoint* pair. The *connPtA* consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # .
    Type: dash-seperated list of 5 numeric strings
    Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).

Spec block parameters

Spec block parameters shall be repeated in the output when explicitely supplied in the input. Multiple parameters are separated by &.

1. connMode - Connection Mode
   This parameter specifies whether revertive or non-revertive mode is used as operation mode of the auto-reroute or 1+1 protected connection. This parameter can be used with the ENT-PATH-AUTO and ENT-PATH-N1PLUS1 command.
   Values:
   - NON-REVERTIVE: default
   - REVERTIVE; Auto-reroute revertive.
2. rstrPriority - Restoration Priority
   This parameter describes the restoration priority of the connection.
   Range: 0 (default) - 7. Lower values represent higher priority.

3. disjointness
   The actual level of disjointness of the calculated and established connection. The parameter is not filled when protectionClass is UNPROT.
   Type: alphanumeric value set
   Range:
   - COMPLETE: fully node and SRLG disjoint path
   - FULLYSRLG: maximal node and fully SRLG disjoint path
   - MAXIMAL: maximal node disjoint path.

   The value ″FULLYNODE″ for fully node disjoint path is a possible future enhancment.
4. grpSetupType - grouped Setup Type
   The grouped Setup Type specifies, whether for all NN connections of a grouped setup the total cost of all connections or the number of routes used by the connections shall be minimized.
   Both alternatives will lead to equal results in the following cases:
   - Only one connection is setup with a grouped setup
   - There is enough bandwidth available via the cheapest route for all connections of a grouped setup.

   Type: alphanumeric value set
   Range: MINCOST (default): the total cost for all connections of the grouped setup shall be minimized. MINROUTES: the number of routes used by the connections of the grouped setup shall be minimized.
5. protRatio - Protection ratio
   For each working or protecting connection of an M:N protected connection group this parameter will report the concrete protection ratio as specified on creation of the group. For connections not being member of an M:N protected connection group, this parameter shall not be reported at all.
   Type:alphanumeric value set
   Range. BY1 (ratio of 1 to 1 in number of protecting and working connections), 1BY2 (ratio of 1 to 2 in number of protecting and working connections), 1BY3 (ratio of 1 to 3 in number of protecting and working connections).

Example input/output

The following is an example shows a successful execution of the ENT-PATH-UNPROT command:

```
   LT-NN-789 2002-07-18 08:00:00
M  653456 COMPLD
   ″ConnID=135.13.196.203&1-5-13-4-1&1,ConnStatus=CON&OK,
   1WAY,UNPROT,STS48,ConnAlias=AmericanExp-NY-BOS-ckt,
   MaxDelay=105,SrvID=1351591,Exclude=135.13.42.3&
   135.213.242.103&135.13.198.22,,SrlgExclude=33&49&64,
   IncludeID=0,,SrcNID=135.13.196.203,
   1-5-13-4-1,DestNID=135.13.196.123,1-2-5-5-1:
```

```
   PathID=135.13.196.203-43216,State=CON&OK,
   NodeList=135.13.196.203&135.13.42.23&135.213.242.133&
   135.13.196.123"
;
```

The following example shows a successful completion of ENT-PATH-AUTO command for a bi-directional path setup with three nodes in the node exclusion list. The response contains the list of nodes traversed by the new path.

```
   LT-NN-789 2002-09-18 08:00:00
M  973456 COMPLD
   "ConnID=135.13.196.203&1-5-13-4-1&1,ConnStatus=CON&OK,
   2WAY,AUTONRV,STS48,ConnAlias=AmericanExp-NY-BOS-ckt,
   MaxDelay=65,SrvID=1352463,Exclude=135.13.42.3&
   135.13.52.103&135.13.18.22,,SrlgExclude=17&35&89,
   IncludeID=0,ConnMode=REVERTIVE&RstrPriority=1,,
   SrcNID=135.13.196.203,1-5-13-4-1,DestNID=135.13.196.123,
   1-2-5-5-1:
   PathID=135.13.196.203-43216,State=CON&OK,
   NodeList=135.13.196.203&135.13.42.3,135.213.242.133&
   135.13.196.223:
   PathID=135.13.196.203-43231,State=NOCON,
   NodeList=135.13.196.203&135.13.22.3&135.13.24.3&
   135.13.44.93&135.13.196.123"
;
```

The example shows a successful completion of ENT-PATH-N1PLUS1 command for a bi-directional path setup with three nodes in the exclusion list. The response contains the list of nodes traversed by the new paths:

```
   LT-NN-789 2002-09-18 08:00:00
M  93456 COMPLD
   "ConnID=135.13.196.203&1-5-13-4-1&1,ConnStatus=CON&OK,
   2WAY,N1PLUS1,STS48,ConnAlias=AmericanExp-NY-BOS-ckt,
   MaxDelay=65,SrvID=1351315,Exclude=135.13.42.3&
   135.213.242.103&135.13.198.22,,
   SrlgExclude=6&17&35&89,IncludeID=0,,,
   SrcNID=135.13.196.203,1-5-13-4-1,DestNID=135.13.196.123,
   1-2-5-5-1:
   PathID=135.13.196.203-43216,State=CON&OK,
   NodeList=135.13.196.203&135.13.42.3&135.213.242.133&
   135.13.196.123:
   PathID=135.13.196.203-43231,State=CON&OK&ACT,
   NodeList=135.13.196.203&135.13.22.3&135.13.24.3&
   135.13.44.93&135.13.196.123"
;
```

The example shows a successful completion of ENT-PATH-YCONN command for a bi-directional path setup with three nodes in the exclusion list. The response contains the list of nodes traversed by the new paths:

```
   LT-NN-789 2002-09-18 08:00:00
M  93456 COMPLD
   "ConnID=135.13.196.203&1-5-13-4-1&1,ConnStatus=CON&OK,
   2WAY,YCONN,STS48,ConnAlias=AmericanExp-NY-BOS-ckt,
   MaxDelay=65,SrvID=1351315,Exclude=135.13.42.3&
   135.213.242.103&135.13.198.22,,SrlgExclude=6&17&35&89,
   IncludeID=0,,,
   SrcNID=135.13.196.203,1-5-13-4-1,DestNID=135.13.196.123,
   1-2-5-5-1,brDestNID=135.13.196.234,1-3-4-4-2:
   PathID=135.13.196.203-43216,State=CON&OK&ACT,
   NodeList=135.13.196.203&135.13.42.3&135.213.242.133&
   135.13.196.123:
   PathID=135.13.196.203-43231,State=CON&OK,
   NodeList=135.13.196.203&135.13.22.3&135.13.24.3&
   135.13.44.93&135.13.196.234"
;
```

The example shows a successful completion of ENT-PATH-MBYN command for a bi-directional path setup for 2 working connections to be 1:2 protected. The response contains all 3 connections setup (2 working and 1 protecting connections):

```
ENT-PATH-MBYN:LT-NN-789:snn:973456::1352463:
2WAY:sts1:65:135.13.196.203:1-1-13-4-1&3:
135.13.196.123:1-1-5-5-5&6::,::connAlias=
AmericanExp-NY-BOS-ckt,protRatio=1BY2;
   LT-NN-789 2002-09-18 08:00:00
M  93456 COMPLD
   "ConnID=135.13.196.203&1-1-13-4-1&1,ConnStatus=
   CON&OK,2WAY,MBYNWRK,STS1,ConnAlias=AmericanExp-NY-
   BOS-ckt_wrk_001,MaxDelay=65,SrvID=135246,,,,
   IncludeID=0,,,ProtRatio=1BY2,SrcNID=135.13.196.203,
   1-1-13-4-1,DestNID=135.13.196.123,1-1-5-5-5:
   PathID=135.13.196.203-43216,State=CON&OK,
   NodeList=135.13.196.203&135.13.42.3&135.213.242.133&
   135.13.196.223"
   "ConnID=135.13.196.203&1-1-13-4-3&2,ConnStatus=
   CON&OK,2WAY,MBYNWRK,STS1,ConnAlias=AmericanExp-NY-
   BOS-ckt_wrk_002,MaxDelay=65,SrvID=135246,,,,
   IncludeID=0,,,ProtRatio=1BY2,SrcNID=135.13.196.203,
   1-1-13-4-3,DestNID=135.13.196.123,1-1-5-5-6:
   PathID=135.13.196.203-43217,State=CON&OK,
   NodeList=135.13.196.203&142.330.17.1&222.177.23.4&
   135.13.196.223"
   "ConnID=135.13.196.203&1-1-#-#-#&3,ConnStatus=
   CON&STBY,2WAY,MBYNPRT,STS1,ConnAlias=AmericanExp-NY-
```

```
   BOS-ckt_prt_001,MaxDelay=65,SrvID=135246,,,,
   IncludeID=0,,,ProtRatio=1BY2,SrcNID=135.13.196.203,
   1-1-#-#-#,DestNID=135.13.196.123,1-1-#-#-#:
   PathID=135.13.196.203-43218,State=RSVD&OK,
   NodeList=135.13.196.203&222.111.22.2&141.235.1.17&
   135.13.196.223"
;
```

Error responses

Insufficient network resources

Error code: `"E001:srvID:\"InSufficient Network Resources for connection setup\","`

Insufficient Network Resources for Alternate Route

If network resources for an alternate route of a restoration protected connection to be setup are insufficient, then the following error response is returned::

Error code: `"E004:srvID:\"InSufficient Network Resources for Alternate Path\","`

The following list identifies conditions that will cause similiar error responses:

Error code: `E012- SXCF - Status, XConn Failure caused path setup failure`

Error code: `E013 - SSCF - Status, Signaling Communication link Failure (or abort) caused path operation failure`

Error code: `E014 - SXCT - Status, XConn Timeout`

Error code: `E016 - SHTO - Status, Host interface TimeOut`

Error code: `E017 - SSTO - Status, Signaling Timeout caused path setup failure`

Error code: `E018 - SEPU - Status, Edge Port Used up`

Error code: `E022 - SPSF - Status, Path Setup Failure, caused by signal transmission failure at egress node`

E016 and E022 are only sent in notifications, not in command replies

Maximum Delay Exceeded by calculated path

When the Maximum Transport Delay Exceeded, then the following error response is returned:

Error code: `"E020:srvID:\"Maximum Transport Delay Exceeded\",errorData"`

ENT-PATH syntax, parameter data invalid

When an invalid input parameter is used, then the following error response is returned:

Error code: `"E030:srvID:\"Syntax, Parameter Data Invalid\",invalid_parameter=fieldName"`

The following list identifies conditions that will cause similiar error responses:

Error code: `E032 - Input, Source node IDis invalid`

Error code: `E033 - Input, Node List has Invalid / unknown ID`

Error code: `E035 - This connection Alias Already Exists`

ENT-PATH syntax, invalid degree of disjointness value

When an invalid degree of disjointness value for protClass N1PLUS1 or YCONN is used, then the following error response shall be returned:

Error code: `E520 - IIDD - Input, Invalid Degree of Disjointness for protection type N1PLUS1 or YCONN`

ENT-PATH syntax, data not consistent

When inconsistent input parameters are used, then the following error response is returned:

Error code: `"E040:srvID:\"Syntax, Data Not Consistent\","`

NN PortID parameter value is not valid

If the NE receives an ENT-PATH-modifier command where the *portID* parameter value is not valid, then one of the following error response is returned:

Error code: `"E081:srvID:\"Input, Invalid Edge PortId\",errorData"`

The following list identifies conditions that will cause similiar error responses:

Error code: `E080 - IICP - Input, Invalid ConnPt, ID=<ASTN node ID>&<connPtID>`

Error code: `E081 - IIEP - Input, Invalid Edge Port, ID=<ASTN node ID>&<connPtID>`

Error code: `E082 - SCPU - Status, NNI connPoint / port Unavailable, ID=<ASTN node ID>&<connPtID1>&<connPtID2>`

Error code: `E083 - SCIU - Status, NNI connPoint in Use, XConn or reservation exists, ID=<ASTN node ID>&<connPtID1>&<connPtID2>`

Error code: `E084 - SHXC - Status, Host XConn on ConnPoint, ID=<ASTN node ID>&<connPtID>`

The following list identifies conditions that will cause error responses specific to ENT-PATH commands affecting VCG EDGE ports:

- Error code: `E052 - IIET - Input, Invalid EDGE port type combination with VCG connection setup`

The following list identifies conditions that will cause error responses specific to ENT-PATH commands to setup groups of connections:

- Error code: `E053 - IIGS - Input, Port type in srcPortID does not support group setup/SrcPortID`
- Error code: `E055 - IIPG - Input, Invalid protection type YCONN for connection groups`
- Error code: `E056 - IISD - Input, Grouped setup with inconsistent values of destPortID and srcPortID`

The following list identifies further conditions that will cause error responses specific to ENT-PATH commands wrt. the parameter grpSetupType in a grouped connection setup:

- Error code: `E057 - IIGT - Input, Parameter grpSetupType only allowed if protType is UNPROT`

The following list identifies conditions that will cause error responses specific to ENT-PATH commands to setup M:N protected groups of connections:

- Error code: `E058 - IISP - Input, Invalid Source Port type for M:N group setup`
- Error code: `E059 - IIDP - Input, Invalid Destination Port type for M:N group setup`
- Error code: `E060 - IPNE - Input, No EXPLICIT routing allowed for M:N group setup`
- Error code: `E061 - STSF - Status, Connection torn down due to M:N group setup failure`

The following list identifies further conditions that will cause error responses specific to ENT-PATH commands to setup M:N protected groups of connections:

- Error code: `E063 - INCG - Input, M:N groupID unknown`
  This error shall be responded if the specified M:N groupID for a connection extension unknown.

The following list identifies conditions that will cause error responses specific to ENT-PATH commands to add a working connection to a M:N protected group of connections:

- Error code: `E064 - INTL - Input, Number of source/destination Tributaries too Large`
  This error shall be responded if more than one source and/or destination tributary are provisioned to add a working connection to an existing M:N group.
- Error code: `E065 - IAWE - Input, number of Added Working connection Exceeded`
  This error shall be responded if the maximal number of working connections after adding working connections is exceeded.

- Error code: `E066 - IPNC - Input, Parameter Not allowed for M:N Connection extension`
  This error shall be responded if parameters like exclude SRLG, exclude nodes for a added working connection are provisioned.
- Error code: `E279 - SNRE - Status, NVM Record Exhausted`
  This failure condition is only valid until a variable NVM allocation scheme is implemented, that does not have any restrictions wrt the length of connection records to be stored.

Cross-connect connect failure

If the network element receives an ENT-PATH command, but when the request is failed due to cross-connect connect failure at a node during path setup, the following error response is returned:

Error code: `"E160:srvID:\"XConn Connect Failure, Port does not exist or is TRADITIONAL\"`

The following list identifies conditions that will cause similiar error responses:

Error code: `E161 - CFUT - XConn Connect Failure, Unexpected toplogy or related cross connect, ID=<ASTN node ID>&<connPtID1>&<connPtID2>`

Error code: `E162 - CFXE - XConn Connect Failure, Cross connect already exists, ID=<ASTN node ID>&<connPtID1>&<connPtID2>`

Error code: `E168 -CFPT - XConn Connect Failure, Invalid Access to Protection Tributary on 2-f BLSR/MSSPRING EDGE port,ID=<ASTN node ID>&<connPtID>`

Related TL1 messages

- "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
- "ED-PATH: Modify alias of ONNS connection" (p. 4-522)
- "DLT-PATH: Delete ONNS path Connection" (p. 4-148)
- "REPT-PTHCHG Notification: Report path change" (p. 4-1540)
- "REPT-PTHEVT Notification: Report ONNS Path Events" (p. 4-1554)
- "RTRV-NNCNFG: Retrieve ONNS configuration data" (p. 4-1831)
- "ED-NNCNFG: Edit ONNS configuration data" (p. 4-329)
- "RTRV-NNDR: Retrieve ONNS neighbor nodal data repository" (p. 4-1836)
- "RTRV-NTDR: Retrieve ONNS network topology data repository" (p. 4-1857)

□

ENT-PROTN-GRP: Enter protection group

Protection groups are used in protection switching. A protection group is made up of one or more working (service) entities and a protection entity. In addition to the entities that comprise the protection group, the protection group has parameters that affect the characteristics of the protection group, such as whether or not the protection switching is revertive.

The ENT-PROTN-GRP command allows one to create a user-provisioned association of optical interface ports which is used in protection. Protection groups also determine the set of tributaries from and to which the user can provision cross-connections. If a circuit pack contains more than one optical port, the user can provision the type of protection for each port independently of the other ports. Unprotected operation is supported for optical interface ports that are not in a protection group.

When creating a protection group, the following must be true (only a subset of the validation rules is described here – see corresponding error response section):

- the individual ports must not already be in another protection group.
- there are no existing cross-connections on the ports.
- each port in a protection group must be on a different circuit pack.

Some types of protection groups are created automatically by the system or with another stimuli. ENT-PROTN-GRP cannot be used to create the following types of protection groups:

- switching equipment protection (created as part of slot assignment or pack auto-creation)
- controller equipment protection (created as part of slot assignment or pack auto-creation)
- path protection group (created as part of ENT-CRS for path-protected cross-connection).

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M4

Priority: 1

Abortable: No

Input format

Command Syntax: `ENT-PROTN-GRP`:*tid*::*ctag*::*protype*:*spec_block*;

Input parameters

Command parameters (equipment protection group for electrical interface packs)

The command ENT-PROTN-GRP is applicable for EP155, EP51 and LOXC equipment protection

1. tid – Target Identifier
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
2. ctag – Correlation Tag
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
3. protype – Protection Type
   The parameter specifies the type of the protection group.
   Type: alphanumeric value set.
   Range:
   - EQPTSWFBR (if aid is SwitchAndTmgProtGrpAID);
   - EQPTCTL (if aid is CtlProtGroupAID);
   - EQPTEP155 (if aid is EP155ProtGroupAID);
   - EQPTEP51 (if aid is EP51ProtGroupAID);
   - EQPTLOXC (if aid is LOXCProtGroupAID).

Command parameters (multiplex section/line protection group)

1. tid – Target Identifier
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
2. ctag – Correlation Tag
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
3. protype – Protection Type
   This parameter specifies the architecture (type) of the protection group. The value for the 1+1 line/MS protection group is 1+1. The value for the 1:1 line/MS protection group is 1xNOPT (only R3.0 and later)
   Type: value set
   Range: 1+1 or 1xNOPT

Command parameters (2-/4-fibre MS-SPRing/BLSR protection group)

1. tid – Target Identifier
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
2. ctag – Correlation Tag
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
3. protype – Protection Type
   This parameter specifies the protection group type for which the information is retrieved.
   Type: alphanumeric value set
   Range: 2F or 4F

Spec block parameters (equipment protection group for Electrical Interface Packs)

1. pgid – protection group Id
   This parameter specifies the protection group Id as component of the protection group AID (AID field *TransProtGrpID*). For values less than 100, the leading zeros are optional. For example, either 007 or 7 is acceptable. If the user omits the leading zeros, the system will add them.
   Type: numeric string
   Range: 01 .. 99 (if protype is EQPTEP155 or EQPTEP51); 01(if protype is EQPTLOXC)
2. protn – Protection Unit
   The parameter specifies the protection circuit pack AID being a member of the 1+1 equipment protection group.
   Type: AID
   Default: For switching protection group instance: CpAID related to slot 10. For controller protection group instance: CpAID related to slot 31. For EP155 protection group instance: - If no cross-connections are assigned to one of the two EP155 cards, the user can choose it by the ENT-PROT-GRP command Default protection unit shall be the right card. - If cross-connections are assigned to one of the cards, the other card must become the protection unit. This means that the creation (ENT-PROTN-GRP) shall be rejected, if the user selects the card with cross-connections as protection card.
3. wkg – Worker Unit
   This parameter specifies the worker circuit pack AID being a member of the 1+1 equipment protection group.
   Type: AID
   Range: CpAID
   Default: For switching protection group instance: CpAID related to slot 9. For controller protection group instance: CpAID related to slot 11. For EP155 protection group instance: - If no cross-connections are assigned to one of the two

EP155 cards, the user can choose it by the ENT-PROT-GRP command Default worker unit shall be the left card. - If cross-connections are assigned to one of the cards, this card must become the worker unit. This means that the creation (ENT-PROTN-GRP) shall be rejected, if the user selects the card with no cross-connections as worker card.

Spec block parameters (multiplex section/line protection group)

1. pgid – protection group Id
   This parameter specifies the protection group Id as component of the protection group AID (AID field *TransProtGrpID*). For values less than 100, the leading zeros are optional. For example, either 007 or 7 is acceptable. If the user omits the leading zeros, the system will add them.
   Type: numeric string
   Range: 1 999
2. protn – Protection Unit
   This parameter specifies the protection port AID being a member of the line protection/ MS protection group.
   Type: AID
   Range: SPortAID
3. protocol – APS Protocol
   This parameter specifies the protocol used by the protection state machine. The value 1+1_UNI is used for 1+1 unidirectional switching. The value 1xN_BIDIR is used for 1:1 bidirectional switching (N=1) (only R3.0 and later). The value 1+1_OPTM is used for 1+1 optimized, bidirectional switching (only R3.0 and later). The value 1+1_BIDIR is used for 1+1 bidirectional switching (only R4.0 and later).
   Type: alphanumeric value set
   Range: 1+1_UNI, 1xN_BIDIR, 1+1_OPTIt can also be used to convert a 2-side node to an asymmetric node and vice versa.
   In mind the ’N’ in 1xN_BIDIR is considered to be always equal ’1’. The value 1+1_OPTM implicitly specifies bidirectional operation mode.
   Default: 1+1_UNI, in case of protype = 1+1; 1xN_BIDIR, in case of protype = 1xNOPT (i.e. protection type 1:1).
4. rme – Protection Reversion
   The parameter specifies, whether revertive or non-revertive mode is used as operation mode of the protection group. The value ENABLE shall be used if the protection group operates in revertive mode. The value DISABLE shall be used if the protection group operates in non-revertive mode.
   Type: alphanumeric value set
   Range: DISABLE in case of protype = 1+1; ENABLE in case of protype =

1xNOPT.
Default: DISABLE, in case of protype = 1+1; ENABLE, in case of protype = 1xNOPT (i.e. protection type 1:1)
The *protocol* = OPTM can only be chosen in case of *protype* = 1+1, thus default is DISABLE then.

5. wkg – Worker Unit
   This parameter specifies the worker port AID being a member of the 1+1 line/MS protection group.
   Type: AID
   Range: SPortAID

Spec block parameters (2-fibre MS-SPRing/BLSR protection group)

1. ard – Automatic Ring Discovery
   If this parameter is enabled, the automatic ring discovery algorithm will assign nodeID values to each node in the ring and construct the necessary ring map information. All nodes in the ring must be Lucent. If disabled, the user will assign the NodeID value manually with ED-MAP-RING and supply the ring map information to each node on the ring for the BLSR protocol to operate. It is necessary to activate this user-provisioned information with SET-MAP-RING. Until all nodes on the ring have the same ring map, nodes will have most likely an outstanding NodeID mismatch alarm active.
   Type: alphanumeric string.
   Range: ENABLE, DISABLE.
   Default: ENABLE.
2. asmc – Automatic Squelch Map Calculation
   If this parameter is enabled, the automatic squelch map calculation is switched on. If disabled, the function is switched off.
   Type: alphanumeric string
   Range: ENABLE, DISABLE (default)
3. east – East Port
   This parameter specifies the port being a member in the role of the east port for a 2-fibre MS-SPRing/BLSR protection group.
   Type: AID
   Range: SPortAID
4. pgid – protection group Id
   The parameter shall specify the protection group Id as component of the protection group AID (AID field TransProtGrpID). For values less than 100, the leading zeros are optional. For example, either 007 or 7 is acceptable. If the user omits the leading zeros, the system will add them.
   Type: numeric string
   Range: 1 - 999

5. rcamode – Ring Circuit Alarm Mode
   This parameter can be used to enable or disable ring circuit alarms for the local MS SPRING / BLSR protection group. If rcamode is DISABLED, any alarm associated with the local cross connections will be suppressed and not issued.
   Type: alphanumeric value set
   Range: ENABLE (default), DISABLE
6. rid – Ring Identification
   Option: The parameter is a mandatory parameter.
   This parameter specifies the ring identification name. Storage and retrieval of the *rid* is case sensitive, but actual use of the rid to determine the corresponding protection group is case insensitive. The parameter is used as an alias to identify exactly one MS-SPRing/BLSR protection group of any type. Therefore the value shall be unique for all protection groups of type 2F or 4F within the NE.
   Type: text string of chars allowed for TID strings.
   Range: 1 to 15 characters.
   Default: NONE.
7. west – West Port
   This parameter specifies the port being a member in the role of the west port for a 2-fibre MS-SPRing/BLSR protection group.
   Type: AID.
   Range: SPortAID.
   Default: None.

Spec block parameters (4-fibre MS-SPRing/BLSR protection group)

1. ard – Automatic Ring Discovery
   If this parameter is enabled, the automatic ring discovery algorithm will assign nodeID values to each node in the ring and construct the necessary ring map information. All nodes in the ring must be Lucent. If disabled, the user will assign the NodeID value and supply the ring map information to each node on the ring for the BLSR protocol to operate. Until all nodes on the ring have the same ring map, nodes will have most likely an outstanding NodeID mismatch alarm active.
   Type: alphanumeric string.
   Range: ENABLE, DISABLE.
   Default: ENABLE.
2. asmc – Automatic Squelch Map Calculation
   If this parameter is enabled, the automatic squelch map calculation is switched on. If disabled, the function is switched off.
   Type: alphanumeric string
   Range: ENABLE, DISABLE (default)
3. eapsprotn – Incoming East APS Protection Path
   This parameter is derived from the incoming K2 overhead byte of the east port.

It indicates the protection path as follows:

- 0: short path code (S)
- 1: long path code (L)

The value UNAVAILABLE is used in case of an pending SF condition.
Type: alphanumeric value set.
Range: 0, 1, UNAVAILABLE.
Default: 0.

4. eastwkg - East Worker Port
   This parameter specifies the port being a member in the role of the east worker port for a 4-fibre MS-SPRing/BLSR protection group.
   Type: In case of an asymmetric ring: alphanumeric string; in all other cases: AID.
   Range: In case of an asymmetric ring: NOTUSED. In all other cases: SPortAID.
5. pgid – protection group Id
   The parameter shall specify the protection group Id as component of the protection group AID (AID field TransProtGrpID). For values less than 100, the leading zeros are optional. For example, either 007 or 7 is acceptable. If the user omits the leading zeros, the system will add them.
   Type: numeric string
   Range: 1 - 999
6. protnmode - Protection Switch Mode
   The parameter specifies the protection switch mode. The value LOOPBACK shall be used for the classical ring application. The value SHORTENED shall be used for transmission delay sensitive applications. The value TOPEX (only R3.0 and ^R3.1) shall be used for the so called transoceanic application, which allows extra traffic, improves restorability and improves delay as well as in SHORTENED mode.
   In case of a ring switch ... LOOPBACK performs the bridge and switch function in that nodes which are most close to the failed span. SHORTENED performs the bridge function at the add node repectively the switch function at the drop node of each ring circuit. It is an application only similar to the transoceanic protocol. TOPEX allows, compared to SHORTENED mode, additionally the traffic restoration of not affected spans. It is the transoceanic protocol application.
   Type: alphanumeric value set.
   Range: LOOPBACK, SHORTENED.
   Default: LOOPBACK.
7. rcamode – Ring Circuit Alarm Mode
   This parameter can be used to enable or disable ring circuit alarms for the local MS SPRING / BLSR protection group. If rcamode is DISABLED, any alarm associated with the local cross connections will be suppressed and not issued.
   Type: alphanumeric value set
   Range: ENABLE (default), DISABLE

8. rid – Ring Identification
   Option: The parameter is a mandatory parameter.
   This parameter specifies the ring identification name. Storage and retrieval of the *rid* is case sensitive, but actual use of the rid to determine the corresponding protection group is case insensitive. The parameter is used as an alias to identify exactly one MS-SPRing/BLSR protection group of any type. Therefore the value shall be unique for all protection groups of type 2F or 4F within the NE.
   Type: text string of chars allowed for TID strings.
   Range: 1 to 15 characters.
   Default: NONE
9. westprotn - West Protection Port
   This parameter specifies the port being a member in the role of the west protection port for a 4-fibre MS-SPRing/BLSR protection group.
   Type: AID
   Range: SPortAID
10. westwkg - West Worker Port
    This parameter specifies the port being a member in the role of the west worker port for a 4-fibre MS-SPRing/BLSR protection group
    Type: In case of an asymmetric ring: alphanumeric string; in all other cases: AID
    Range: In case of an asymmetric ring: NOTUSED; in all other cases: SPortAID.

Output format

After receiving the ENT-PROTN-GRP command, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

Output parameters

See "RTRV-HDR: Retrieve header" (p. 4-1736) command Output parameters section for a normal completion response.

Detailed behavior description

EP155 equipment protection group

The command establishes/creates a protection group of type as specified by means of parameter protype. If protype equals 'EQPTEP155', then one instance of EP155 protection group will be created. The creation of the protection group shall be reported by means of an ENT-PROTN-GRP notification. The initial protection state information is reported via protection switch notification.

Port impact due to EP155 protection group - port deletion

All ports related to the protection card of the protection group shall be deleted. This deletion shall be reported by means of: A set of DLT-STM1E notifications if the protection port is an SDH port. The deletion of the objects leads to a clearance of pending alarms for these objects.

Port impact due to EP155 protection group - PM impact due to port deletion

PM monitoring for the deleted ports shall be stopped and current and history bins shall be deleted.

Tributary impact due to EP155 protection group - tributary deletion

All tributaries related to the protection port of the protection group shall be deleted. This deletion shall be reported by means of: A set of DLT-VC3 notifications if the protection port is an SDH port.

The number of tributaries to be deleted shall be derived from the port rate. The deletion of the objects leads to a clearance of pending alarms for these objects.

For efficiency reasons the notifications for tributaries shall be sent out as a single notification (so-called group notification) using a range over the aid which depends on the port rate of the associated port, i.e. the Simple_STS1NumAID field in the STS1NumAID is set to ^{2} 1&&-<N> ith N is maximal legal STS-1/AU-3 number

Tributary impact due to EP155 protection group - AID range for group notification

See STS-1/AU-3 Tributaries AID w.r.t. range for legal STS-1/AU-3 number. Example: The AID field in a group notification for a tributaries related to port 1 for a OP10 pack in slot 1 looks like: 1-1-#-#-1-1-1&&-192

PM impact due to tributary deletion

PM monitoring for the deleted tributaries shall be stopped and current and history bins shall be deleted.

EP51 equipment protection group

The command shall establish/create a protection group of type as specified by means of parameter protype. If protype equals 'EQPTEP51', then one instance of EP51 protection group will be created.

The creation of the protection group shall be reported by means of an ENT-PROTN-GRP notification. The initial protection state information is reported via protection switch notification.

Port impact due to EP51 protection group - port deletion

All ports related to the protection pack of the protection group shall be deleted.

This deletion shall be reported by means of:

- A set of DLT-T3 notifications for the DS3 ports on the protection pack
- A set of DLT-EC1 notifications for the EC1 ports on the protection pack

The deletion of the objects leads to a clearance of pending alarms for these objects.

Port impact due to EP51 protection group - PM impact due to port deletion

PM monitoring for the deleted ports shall be stopped and current and history bins shall be deleted.

Tributary impact due to EP51 protection group - tributary deletion

All tributaries related to the protection port of the protection group shall be deleted.

This deletion shall be reported by means of:

- A DLT-PTF-STS notification for each deleted DS3 port of the protection pack
- A DLT-STS1 notification for each deleted EC1 port of the protection pack

The deletion of the objects leads to a clearance of pending alarms for these objects.

Tributary impact due to EP51 protection group - PM impact due to tributary deletion

PM monitoring for the deleted tributaries shall be stopped and current and history bins shall be deleted.

LOXC equipment protection group

The command establishes/creates a protection group for LOXC packs if *protype* is set to EQPTLOXC..

The creation of this protection group is reported by means of an ENT-PROTN-GRP notification. The initial protection state information has to be reported via protection switch notification.

The existence of transmission entities is not influenced by the creation of the LOXC EQP group since they will be only controlled by low-order cross-connection commands.

LOXC Update Affected Entities

When a LOXC Equipment protection group is created, then the low order switch capacity of the protection unit shall be set to the same size as for the related worker unit. In addition, the LO tributary standard of the protection unit shall be set to the value of the related worker unit. This has to be notified by means of a ED-EQPT notification.

1+1 and 2F protection group

The command establishes/creates a protection group of type as specified by means of parameter *protype*. If protype equals ’1+1’, then one instance of 1+1 MS/line

protection group will be created. If protype equals '2F', then one instance of type 2-fibre MS-SPRing/BLSR protection group will be created.

The creation of the protection group is reported by means of an ENT-PROTN-GRP notification. The initial protection state information is reported via protection switch notification.

1+1 Protection Group: Tributary impact due to MSP group - tributary deletion of MSP 1+1 protected connections

All tributaries related to the protection port of the protection group are deleted if a MSP 1+1 is entered:

- a set of DLT-VC3 notifications if the protection port is an SDH port
- a set of DLT-STS1 notifications if the protection port is an SONET port

The number of tributaries to be deleted are derived from the port rate.

The deletion of the objects leads to a clearance of pending alarms for these objects.

1+1 Protection Group: Tributary impact due to MSP group - group notification

The notifications for the affected tributaries shall be a group notification. See definition in detailed behaviour description section of ENT-EQPT.

1+1 Protection Group: Tributary impact due to MSP group - PM impact due to tributary deletion

PM monitoring for the deleted tributaries is stopped and current and history bins are deleted.

Example input/output

Equipment protection group

The following example creates equipment protection group information:

```
ENT-PROTN-GRP:LT-UNITE::123456::EQPTEP155:wkg=1-1-#-#-21-CP protn=1-1-#-
     #-22-CP,pgid=01;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
;
```

Multiplex section/line protection group 1+1

The following example creates 1+1 multiplex section/line protection group information:

```
ENT-PROTN-GRP:LT-UNITE::123456::1+1:wkg=1-1-#-#-13-1,protn=1-1-#-#-14-1,
pgid=001;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
;
```

2 fibre MS-SPRing/BLSR protection group

The following example shows the use of ENT-PROTN-GRP command to create a 2F protection group:

```
ENT-PROTN-GRP:LT-UNITE::123456::2F:east=1-1-#-#-10-1,west=1-1-#-#-08-
     1,pgid=003,rid="denver21";
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
;
```

4 fibre MS-SPRing/BLSR protection group

The following example shows the use of ENT-PROTN-GRP command to create a 4F protection group:

```
ENT-PROTN-GRP:LT-UNITE::123456::4F:eastwkg=1-1-#-#-10-1, eastprotn=1-1-#
     -#-11-1,westwkg=1-1-#-#-08-1,westprotn=1-1-#-#-09-1,pgid=003,rid="denver21";
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses (EPn equipment protection group)

Validation rule: XC are assigned to proposed protection EPn pack

The creation of the EPn Equipment Protection group shall be rejected, if cross-connections exists on the EPn pack, which was specified as protection pack by the command.

Error Code: `SNVS - Status, Not in Valid State, cross-connections are still existing`

Validation rule: Transparent DCC connections

Check of transparent DCC connections involving the circuit pack to be proposed as protection pack.

Error code: `SNVS - Status, Not in Valid State, Transparent DCC connections are existing at protection pack`

Validation rule: Not used as timing reference

Check of that none of the ports of the proposed protection circuit pack is used as timing reference

Error code: `SNVS - Status, Not in Valid State, at least one port of the protection pack is used as timing reference`

Validation rule: Not used for OW

Check of that no connection to a OW port of the proposed protection circuit pack exists.

Error code: `SNVS - Status, Not in Valid State, connection to OW port of the protection pack exists`

Validation rule: No XC loopbacks allowed

Check of XC loopbacks involving the circuit pack to be proposed as protection pack.

Error code: `SNVS - Status, Not in Valid State, XC loopbacks still exist at the protection pack`

Validation rule: No facility loopbacks allowed

Check of facility loopbacks involving the circuit pack to be proposed as protection pack.

Error code: `SNVS - Status, Not in Valid State, facility loopbacks still exist at the protection pack`

Validation rule: No test access session

Tributaries related to the circuit pack to be proposed as protection pack must not be used in a test access session either as tributary under test or as test access tributary.

Error Code: `SNVS - Status, Not in Valid State, Tributary used in test access session`

Validation rule: No port in *portClass* INNI

The creation of the EP155 Equipment Protection group shall be rejected, if at least one of the affected ports in in *portClass* INNI.

Error Code: `SNVS - Status, Not in Valid State, portClass must not be INNI`

Validation rule: No port on protection pack in *portClass* EDGE

The creation of the EP155 Equipment Protection group shall be rejected, if at least one of the affected ports on the protection pack is in *portClass* EDGE.

Error Code: `SNVS - Status, Not in Valid State, Port is still in use by ONNS`

Error responses (LOXC Equipment Protection Group)

Validation Rule: LOXC switch capacity and unit roles

The creation of the LOXC Equipment Protection group shall be rejected, if the worker unit has a low order switch capacity of 0 GBit/s or if the protection unit has a low order switch capacity greater than 0 GBit/s.

Error Code: SNVS - Status, Not in Valid State, LOXC switch capacity invalid

This is not an exclusive-or. If one condition is true, the error will be sent.

Other checks are not necessary. Cross-connections, loopbacks, test access and other configurations may have been applied to the worker unit while establishment of the LOXC equipment protection group.

Error responses (general)

Validation rule: port on different packs

Each port, being a member within the protection group, shall be located on different circuit packs.

Error code: `SNVS - Status, Not in Valid State, ports must be on different circuit packs.`

Validation rule: common interface type

Each port being a member within the protection group, shall have the same interface standard i.e. all ports shall either operate in SONET mode or in SDH mode.

Error code: `SNVS - Status, Not in Valid State, ports have different interface types.`

Validation rule: supported port rate

The port rate shall be supported for the specified protection type

Error code: `SNVS - Status, Not in Valid State, port rate not supported for this protection type.`

Value Range: See value range definition for the attribute *pgrate* in the "RTRV-PROTN-GRP: Retrieve protection group" (p. 4-1997) output section w.r.t. supported port rates for the different protection types.

Validation rule: value range

See value range definition for the attribute *pgrate* in the "RTRV-PROTN-GRP: Retrieve protection group" (p. 4-1997) output section w.r.t. supported port rates for the different protection types.

Validation rule: common port rate

Each port being a member within the protection group, shall have the same port rate.

Error code: `SNVS - Status, Not in Valid State, ports have different port rates.`

Validation rule: No test access session

Tributaries related to the specified ports must not be used in a test access session either as tributary under test or as test access tributary.

Error Code: `SNVS - Status, Not in Valid State, Tributary used in test access session`

Validation rule: XC pack is (pre-)provisioned

There shall be at least one XC pack pre-provisioned or provisioned.

Error code: `SNVS - Status, Not in Valid State, XC Pack not provisioned`

Validation rule: unique pgid

The specified *pgid* is not already used by an already existing protection group AID of the same protection type.

Error code: `SDNC - Status, Data Not Consistent, pgid is already used by another protection group of the same type.`

Validation rule: maximum number of 2-fibre and 4-fibre MS SPRING / BLSR protection groups

The number of 2-fibre and/or 4-fibre MS SPRING / BLSR protection groups in the system shall not exceed 32.

Error code: `SSRE - Status, System Resources Exceeded, allowed number of MS SPRING and BLSR protection groups is exceeded.`

This restriction results from the number of K-byte express channels which can be supported by the system. The number of groups actually supported by the system is also limited by factors such as the system capacity, the number of ports per slot, the number of ports per group (2-fibre / 4-fibre / 4-fibre asymmetric groups), and the number of DCC channels supported by the CTL (if automatic ring discovery is used).

Error responses (multiplex section/line protection group)

Validation rule: no timing reference on protection port

Protection port shall not be assigned to a timing reference.

Error code: `SNVS - Status, Not in Valid State, protection port is assigned to a line timing reference.`

Validation rule: no out-of-service state on protection port

Protection port shall not have the value 'OUTOFSERVICE' for the attribute *servcond*.

Error code: `SNVS - Status, Not in Valid State, protection port is out-of-service.`

Validation rule: no timing reference on other port of protection unit

No other port of unit related to the protection port shall be assigned to a timing reference if a .timing reference is already assigned to the intended worker port.

Error code: `SNVS - Status, Not in Valid State, other port of protection unit is assigned to a line timing reference.`

Validation rule: No MSP 1:1 protection for bitrate STM-256

The system shall reject an ENT command for the architecture 1:1 (protype = 1xNOPT), if the port bitrate is STM-256.

Error Code: `IDNC - Input, Data, Not Consistent, This MSP protection type not supported for a port with the indicated rate`

Validation rule: No MSP 1+1 optimized protection for SONET

The system shall reject an ENT command for the architecture 1+1 (protype = 1+1) if it is combined with the operation parameter value 'optimized' (protocol =1+1_OPTM) and if the port mode is SONET.

Error code: `IDNC - Input, Data Not Consistent, MSP 1+1_optimized not supported for SONET mode`

Validation rule: No MSP 1:1 protection for SONET

The system shall reject an ENT command for the architecture 1:1 (protype = 1xNOPT), if the port mode is SONET.

Error Code: `IDNC - Input, Data, Not Consistent, No MSP protection supported for SONET mode`

Validation rule: MSP type 1:1 is never non-revertive

The system shall reject an ENT command for the architecture 1:1 (protype = 1xNOPT), if it is combined with the operation mode 'non-revertive' (rme=disabled).

Error Code: `IDNC - Input, Data, Not Consistent, MSP Protection Type 1x1 is always revertive`

Validation rule: No MSP/APS 1+1 revertive protection for bitrate STM-256/OC-768

The system shall reject an ENT command for the architecture 1+1 (protype = 1+1) and the operation mode 'revertive' (rme=enabled) , if the port bitrate is STM-256 or OC-768.

Error Code: I`DNC - Input, Data Not Consistent, revertive mode not supported for MSP Protection Type 1+1 and a port with the indicated rate`

Validation rule: No MSP/APS 1+1 for bitrate STM-256/OC-768

The system shall reject an ENT command for the architecture 1+1 (protype = 1+1), if the port bitrate is STM-256 or OC-768.

Error Code: `IDNC - Input, Data Not Consistent, This MSP protection type not supported for a port with the indicated rate`

Validation rule: only MSP 1+1 can be optimized

The system shall reject an ENT command for any architecture beside 1+1 (protype = 1+1) if it is combined with the operation parameter value 'optimized'.

Error Code: IDNC - Input, Data, Not Consistent, Optimized exists only with 1+1 Protection Type

Validation rule: No MSP 1+1 optimized for bitrate STM-256

The system shall reject an ENT command for the architecture 1+1 (protype = 1+1), if combined with the parameter protocol=OPTM and the port bitrate STM-256.

Error code: IDNC - Input, Data, Not Consistent, This MSP protection type not supported for a port with the indicated rate

Validation rule: No XC on protection tribs

There shall exist no cross-connections on protection tributaries related to the specified ports.

Error code: SNVS - Status, Not in Valid State, protection tributary is used in cross-connection

Validation rule: no XC loopbacks on protection tribs

There shall exist no cross-connection loopbacks on protection tributaries related to the specified ports.

rror Code: SNVS - Status, Not in Valid State, Tributary is used in cross-connection loopback

Validation rule: No input tributary of path-protected cross-connection on the ports

No tributary on any of the ports of a MS/Line protection group shall be used as input tributary of a path-protected cross-connection.

Error code: SNVS - Status, Not in Valid State, trib of MSP 1+1/1x1 port as input-trib in pathprotected crossconnection

Validation rule: MSP type 1+1_optimized is never revertive

The system shall reject an ENT command for the architecture 1+1 (protype = 1+1) if it is combined with the operation parameter value 'optimized' and with the operation mode 'revertive' (rme=enab.).

Error Code: IDNC - Input, Data, Not Consistent, MSP 1+1_Optimized is always non-revertive

Validation rule: supported *portClass*

Ports must not be of *portClass* INNI

Error Code: SNVS - Status, Not in Valid State, portClass must not be INNI

Validation rule: no EDGE protection port for 1+1 MSP

In case of a 1+1 MSP group the specified protection port shall not be of portClass EDGE

Error Code: `SNVS - Status, Not in Valid State, portClass may not be EDGE`

Validation rule: no EDGE protection port for 1:1 MSP

In case of a 1:1 MSP group the specified protection port shall not be of portClass EDGE.

Error Code: `SNVS - Status, Not in Valid State, portClass may not be EDGE`

Error responses (2-fibre MS-SPRing/BLSR protection group)

Validation rule: unique *rid*

The specified *rid* shall not be already used by an already existing protection group of type 2F, 4F.

Error code: `IDNV - Input, Data Not Valid, rid is already used by another protection group`

Validation rule: dcc enabled

If the parameter ard (automatic ring discovery) is not DISABLED, for each side at least one dcc channel (section/dcc-r or line/dcc-m) shall be enabled.

Error code: `SNVS - Status, Not in Valid State, no dcc channel enabled`

Validation rule: Automatic squelch map calculation only with automatic ring discovery

If the parameter ard is specified with the value DISABLE (automatic ring discovery disabled), then the parameter *asmc* must not be set to ENABLE (default value).

Error Code: `IDNV - Input, Data Not Valid, Automatic Squelch Map Calculation only allowed with Automatic Ring Discovery`

Validation rule: supported *portClass*

Ports must not be of *portClass* INNI

Error Code: `SNVS - Status, Not in Valid State, portClass must not be INNI`

Validation rule: no XC on tribs

There shall exist no cross-connections on tributaries related to the specified ports.

Error Code: `SNVS - Status, Not in Valid State, Tributary is used in cross-connection`

Validation rule: no XC loopbacks on tribs

There shall exist no cross-connection loopbacks on tributaries related to the specified ports.

Error Code: `SNVS - Status, Not in Valid State, Tributary is used in cross-connection loopback`

Error responses (4-fibre MS-SPRing/BLSR protection group)

Validation rule: unique *rid*

The specified *rid* shall not be already used by an already existing protection group of type 2F, 4F.

Error code: `IDNV - Input, Data Not Valid, rid is already used by another protection group`

Validation rule: dcc enabled

If the parameter *ard* (automatic ring discovery) is ENABLED, for each worker port at least one dcc channel (section/dcc-r or line/dcc-m) shall be enabled.

Error code: `SNVS - Status, Not in Valid State, no dcc channel enabled`

Validation rule: dcc enabled on protection port

If the parameter ard (automatic ring discovery) is ENABLED, for each protection port of an asymmetric span at least one dcc channel (section/dcc-r or line/dcc-m) shall be enabled.

Error Code: `SNVS - Status, Not in Valid State, no dcc channel enabled`

The characteristic of an asymmetric ring is that one or more spans have only protection lines, no working lines (asymmetric spans). In these asymmetric spans it must be possible to use the DCC channels of the protection ports.

Validation rule: Timing reference on protection port only allowed in asymmetric spans of a ring

The system shall not allow to assign the protection port of a symmetric span of a ring to a timing reference. The assignment of the protection port to a timing reference shall only be allowed for asymmetric spans.

Error Code: `SNVS - Status, Not in Valid State, protection port is assigned to a line timing reference`

The characteristic of an asymmetric ring is that one or more spans have only protection lines, no working lines (asymmetric spans). In these asymmetric spans it must be possible to use the protection ports for timing.

Validation rule: no out-of-service state on protection port

Protection port shall not have the value 'OUTOFSERVICE' for the attribute *servcond*.

Error code: `SNVS - Status, Not in Valid State, protection port is out-of-service.`

Validation rule: no timing reference on other port of protection unit

No other port of unit related to the protection port shall be assigned to a timing reference if a timing reference is already assigned to the intended worker port.

Error code: `SNVS - Status, Not in Valid State, other port of protection unit is assigned to a line timing reference.`

Validation rule: SDH ports for TOP

If *protnmode* equals 'SHORTENED' (TOP), then all specified member ports shall have the interface standard SDH.

Error code: `SNVS - Status, Not in Valid State, SONET port not allowed for TOP`

Validation rule: complete side information

The parameters *eastwkg*, *eastprotn*, *westwkg*, *westprotn* must be present in the request.

Error code: `IDNV - Input, Data Not Valid, side information is not complete`

Validation rule: supported *portClass*

Ports must not be of *portClass* INNI

Error Code: `SNVS - Status, Not in Valid State, portClass must not be INNI`

Protection ports must not be of *portClass* EDGE

Error Code: `SNVS - Status, Not in Valid State, portClass of protection port must not be EDGE`

Validation rule: supported *portClass* for TOP

If *protnmode* equals SHORTENED or TOPEX (both are TOP), then none of the specified member ports shall have the *portClass* EDGE.

Error code: `SNVS - Status, Not in Valid State, portClass must not be EDGE for TOP`

Validation rule: no XC on tribs

There shall exist no cross-connections on tributaries related to the specified ports.

Error Code: `SNVS - Status, Not in Valid State ,tributary is used in cross-connection`

Validation rule: no XC loopbacks on tribs

There shall exist no cross-connection loopbacks on tributaries related to the specified ports.

Error Code: `SNVS - Status, Not in Valid State, Tributary is used in cross-connection loopback`

Related TL1 messages

- "RTRV-PROTN-GRP: Retrieve protection group" (p. 4-1997)
- "ENT-CRS: Enter cross-connection" (p. 4-1026)
- "ED-PROTN-GRP: Edit protection group" (p. 4-551)

- "DLT-PROTN-GRP: Delete protection group" (p. 4-164)
- "OPR-PROTNSW: Operate protection switch" (p. 4-1472)
- "RLS-PROTNSW: Release protection switch" (p. 4-1574)
- "ED-MAP-RING: Edit map ring" (p. 4-316)
- "SET-MAP-RING: Set map ring" (p. 4-2304).

□

ENT-PROTN-GRP notification

Output format

The ENT-PROTN-GRP notification uses the general format of a REPT DBCHG (Report Database Change) notification.

The following syntax is used for 1+1 equipment, 1+1 multiplex section/line, 2-/4-fibre MS-SPRing/BLSR protection group.

General Syntax: `ENT-PROTN-GRP`:*aid*:*protype:spec_block*;

Path Protection Group Syntax: `ENT-PROTN-GRP`:*aid*:*protype:spec_block {outtribaid, CML: cml_block}*+;

Output parameters

Command parameters (1+1 Equipment protection group)

1. aid – Access Identifier
   This parameter specifies the AID of the 1+1 protection equipment group.
   Type: AID
   Range: SwitchAndTmgProtGrpAID for switching protection group instance; CtlProtGroupAID for controller protection group instance; EP155ProtGroupAID for EP155 protection group instance
2. protype – Protection Type
   The parameter specifies the type of the protection group for retrieving the information.
   Type: alphanumeric value set.
   Range:
   - EQPTSWFBR for switching protection group instance;
   - EQPTCTL for controller protection group instance;
   - EQPTEP155 for EP155 protection group instance;
   - EQPTEP51 for EP51 protection group instance.

Command parameters (multiplex section/line protection group)

1. aid – Access Identifier
   This parameter specifies the aid of a 1+1 multiplex section/line protection group or the aid of a 1:1 multiplex section/line protection group (only R3.0 and later).
   Type: AID
   Range: OnePlusOne_ProtGrpAID or NByOne_ProtGrpAID
2. protype – Protection Type
   The parameter specifies the architecture (type) of the protection group. The value for the 1+1 line/MS protection group shall be 1+1. The value for the 1:1 line/MS protection group shall be 1xNOPT (only R3.0 and later)
   Type: alphanumeric value set.
   Range: 1+1 (default) or 1xNOPT.

Command parameters (2-fibre MS-SPRing/BLSR protection group)

1. aid – Access Identifier
   This parameter specifies the AID of the 2 fibre MS-SPRing/BLSR protection group.
   Type: AID
   Range: TwoFibre_ProtGrpAID
   Default: No default
2. protype – Protection Type
   The parameter specifies the type of the protection group. The value for the 2-fibre MS-SPRing/BLSR protection group shall be 2F.
   Type: alphanumeric value set.
   Range: 2F.

Command parameters (4-fibre MS-SPRing/BLSR protection group)

1. aid – Access Identifier
   This parameter specifies the AID of the 4 fibre MS-SPRing/BLSR protection group.
   Type: AID
   Range: FourFibre_ProtGrpAID
2. protype – Protection Type
   The parameter specifies the type of the protection group. The value for the 4-fibre MS-SPRing/BLSR protection group shall be 4F.
   Type: alphanumeric value set.
   Range: 4F.

Command parameters (Path protection group)

1. aid – Access Identifier
   This parameter specifies the AID of the path protection group.
   Type: AID
   Range: Path_ProtGrpAID
2. protype – Protection Type
   The parameter specifies the type of the protection group. The value for the path protection group shall be PATHDRI.
   Type: alphanumeric value set.
   Range: PATHDRI
3. outtribaid – Output Tributary Access Identifier
   This parameter specifies the output tributary AID for a constituent signal within the protection group. One value shall be returned for each constituent signal together with the corresponding CML (Constituent Member List) block.
   Type: AID
   Range: STS1NumAID or VCGNumAID or GenLOTribAID.
   The usage of wild cards shall not be allowed for any part of the AID. This range equals to the definition of Path_ProtGrpAID.

Spec block parameters (1+1 Equipment protection group)

1. protn – Protection Unit
   The parameter specifies the protection circuit pack AID being a member of the 1+1 equipment protection group.
   Type: AID
   Default: For switching protection group instance: CpAID related to slot 10. For controller protection group instance: CpAID related to slot 31. For EP155 protection group instance: - If no cross-connections are assigned to one of the two EP155 cards, the user can choose it by the ENT-PROT-GRP command Default protection unit shall be the right card. - If cross-connections are assigned to one of the cards, the other card must become the protection unit. This means that the creation (ENT-PROTN-GRP) shall be rejected, if the user selects the card with cross-connections as protection card.
2. wkg – Worker Unit
   This parameter specifies the worker circuit pack AID being a member of the 1+1 equipment protection group.
   Type: AID
   Range: CpAID
   Default: For switching protection group instance: CpAID related to slot 9. For controller protection group instance: CpAID related to slot 11. For EP155 protection group instance: - If no cross-connections are assigned to one of the two EP155 cards, the user can choose it by the ENT-PROT-GRP command Default worker unit shall be the left card. - If cross-connections are assigned to one of the cards, this card must become the worker unit. This means that the creation (ENT-PROTN-GRP) shall be rejected, if the user selects the card with no cross-connections as worker card.

Spec block parameters (multiplex section/line protection group)

1. apspn – MSP-APS ASAP Pointer
   This parameter specifies the value for the ASAP (alarm severity assignment profile) name of type MSP-APS (Multiplex Section Protection – Automatic protection switching).
   Type: alphanumeric string
   Range: 1-24 characters including character '-'.
   Default: DEFAULT
2. dcclmsprotmd – DCC Line/MS Protection Mode
   The parameter shall specify, whether the line/MS dcc channel is switched as part of the line/MS protection group. The value ENABLE shall be used, if dcc channel is switched as part of line/MS protection group; otherwise the value DISABLED shall be used.
   Type: alphanumeric value set 3;
   Range: ENABLE, DISABLE
   Default: DISABLE
3. dccsrsprotmd – DCC Sect/RS Protection Mode
   The parameter shall specify, whether the section/RS dcc channel is switched as part of the line/MS protection group. The value ENABLE shall be used, if dcc channel is switched as part of line/MS protection group; otherwise the value DISABLED shall be used.
   Type:alphanumeric value set
   Range: ENABLE, DISABLE
   Default: DISABLE
4. protn – Protection Unit
   This parameter specifies the protection port AID being a member of the line protection/ MS protection group.
   Type: AID
   Range: SPortAID
5. protocol – APS Protocol
   This parameter specifies the protocol used by the protection state machine. The value 1+1_UNI is used for 1+1 unidirectional switching. The value 1xN_BIDIR is used for 1:1 bidirectional switching (N=1) (only R3.0 and later). The value 1+1_OPTM is used for 1+1 optimized, bidirectional switching (only R3.0 and later). The value 1+1_BIDIR is used for 1+1 bidirectional switching (only R4.0 and later).
   Type: alphanumeric value set
   Range: 1+1_UNI, 1xN_BIDIR, 1+1_OPTIt can also be used to convert a 2-side node to an asymmetric node and vice versa.
   In mind the 'N' in 1xN_BIDIR is considered to be always equal '1'. The value 1+1_OPTM implicitly specifies bidirectional operation mode.
   Default: 1+1_UNI, in case of protype = 1+1; 1xN_BIDIR, in case of protype = 1xNOPT (i.e. protection type 1:1).

6. rme – Protection Reversion
   The parameter specifies, whether revertive or non-revertive mode is used as operation mode of the protection group. The value ENABLE shall be used if the protection group operates in revertive mode. The value DISABLE shall be used if the protection group operates in non-revertive mode.
   Type: alphanumeric value set
   Range: DISABLE in case of protype = 1+1; ENABLE in case of protype = 1xNOPT.
   Default: DISABLE, in case of protype = 1+1; ENABLE, in case of protype = 1xNOPT (i.e. protection type 1:1)
   The *protocol* = OPTM can only be chosen in case of *protype* = 1+1, thus default is DISABLE then.
7. wkg – Worker Unit
   This parameter specifies the worker port AID being a member of the 1+1 line/MS protection group.
   Type: AID
   Range: SPortAID
8. wtr – Wait To Restore Time
   The parameter shall specify the 'wait to restore' time used by the protection state machine operating in revertive mode (MSP1+1, MSP1:1). In case of MSP 1+1 Optimized the same parameter shall be used for the 'wait to rename' time.
   Type: numeric string [minute]
   Range: 0 - 60
   Default: 5.

Spec block parameters (2-fibre MS-SPRing/BLSR protection group)

1. ard – Automatic Ring Discovery
   If this parameter is enabled, the automatic ring discovery algorithm will assign nodeID values to each node in the ring and construct the necessary ring map information. All nodes in the ring must be Lucent. If disabled, the user will assign the NodeID value manually with ED-MAP-RING and supply the ring map information to each node on the ring for the BLSR protocol to operate. It is necessary to activate this user-provisioned information with SET-MAP-RING. Until all nodes on the ring have the same ring map, nodes will have most likely an outstanding NodeID mismatch alarm active.
   Type: alphanumeric string.
   Range: ENABLE, DISABLE.
   Default: ENABLE.
2. asmc – Automatic Squelch Map Calculation
   If this parameter is enabled, the automatic squelch map calculation is switched on. If disabled, the function is switched off.
   Type: alphanumeric string
   Range: ENABLE, DISABLE (default)

3. blsrpn – MSSPRING-BLSR ASAP Pointer
   This parameter specifies the value for the ASAP (alarm severity assignment profile) name of type MSSPRING-BLSR.
   Type: alphanumeric string
   Range: 1-24 characters including character '-'.
   Default: DEFAULT
4. east – East Port
   This parameter specifies the port being a member in the role of the east port for a 2-fibre MS-SPRing/BLSR protection group.
   Type: AID
   Range: SPortAID
5. rcamode – Ring Circuit Alarm Mode
   This parameter can be used to enable or disable ring circuit alarms for the local MS SPRING / BLSR protection group. If rcamode is DISABLED, any alarm associated with the local cross-connections will be suppressed and not issued.
   Type: alphanumeric value set
   Range: ENABLE (default), DISABLE
6. rid – Ring Identification
   This parameter specifies the ring identification name. Storage and retrieval of the *rid* is case sensitive, but actual use of the rid to determine the corresponding protection group is case insensitive. The parameter is used as an alias to identify exactly one MS-SPRing/BLSR protection group of any type. Therefore the value shall be unique for all protection groups of type 2F or 4F within the NE.
   Type: text string of chars allowed for TID strings.
   Range: 1 to 15 characters.
   Default: NONE.
7. west – West Port
   This parameter specifies the port being a member in the role of the west port for a 2-fibre MS-SPRing/BLSR protection group.
   Type: AID.
   Range: SPortAID.
   Default: None.
8. wtr – Wait To Restore Time
   This parameter specifies the wait to restore time for ring switches used by the protection state machine operating in revertive mode. The protection operates in revertive mode if the wait-to-restore time is in the range 0-12. The protection operates in non-revertive mode if the wait-to-restore time has the value 99 representing the infinite value.
   Note: If *wtr* time is set to infinite, the switch request state shall be WTR until a higher request occurs.
   Type: numeric string [minute].
   Range: 0 – 12 in 1 minute increments and 99.
   Default: 5.

Spec block parameters (4-fibre MS-SPRing/BLSR protection group)

1. ard – Automatic Ring Discovery
   If this parameter is enabled, the automatic ring discovery algorithm will assign nodeID values to each node in the ring and construct the necessary ring map information. All nodes in the ring must be Lucent. If disabled, the user will assign the NodeID value and supply the ring map information to each node on the ring for the BLSR protocol to operate. Until all nodes on the ring have the same ring map, nodes will have most likely an outstanding NodeID mismatch alarm active.
   Type: alphanumeric string.
   Range: ENABLE, DISABLE.
   Default: ENABLE.
2. asmc – Automatic Squelch Map Calculation
   If this parameter is enabled, the automatic squelch map calculation is switched on. If disabled, the function is switched off.
   Type: alphanumeric string
   Range: ENABLE, DISABLE (default)
3. blsrpn – MSSPRING-BLSR ASAP Pointer
   This parameter specifies the value for the ASAP (alarm severity assignment profile) name of type MSSPRING-BLSR.
   Type: alphanumeric string.
   Range: 1-24 characters including character '-'.
   Default: DEFAULT.
4. eastprotn - East Protection Port
   This parameter shall specifies the port being a member in the role of the east protection port for a 4-fibre MS-SPRing/BLSR protection group.
   Type: AID
   Range: SPortAID
5. eastwkg - East Worker Port
   This parameter specifies the port being a member in the role of the east worker port for a 4-fibre MS-SPRing/BLSR protection group.
   Type: In case of an asymmetric ring: alphanumeric string; in all other cases: AID.
   Range: In case of an asymmetric ring: NOTUSED. In all other cases: SPortAID.
6. protnmode - Protection Switch Mode
   The parameter specifies the protection switch mode. The value LOOPBACK shall be used for the classical ring application. The value SHORTENED shall be used for transmission delay sensitive applications. The value TOPEX (only R3.0 and ^R3.1) shall be used for the so called transoceanic application, which allows extra traffic, improves restorability and improves delay as well as in SHORTENED mode.
   In case of a ring switch ... LOOPBACK performs the bridge and switch function in that nodes which are most close to the failed span. SHORTENED performs the bridge function at the add node repectively the switch function at the drop node of each ring circuit. It is an application only similar to the transoceanic protocol.

TOPEX allows, compared to SHORTENED mode, additionally the traffic restoration of not affected spans. It is the transoceanic protocol application.
Type: alphanumeric value set.
Range: LOOPBACK, SHORTENED.
Default: LOOPBACK.

7. rcamode – Ring Circuit Alarm Mode
   This parameter can be used to enable or disable ring circuit alarms for the local MS SPRING / BLSR protection group. If rcamode is DISABLED, any alarm associated with the local cross-connections will be suppressed and not issued.
   Type: alphanumeric value set
   Range: ENABLE (default), DISABLE
8. rid – Ring Identification
   This parameter specifies the ring identification name. Storage and retrieval of the *rid* is case sensitive, but actual use of the rid to determine the corresponding protection group is case insensitive. The parameter is used as an alias to identify exactly one MS-SPRing/BLSR protection group of any type. Therefore the value shall be unique for all protection groups of type 2F or 4F within the NE.
   Type: text string of chars allowed for TID strings.
   Range: 1 to 15 characters.
   Default: NONE
9. swtr - Span Wait To Restore Time
   The parameter specifies the wait to restore time for span switches used by the protection state machine operating in revertive mode. The protection shall operate in revertive mode if the wait-to-restore time is in the range 0-12. The protection shall operate in non-revertive mode if the wait-to-restore time has the value 99 representing the infinite value.
   Note: If *wtr* time is set to infinite, the switch request state shall be WTR until a higher request occurs.
   Type: numeric string [minute].
   Range: 0 - 12 in 1 minute increments and 99.
   Default: 5.
10. westprotn - West Protection Port
    This parameter specifies the port being a member in the role of the west protection port for a 4-fibre MS-SPRing/BLSR protection group.
    Type: AID
    Range: SPortAID

11. westwkg - West Worker Port
    This parameter specifies the port being a member in the role of the west worker port for a 4-fibre MS-SPRing/BLSR protection group
    Type: In case of an asymmetric ring: alphanumeric string; in all other cases: AID
    Range: In case of an asymmetric ring: NOTUSED; in all other cases: SPortAID.
12. wtr – Wait To Restore Time
    This parameter specifies the wait to restore time for ring switches used by the protection state machine operating in revertive mode. The protection operates in revertive mode if the wait-to-restore time is in the range 0-12. The protection operates in non-revertive mode if the wait-to-restore time has the value 99 representing the infinite value.
    Note: If wtr time is set to infinite, the switch request state shall be WTR until a higher request occurs.
    Type: numeric string [minute].
    Range: 0 – 12 in 1 minute increments and 99.
    Default: 5.

Spec block parameters (path protection group)

1. cst – Constituent Signal Type
   This parameter specifies the rate of the path protection group.
   Type: alphanumeric value set.
   Range: LOVT1, STS1, STS3C, STS12C, STS48C, STS192C, LOVC12, LOVC3, VC3, VC4, VC44C, VC416C, VC464C.
   In cases of mixed usage of SONET and SDH terms in provisioning of cross-connection and provisioning of protection group no conversion will happen. The equivalent term may be shown instead. For example: Assume the protection group port rate - identified by the modifier - is entered as a SDH term. If before the underlying cross-connection rate has been entered as a SONET term the parameter cst will nevertheless show the SONET term according ID 24284 (e.g. STS48C).
2. dripathpn – SNCP-UPSR ASAP Pointer
   This parameter specifies the value for the ASAP (alarm severity assignment profile) name of type SNCP-UPSR.
   Type: alphanumeric string.
   Range: 1-24 characters including character ’-’.
   Default: DEFAULT.
3. htmr – Hold-Off Time
   This parameter specifies the hold-off time for automatic protection switching used by the protection state machine.
   Type: numeric string [ms].
   Range: 0 .. 99 msec in 1 msec steps and 100 .. 10000 msec in 100 msec steps.

4. ppgname – Path protection group Name
   This parameter specifies the path protection group name. Storage and retrieval of the *ppgname* is case sensitive, but actual use of the *ppgname* to determine the corresponding protection group is case insensitive.
   Type: text string.
   Range: 0 to 24 characters.
   Default: empty string
5. protn – Protection Tributary
   This parameter specifies the protection input tributary AID being a member of the path protection group.
   Type: AID.
   Range: STS1NumAID.
6. rme – Protection Reversion
   This parameter specifies, whether revertive or non-revertive mode is used as operation mode of the protection group.
   The value ENABLE is used if the protection operates in revertive mode.
   The value DISABLE is used if the protection operates in non-revertive mode.
   Type: alphanumeric value set.
   Range: ENABLE, DISABLE.
7. snctype – SNC Protection Type
   This parameter specifies the type of the path protection w.r.t. switch criteria used by the protection state machine.
   The value SNCI (Inherent) is used if server signal fail is used as switch criteria.
   The value SNCN (Non-Instrusive) is used if server signal fail and defects supervised by a non-intrusive path monitor are used as switch criteria
   The value NA is used if one of the tributary inputs is related to a port operating in SONET mode.
   Type: alphanumeric value set.
   Range: SNCI, SNCN, NA.
8. wkg – Worker Tributary
   This parameter specifies the worker input tributary AID being a member of the path protection group.
   Type: AID.
   Range: STS1NumAID.
9. wtr – Wait To Restore Time
   This parameter specifies the wait to restore time used by the protection state machine operating in revertive mode.
   Type: numeric string [minute].
   Range: 0 – 60.

CML block parameters (path protection group)

1. cst – Constituent Signal Type
   This parameter specifies the rate of the constituent signal within the path protection group.
   Type: alphanumeric value set.
   Range: LOVT1, STS1, STS3C, STS12C, STS48C, STS192C, LOVC12, LOVC3, VC3, VC4, VC44C, VC416C, VC464C
   Default: The default value shall be derived from the tributary input signal rate list in case of fixed mode. In cases of mixed usage of SONET and SDH terms in provisioning of cross-connection and provisioning of protection group no conversion will happen. The equivalent term may be shown instead. For example: Assume the protection group port rate - identified by the modifier - is entered as a SDH term. If before the underlying cross-connection rate has been entered as a SONET term the parameter cst will nevertheless show the SONET term according ID 24284 (e.g. STS48C).

Example output

1+1 Equipment Protection Group

The following example reports the creation of an 1+1 equipment protection group:

```
LT-UNITE 00-11-03 15:00:00
A  000 REPT DBCHG
   "TIME=15-00-00,DATE=00-11-03:ENT-PROTN-GRP:
   1-1-estgrp:EQPTSWFBR:wkg=1-1-#-#-xcw-cp,
   protn=1-1-#-#-xcp-cp"
;
```

Multiplex section/line protection group 1+1

The following example reports the creation of an 1+1 multiplex section/line protection group:

```
LT-UNITE 00-11-03 15:00:00
A  000 REPT DBCHG
   "TIME=15-00-00,DATE=00-11-03:ENT-PROTN-GRP:
   1-1-o01:1+1:wkg=1-1-#-#-13-1,protn=1-1-#-#-14-1,
   wtr=5,apspn=DEFAULT, dcclmsprotmd=DISABLE,
   dccsrsprotmd=DISABLE,protocol=1+1_UNI,rme=DISABLE"
;
```

2 fibre MS-SPRing/BLSR protection group

The following example reports the creation of a 2 fibre MS-SPRing/BLSR protection group:

```
LT-UNITE 00-11-03 15:00:00
A  000 REPT DBCHG
   "TIME=15-00-00,DATE=00-11-03:ENT-PROTN-GRP:
   1-1-t001:2F:east=1-1-#-#-13-1,west=1-1-#-#-14-1,
```

```
   rid=\"denver\",wtr=5,blsrpn=DEFAULT"
;
```

4 fibre MS-SPRing/BLSR protection group

The following example reports the creation of a 4 fibre MS-SPRing/BLSR protection group:

```
LT-UNITE 00-11-03 15:00:00
A  000 REPT DBCHG
   "TIME=15-00-00,DATE=00-11-03:ENT-PROTN-GRP:
   1-1-f001:4F:eastwkg=1-1-#-#-13-1,
   eastprotn=1-1-#-#-15-1,westwkg=1-1-#-#-14-1,
   westwkg=1-1-#-#-16-1,rid=\"denver\",
   protnmode=LOOPBACK,swtr=5,wtr=5,blsrpn=DEFAULT"
;
```

Path protection group

The following example reports the creation of a path protection group:

```
LT-UNITE 00-11-03 15:00:00
A  000 REPT DBCHG
   "TIME=15-00-00,DATE=00-11-03:ENT-PROTN-GRP:
   1-1-#-#-10-1-25:PATHDRI:cst=STS1,wkg=1-1-#-#-08-1-25,
   protn=1-1-#-#-06-1-1,ppgname=\"group018\",
   htmr=100,wtr=5,dripathp=path2,rme=DISABLE,
   snctype=NA"
   "1-1-#-#-10-1-25,CML:cst=STS1"
;
```

□

ENT-PTF notification

Output format

The ENT-PTF notification shall use the general format of a REPT DBCHG notification.

Syntax

ENT-PTF-*modifier:aid::spec_block;*

Output parameters

Command parameters

1. aid - Access Identifier
   The access identifier shall specify the PTF tributary whose attributes are reported.
   Type: AID
   Range: STSNumAID as defined in AID structure with exception of value *all*.
2. modifier
   The modifier shall specify the type of the tributary.
   Type: alphanumeric value set
   Range: STS, HOSTS1, HOVC4.

Spec block parameters

1. brstintvl – Bursty Interval
   The parameter *brstintvl* shall specify the measurement period for degraded defect if *sdsfmode* is set to BURST. If *sdsfmode* is not set to BURST then *brstintvl* has no affect to NE behaviour.
   The parameter *brstintvl* is not supported for modifiers HOVC4 and HOSTS1.
   Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
   Option: If the parameter *brstintvl* is not supported, then the parameter shall be omitted
   Type: integer.
   Range: 2, 3, ..., 10 [seconds]
   Default: 7 [seconds].
2. brstthr – Bursty Error Threshold
   The parameter *brstthr* shall specify the degradation threshold for degraded defect if *sdsfmode* is set to BURST. If *sdsfmode* is not set to BURST then *brstthr* has no affect to NE behaviour.
   The parameter *brstthr* is not supported for modifiers HOVC4 and HOSTS1.
   Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility

reasons.
Option: If the parameter *brstthr* is not supported, then the parameter shall be omitted
Type: integer.
Range: 5, 10, 15, ... 50 [%].
Default: 30.

3. crslpbkstat - Crossconnect Loopback Status
   The parameter *crslpbkstat* reports the configuration of the cross-connection loopback of this triburay. For changing the loopback operation refer to OPR-LPBK of section Transmission and Cross-Connection Handling, Tributary.
   The parameter *crslpbkstat* is not supported for modifiers HOVC4 and HOSTS1.
   Option: If the parameter *crslpbkstat* is not supported, then the parameter shall be omitted
   Type: alphanumeric value set
   Range: YES, for enabled loopback; NO, for disabled loopback
4. degthr – Signal Degrade Threshold
   This parameter specifies the exponent to base 10 for building the degraded threshold level. The degraded threshold level is used for building the degraded defect if *sdsfmode* is set to POISSON. If *sdsfmode* is not set to POISSON then *degthr* has no affect to NE behaviour. For the definition of *sdsfmode* refer to RTRV-PTF Output parameters.
   The parameter degthr is not supported for modifiers HOVC4 and HOSTS1.
   Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
   Type: integer.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
5. dexcthr – Excessive Degrade Threshold
   This parameter specifies the exponent to base 10 for building the excessive threshold level. The excessive threshold level is used for building the excessive bit error defect if *sdsfmode* is set to POISSON. If *sdsfmode* is not set to POISSON then *dexcthr* has no affect to NE behaviour. For the definition of sdsfmode refer to RTRV-PTF Output parameters.
   The parameter dexcthr is not supported for modifiers HOVC4 and HOSTS1.
   Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
   Type: integer
   Range (as exponents of 10): –3; –4; –5.
   Default: –3.

6. exphptrc - Expected HP trace identifier
   This parameter specifies the Expected Higher Order Path Trace Identifier (J1). The first byte value shall be in the range from 80 to FF (MSB always set to 1). The other byte values shall be in the range from 00 to 7F (MSB always set to 0). This parameter is only useful if ptrcrfmt is set to 16.
   Type: hexadecimal number without a preceeding 'H'.
   Range: length: 32 hexadecimal digits; value:specific string acc. ITU/ETSI mode 1.
   Default: 89000000000000000000000000000000
7. feppm - Far End Path PM Enable
   The parameter *feppm* specifies whether the performance monitoring for the far end is enabled or disabled for this tributary.
   This parameter shall be omitted for PTF entities which have been created due to a substructured SONET/SDH signal.
   Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
8. hptimais - HP Trace Identifier Mismatch AIS Insertion
   The parameter *hptimais* shall specifies if a detected TIM will cause AIS insertion. This parameter is relevant only if the related trace read format ptrcrfmt is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE.

   Default: The default value depends on interface standard specified by *ptfstd* for the PTF tributary. DISABLE, if *ptfstd*=SONET
9. hptimmon - HP Trace Identifier Mismatch Monitor
   This parameter specifies if the mode of the TIM detection. This parameter is relevant only if the related trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).

10. inputsig - Tributary Input Signal Rate List
    The parameter inputsig shall specify the input LO signal structure. The parameter inputsig is only supported for modifiers HOVC4 and HOSTS1.
    Option: If the parameter inputsig is not supported, then the parameter shall be omitted.
    Type: numeric value set.
    Range: NX-NX-...
    N is the number of Xs. X can be 3, 12, or 11 representing VC3, VC12 or VT1.5.
    The possible values (SDH) are: 6312 (default),13-4212, 2112-13-2112, 4212-13, 23-2112, 13-2112-13, 2112-23, 33
    The possible values (SONET) are: 2811
11. neppm - Near End Path PM Enable
    This parameter specifies whether the performance monitoring for the near end is enabled or disabled for this tributary.
    This parameter shall be omitted for PTF entities which have been created due to a substructured SONET/SDH signal.
    Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
12. pmhpfeses - PM HP Far End SES Threshold
    This parameter specifies the Higher Order Path Far End Severely Errored Seconds Performance Monitioring Threshold for errored frames. If errored frames are crossing this threshold this will result in an SES count for the far end. The behaviour depends on interface standard specified by *ptfstd* for the PTF tributary. If *ptfstd* is not set to SDH then *pmhpfeses* has no affect to NE behaviour.
    This parameter shall be omitted for PTF entities which have been created due to a substructured SONET/SDH signal.
    Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
    Type: integer.
    Range: 1, 2, 3, ..., 63998, 63999, 64000. Includes SDH/SONET range.
    Default: 2400
13. pmhpneses - PM HP Near End SES Threshold
    This parameter specifies the Higher Order Path Near End Severely Errored Seconds Performance Monitioring Threshold for errored frames. If errored frames are crossing this threshold this will result in an SES count for the near end. The behaviour depends on interface standard specified by *ptfstd* for the tributary. If

ptfstd is not set to SDH then pmhpneses has no affect to NE behaviour.
This parameter shall be omitted for PTF entities which have been created due to a substructured SONET/SDH signal.
Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
Type: inteteger.
Range: 1, 2, 3, ..., 63998, 63999, 64000. Includes SDH/SONET range.
Default: 2400

14. ptca - Path TCA Profile Pointer
    This parameter specifies the name of the threshold crossing alert (TCA) profile used for this tributary.
    This parametershall be omitted for PTF entities which have been created due to a substructured SONET/SDH signal.
    Type: alphanumeric value set.
    Range: 1 ... 24 characters.
    Default: DEFAULT0
15. ptfstd - Path Termination Standard
    Standard of the tributary with Path Termination Function. This is currently a read-only parameter.
    Type: alphanumeric value set.
    Range:
    - SDH (only if modifier=HOVC4)
    - SONET (only if modifier= STS or HOSTS1)

    Default:
    - SDH (if modifier=HOVC4)
    - SONET (if modifier= STS or HOSTS1).
16. ptpn - Path Terminating ASA Profile Name
    This parameter points to a tributary ASAP profile name pfname for the designated AID.
    Type: alphanumeric value set. A hyphen (-) is additionally allowed in the name.
    Range: 1 ... 24 characters
    Default: DEFAULT
17. ptrcrfmt - Path Trace Read Format
    The parameter *ptrcrfmt* shall specify the format of the path trace (J1 byte) to be received (sink).
    Type: numeric string
    Range:
    - 2 (default): for non-specific repeating byte
    - 16: for 16 byte specific string
    - 64: for 64 byte string.

18. ptrcwfmt - Path Trace Write Format
    The parameter ptrcwfmt shall specify the format of the path trace (J1 byte) to be sent (source).
    Type: numeric string
    Range:
    - 2: for non-specific repeating byte
    - 16: for 16 byte specific string
    - 64: for 64 byte string.

    Default: 2.
19. sdsfmode - Signal Degrade/Signal Fail Mode
    This parameter specifies the determination mode of degraded defect for transmission. The parameter sdsfmode is not supported for modifiers HOVC4 and HOSTS1.
    Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
    Option: If the parameter sdsfmode is not supported, then the parameter shall be omitted.
    Type: alphanumeric value set.
    Range: BURST, POISSON
    Default: The default value depends on interface standard specified by *ptfstd* for the tributary. POISSON, if *ptfstd*=SONET.
20. tcamd - TCA mode
    Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
21. tmonmd - Tributary Monitoring Mode
    This parameter specifies the monitoring mode for the tributary.
    Type: alphanumeric value set.
    Range: MON, NMON (default).
22. trc - Outgoing Path Trace
    This parameter specifies the path trace (J1) to be sent (source). For the 16 byte path trace format the following syntactical rule shall be applied: The first byte value shall be in the range from 80 to FF (MSB always set to 1). The other byte values shall be in the range from 00 to 7F (MSB always set to 0). This parameter is irrelevant if the format is non-specific repeating byte (ptrcwfmt=2).
    Type: hexadecimal number without a preceeding H'.

Range: the range depends on the parameter ptrcwfmt specified in RTRV-PTF Output parameters

- length: 32 hexadecimal digits, if *ptrcwfmt*=16; 128 hexadecimal digits, if *ptrcwfmt*=64
- value: specific string string acc. ITU/ETSI mode 1 if *ptrcwfmt*=16; 64 byte string if *ptrcwfmt*=64

Default: 00. This implies also that *ptrcwfmt* is set to 2.

23. tslmmon - Trail Signal Label Mismatch Monitor
    The parameter tslmmon shall specify the mode of the TSL mismatch detection.
    Type: alphanumeric value set.
    Range: DISABLE, ENABLE (default).
24. unequiposig - Unequipped Output Signal List
    The parameter unequiposig shall specify the output LO signal structure, independent whether the signal is connected or not. The parameter unequiposig is only supported for modifiers HOVC4 and HOSTS1.
    Option: If the parameter unequiposig is not supported, then the parameter shall be omitted.
    Type: numeric value set.
    Range: NX-NX-...
    N is the number of Xs. X can be 3, 12, or 11 representing VC3, VC12 or VT1.5.
    The possible values (SDH) are: 6312 (default),13-4212, 2112-13-2112, 4212-13, 23-2112, 13-2112-13, 2112-23, 33
    The possible values (SONET) are: 2811.

Example output

```
   LT-UNITE 00-11-01 08:00:00
M  123456 COMPLD
   "TIME=11-10-30,DATE=00-11-11:ENT-PTF-STS:
   1-1-#-#-21-4-1::brstintvl=7,brstthr=30,crslbkstat=NO,
   degthr=-6,dexcthr=-3,hptimais=DISABLE,exphptrc=
   89000000000000000000000000000000,hptimmon=DISABLE,
   ptpn=DEFAULT,ptrcrfmt=1,ptrcwfmt=1,sdsfmode=BURST,
   tmonmd=NMON,trc=00,tslmmon=ENABLE"
;
```

□

ENT-ROLL: Enter roll

The ENT-ROLL-*modifier* command can be initiated by a user to roll the input of a cross-connection from a given tributary to another tributary while leaving the output unchanged. The ENT-ROLL command can be modelled by a DLT-CRS (deleting the existing cross-connection) followed by a ENT-CRS (establishing the new cross-connection according to the specified new input-tributary). This also holds for path-protected cross-connections for which the input of one of the legs can be rolled via the ENT-ROLL command, while leading the output of the path selector unchanged.

The tributary to which the roll cross-connection is to be established does not need to be free of alarms/failure conditions – no check in advance will be made. The cross-connection will thus be established also in case of AIS-P, LOP-P, UNEQ etc. as is the case with a normal ENT-CRS command as well.

The *modifier* in the ENT-ROLL command indicates the cross-connection rate of the tributary for which the command is applied to. There is no difference if the rate is specified as a SONET rate (STS1, STS3,..) or as SDH-rate (VC3, VC4,..) for the deleting of the old and establishing of the new cross-connection i.e. the ENT-ROLL-<*sonet-rate*> yields to the same physical and logical behavior as ENT-ROLL-<*sdh-rate*>.

No check is made if the *modifier* matches the interface-standard of the port i.e. if the port is provisioned as SONET (resp. SDH) and the rate is a SONET (resp. SDH) rate.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Priority: 3

Abortable: No

Input format

Command Syntax: `ENT-ROLL-`*modifier*:*tid*:*in_aid*,*out_aid*:*ctag*:::*spec_block*;

Input parameters

Command parameters

1. modifier
   This parameter indicates the cross-connection on which the ENT-ROLL command acts on.
   For detailed description please refer to the “RTRV-CRS: Retrieve cross-connection” (p. 4-1649) command.
   Type: Alphanumeric value set.

Range (SDH):

- VC3
- VC4
- VC44C
- VC416C
- VC464C

Range (SONET):

- STS1
- STS3
- STS12
- STS48
- STS192.

No use of the `all` value is allowed.

2. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
3. in_aid – Input Access Identifier
   This parameter specifies the source of the cross-connection.
   For a detailed description please refer to the in_aid output parameter in "RTRV-CRS: Retrieve cross-connection" (p. 4-1649).
   Type: GenTribAID.
   Range: No use of the `all` or `usall` or `vall` values within the in_*aid* are allowed.
4. out_aid – Output Access Identifier
   This parameter specifies the tributary which is the sink of the cross-connection.
   For a detailed description please refer to the out_aid output parameter in "RTRV-CRS: Retrieve cross-connection" (p. 4-1649).
   Type: GenTribAID.
   Range: No use of the `all` or `usall` or `vall` values within the *in_aid* shall be allowed.
5. ctag – Correlation Tag
   See defintion of *ctag* in "RTRV-HDR: Retrieve header" (p. 4-1736).

Spec block parameters

1. newinaid – New Input Access Identifier
   This parameter specifies the source of the new cross-connection to be established after the existing one is deleted.
   Type: STS1NumAID (when using OPn packs) or VCGNumAID (when using GEn).
   Range: n. a.
   No use of the `all`, `vall` or `usall` values within the *newinaid* is allowed.
2. newloca – New Location-a
   This parameter specifies the new source TID if the *newinaid* is in a BLSR protection group.
   loca (location-a) specifies the TID of the node at which service is added to the BLSR. This parameter is required for BLSR THROUGH, INTER-BLSR and DROP connections. The *loca* parameter value is an empty string for ADD and non-BLSR connections.
   A 2way cross-connection is considered to be a DROP if the out_aid is a non BLSR tributary. The figure "2-way scenario" (p. 4-1661)in RTRV-CRS section (the 3 NEs should be seen as part of an BLSR) depicts the 2way scenario.
   Inter ring cross-connections with collapsed node: Note that beside the above described THROUGH case there can be also another situation where both *loca* and *locz* are different from the empty string: If two rings are interconnected in a collapsed node then *loca* refers to the (add-node of the) ring where the signal is dropped from, and *locz* refers to the (drop-node of the) ring where the signal is added to. In such cases the cross-connection cannot be provisioned as bidirectional, thus the information is still unambiguous.
   A note to the loca2 parameter: Although *loca2* (Location-a-2) is a parameter which is used in the ENT-CRS command, *loca2* is not retrieved explicitly. This is due to the fact that for path-protected cross-connections - and only for those this *loca2* is applicable - the retrieval will be on a leg-basis and not on a leg-pair basis. In other words: If a path-protected cross-connection is retrieved two entries will be sent, one for the working leg (incl. the *loca* and *locz* parameter) and one for the protection leg (incl. the *loca* parameter and the same *locz* parameter, and in this case the *loca* returned is the *loca2* as entered when establishing the path-protected cross-connection).
   The parameter *loca* is also required for EXTRA TRAFFIC connections. (In contrast to incoming references from other commands to this whole chapter it is exclusively applicable for the command RTRV-CRS.)
   For extra traffic the value will be generated automatically and thus it is only retrievable. For information about the automatic generation of *loca* refer to the parameter *sqfa*.
   For lower-order cross-connections the parameter *loca* is the TID of that ring node in the direction towards the specified input tributary (upstream), where the HO path termination source function resides. If there is no such function in an upstream ring node then *loca* is the TID of the node where the related HO circuit is first added to the ring.

The picture "Lower-order cross-connections" (p. 4-1661)in RTRV-CRS section shows an example of a LO path through a part of a ring. The LO path is added to/dropped from the ring in NE-1 and NE-2. 2-way cross-connections are considered to be either an Add or a Drop connection depending whether the input or the output tributary is at the ring port.
In NE-3 there is a HO through connection, which contains the LO path. In NE-3 there is no HO path termination. In NE-4 there is a LO through connection. Consequently, there are HO path terminations in NE-4.

The fact that *loca* refers to the HO path terminations has the following consequences:

- All LO cross-connections through the same HO path termination at the MSSPRING port have the same *loca* value.
- Any LO through-connection will be treated as add/drop. *loca* will identify the node of the through connection, and not the node where the LO service is added to the ring.

Type: TID or empty-string
Range: Please refer to the TID definition in the RTRV-HDR description
Default: empty string: ""

3. newppgname – New Path protection group Name
   This parameter specifies the name of the new path protection group. This parameter is applicable if a leg of a path-protected cross-connection is rolled – the parameter in this case is optional and if not entered the default is used. For non path-protected cross-connection this parameter does not apply and is omitted.
   Note: Storage and retrieval of the ppgname is case sensitive, but the actual use of the ppgname to determine the corresponding protection group is case insenitive.
   Default: NULL
4. xcappl – cross-connection Application
   This parameter indicates one of the application that are supported for a compound cross-connection topology. This parameter is optional – if not entered the default is used.
   The parameter is not further processed in the NE, but only stored (when establishing or modifying the cross-connection) and returned when retrieving the cross-connection.
   Type: numerical value set
   Range: 0 (default), 1, 2.., 255
5. xcnum – cross-connection Number
   This parameter identifies each cross-connection leg in a specific compound cross-connection topology. This parameter is optional – if not entered the default is used.
   Like the *xcappl* parameter the *xcnum* parameter is not further processed in the NE, but only stored (when establishing or modifying the cross-connection) and returned when retrieving the cross-connection. It may be used by a manager to characterize and group cross-connections belonging to complex crossconnection topology (e.g.

compound crossconnections as used in Ring Interworking scenarios)
Type: numeric value set (9 digit)
two digits for the bay, one digit for the shelf, two digits for the slot, one digit for the port, and three digits for the trib (where the digits values pertain to out_aid)
Range: 000000000 (default).. 999999999

Output format

If the ENT-Roll command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

Behavior

Because the ENT-ROLL can be understood as a sequence consisting of a DLT-CRS operation followed by an ENT-CRS operation there does not exists a (separate) ENT-ROLL notification. Instead a DLT-CRS notification is sent, followed by an ENT-CRS notification. Furthermore additionally an ED-CRS notification is triggered by the ENT-ROLL command, when the *repleg* status is altered. Refer also to the section "DLT-CRS: Delete cross-connection" (p. 4-97) and "ENT-CRS: Enter cross-connection" (p. 4-1026) behavior.

Transaction behavior

For the ENT-ROLL command a validation is performed before the COMPLD is returned. This means it has to be checked if the DLT-CRS (using the validation rules as stated in the DLT-CRS section) as well as the following ENT-CRS (by using the validation rules as stated in the ENT-CRS section) can be performed successfully, BEFORE the command is executed. With this approach it is guaranteed that the command either is rejected or succeeds as a whole by executing the deletion- AND the entering-operation.

Updated affected entities: 1-way, 2-way cross-connection

Refer to the section *Detailed behavior description* of the "ENT-CRS: Enter cross-connection" (p. 4-1026) and "DLT-CRS: Delete cross-connection" (p. 4-97) commands for the affected entities.

Updated affected entities: path-protected cross-connection

If one leg of path-protected cross-connection is rolled, the following updates takes place:

1. The path-protected cross-connection instance is deleted and this is notified via one DLT-CRS notification.
2. Two legs composing the path-protected XCs are created and this is notified via ENT-CRS notification. The initial values for the cross-connection legs are derived from:
   - the data of the deleted leg not specified in the roll request
   - the data as specified in the roll request; i.e. for the rolled leg the attributes: *loca*,*xcappl*, *xcnum*.
3. The attribute *wkg* (if worker leg is rolled) or *protn* (if protection leg is rolled) are updated (gets the value of the new input trib) for the associated path protection group. If in addition a new value for *ppgname* is specified, then the corresponding protection group is updated accordingly. These updates are reported by means of a ED-PROTN-GRP notification.

For details on protection group and the related notifications please refer to the protection group section.

Deletion of the leg non-affected by the roll command is needed, since also the *in_aid2* attribute for this leg is changed. Attribute *in_aid2* is considered as part of the key/identifier for the leg itself, and therefore the deletion and creation sequence is the only approach in order to notify the performed DB changes.

Identification of VCG Tributaries

The system shall allow to roll cross-connections at VCG tributaries using the AID format of an AU-3/STS-1 Tributary. I.e. the VCG number specified in the port field of the AID shall be allowed with or without the leading ″v″.

Example input/output

Example 1:

Suppose the following existing non-BLSR 1-way vc3-cross-connection

1-1-#-#-1-1-3 → 1-1-#-#-5-1-17

shall be rolled to

1-1-#-#-2-1-3 → 1-1-#-#-5-1-17

also being a non-BLSR cross-connection. This would be accomplished via:

```
ENT-ROLL-VC3:UNITE-NE:1-1-#-#-1-1-3,1-1-#-#-5-1-17:123456:::newinaid=1-1
     -#-#-2-1-3;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
;
```

Example 2:

Suppose the following existing non-BLSR 1-way vc3-cross-connection:

1-1-#-#-1-1-3 → 1-1-#-#-5-1-17

shall be rolled to:

1-1-#-#-2-1-3 → 1-1-#-#-5-1-17

with the new tributary being involved in a BLRS protection group. This would be accomplished via:

```
ENT-ROLL-VC3:UNITE-NE:1-1-#-#-1-1-3,1-1-#-#-5-1-17:123456:::newinaid=1-1
     -#-#-2-1-3,newloca=BLSR-pprot-name;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
;
```

Example 3:

Suppose the following vc4 path-protected cross-connection exists:

worker-leg: 1-1-#-#-1-1-1→ 1-1-#-#-5-1-1

protection leg: 1-1-#-#-2-1-1 → 1-1-#-#-5-1-1

The worker leg now shall be rolled towards the new in_aid: 1-1-#-#-3-1-1:

This would be accomplished via:

```
ENT-ROLL-VC4:UNITE-NE:1-1-#-#-1-1-1,1-1-#-#-5-1-1:123456:::newinaid=1-1-
     #-#-3-1-1;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
;
```

Error responses

The rolling of a crossconnection can be conceptually understood as the removal of one crossconnection leg followed by the establishment of a new crossconnection leg, with the restriction that the logical output tributary of both legs is the same. Therefore the vaildation rules for the ENT-ROLL command are as specified in the DLT-CRS section and the ENT-CRS.

This means that if the ENT-ROLL command would fail to meet a criteria as specified in the DLT-CRS section the same command denial would be the consequence. In an anolg way if the ENT-ROLL command would fail to meet a criteria as specified in the ENT-CRS section the same command denial would be the consequence.

Related TL1 messages

- "DLT-CRS: Delete cross-connection" (p. 4-97)
- "ED-CRS: Edit cross-connection" (p. 4-213)
- "ENT-CRS: Enter cross-connection" (p. 4-1026)
- "RTRV-CRS: Retrieve cross-connection" (p. 4-1649)

References

GR-199-CORE

□

ENT - STM1E notification

Output format

The ENT-STM1E notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ENT-STM1`*:aid::spec_block*

Output parameter

Command parameters

1. aid – Access Identifier
   Access Identifier of STM1 port.
   Type: AID.
   Range: SPortAID of STM1E port.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....255
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the Tributary Input Rate Signal List.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 3, or 4 representing VC3 or VC4.

5. degthr – Signal Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
6. dexcthr – Excessive Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
7. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
8. femspm – Far-end Multiplex Section PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
9. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU

10. fsflpbkstat – Far Side Facililiy Loopback Status
    This parameter specifies the current far-side facility loopback status of the considered output *aid.*
    A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
    Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
11. inputsig – Tributary Input Signal Rate List
    This parameter is a list of VCn rates across the port's bandwidth.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3 or 4 representing VC3 or VC4.
    Default: 14.
12. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter istddflt.
    Type: alphanumeric value set.
    Range: SDH.
    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
13. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
14. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC416C (default), VC44C, VC4, VC3.

15. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC3 (default), VC4, VC44C, VC416C.
16. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
17. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
18. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN. If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″

19. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborPortID is introduced specifically for use by NN application.
    Type: Four dash separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0-0-0-0.
    Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.
20. nemspm – MS Near-End PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set
    Range: ENABLE, DISABLE
21. pmmsfeses – Performance Monitoring MS Far-End SES Threshold
    This parameter describes the Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) per second to declare a second as severly errored.
    Type: numeric value set.
    Range: STM1: 1 – 192000.
    Default: for STM1: 28800.
22. pmmsneses – Performance Monitoring MS Near-End SES Threshold
    This parameter describes the Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) per second to declare a second as severly errored.
    Type: numeric value set.
    Range: STM1: 1 – 192000.
    Default: for STM1: 28800.
23. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.

24. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) per second to declare a second as severly errored.
    Type: numeric value set.
    Range: 1 – 64000.
    Default: for STM1: 2400.
25. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(sedault) ...25. The unit of this value is ″milliseconds″.
26. rsmstca – RS/MS TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
27. rspm – RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
28. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimca shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE (default): enable consequent action for TIM
    - DISABLE: disable consequent action for TIM.
29. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.

Range:

- ENABLE: enable TIM Monitor
- DISABLE (default): disable TIM Monitor

30. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET ASAP for the SONET ports of corresponding line rate (see definition of output parameter SONET in RTRV-OC12) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
31. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON.
32. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
33. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    srlgList is introduced specifically for use by ONNS application. The order of the three identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only one or two identities are provisioned, the remaing one shall be set to the default value 0, e.g. 3-0-0.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0.

34. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
35. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
36. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
37. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.

Two thresholding methods are applicable:

- TR-only (lso known as the implicit reset method)
- TR-RTR (lso known as the explicit reset method).

Type: alphanumeric value set.
Range: TR or TRRTR (default).

38. unequiposig – Unequipped Output Signal List
    This parameter is a list of VCn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need the identical setting. Mixed rates for tx and rx side of the port are allowed.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3 or 4 representing VC3 or VC4.
    Default: 14.

Example input/output

```
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ENT-STM1E:1-1-#-#-1-1::servcond=DISABLE,inputsig=14
;
```

□

ENT-STM1 notification

Output format

The ENT-STM1 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ENT-STM1`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID.
   Range: SPortAID of STM1 port.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....255
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the Tributary Input Rate Signal List .
   Type: numeric value set
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 3 or 4 representing VC3 or VC4.

5. degthr – Signal Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
6. dexcthr – Excessive Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –3; –4; –5.
   Default: –3.
7. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
8. femspm – Far-end Multiplex Section PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
9. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU

10. fsflpbkstat – Far Side Facililiy Loopback Status
    This parameter specifies the current far-side facility loopback status of the considered output *aid.*
    A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
    Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
11. inputsig – Tributary Input Signal Rate List
    This parameter is a list of VCn rates across the port's bandwidth.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3 or 4 representing VC3 or VC4.
    Default: 14.
12. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET.
    Type: alphanumeric value set.
    Range: SONET, SDH.
    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
13. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
14. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC4 (default), VC3.

15. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC3 (default), VC4.
16. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
17. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
18. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN. If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection. *neighborNodeID* is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″

19. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN. If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection. *neighborPortID* is introduced specifically for use by ONNS application.
    Type: Four dash separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0-0-0-0.
    Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.
20. nemspm – MS Near-End PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
21. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-1/OC-3: 1 – 192000

    Default: The default values differ for SDH and SONET:
    - STM1: 28800
    - OC3: 154.
22. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.

Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

- STM-1/OC-3: 1 – 192000

Default: The default values differ for SDH and SONET and the different rates:

- STM1: 28800
- OC3: 154.

23. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
24. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000
    Default: The default values differ for SDH and SONET and the different rates:
    - STM 1: 2400
    - OC3: 155
25. portClass – Port Class
    This identifies the port class of the AID.
    portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.
26. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
    portControl is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.

27. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(default) ...255. The unit of this value is ″milliseconds″.
28. rsmstca – RS/MS TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
29. rspm – RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
30. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimca shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE (default): enable consequent action for TIM
    - DISABLE: disable consequent action for TIM.
31. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter *portClass* is set to INNI and *ndetmd* is set to AUTO, the parameter *rstimmon* shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor

32. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET ASAP for the SONET ports of corresponding line rate (see definition of output parameter SONET in RTRV-OC12) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
33. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON.
34. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
35. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    srlgList is introduced specifically for use by ONNS application. TThe order of the identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only less than the max. number of identities are provisioned, the remaining ones shall be set to the default value 0, e.g. 3-2-1 given yields 3-2-1-0-0-0-0-0-0-0, if the max number that can be given is 10.
    Type: Ten numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0-0-0-0-0-0-0-0.
36. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string

Range:

- 1: for specific repeating byte (SONET)
- 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
- 16: for 16 byte specific string (ITU/ETSI mode 1).
- 64: for 64 byte string (SONET).

37. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string dependent on the strcwfmt parameter.

    Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
38. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
39. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.

Two thresholding methods are applicable:

- TR-only (lso known as the implicit reset method)
- TR-RTR (lso known as the explicit reset method).

Type: alphanumeric value set.
Range: TR or TRRTR (default).

40. unequiposig – Unequipped Output Signal List
    This parameter is a list of VCn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need the identical setting. Mixed rates for tx and rx side of the port are allowed.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3 or 4 representing VC3 or VC4.
    Default: 14.

Example output

```
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ENT-STM1:1-1-#-#-1-1::servcond=DISABLE,inputsig=14,
;
```

□

ENT-STM4 notification

Output format

The ENT-STM4 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ENT-STM4`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID.
   Range: SPortAID of STM-4 port.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....255
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the Tributary Input Rate Signal List.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 3, 4 or 4C representing VC3, VC4 or VC4-4C

5. degthr – Signal Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
6. dexcthr – Excessive Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –3; –4; –5.
   Default: –3.
7. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
8. femspm – Far-end Multiplex Section PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
9. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU

10. fsflpbkstat – Far Side Facililiy Loopback Status
    This parameter specifies the current far-side facility loopback status of the considered output *aid.*
    A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
    Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
11. inputsig – Tributary Input Signal Rate List
    This parameter is a list of VCn rates across the port's bandwidth.
    Type: numeric value set.
    Range: NX-NX-NX-...
    N is the number of Xs. X can be 3, 4 or 4C representing VC3, VC4 or VC4-4C.
    Default: 44.
12. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter istddflt.
    Type: alphanumeric value set.
    Range: SONET, SDH.
    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
13. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
14. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC44C (default), VC4, VC3.

15. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC3 (default), VC4, VC44C.
16. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
17. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
18. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN. If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″

19. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborPortID is introduced specifically for use by NN application.
    Type: Four dash separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0-0-0-0.
    Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.
20. nemspm – MS Near-End PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
21. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-4/OC-12: 1 – 768000.

    Default: The default values differ for SDH and SONET:
    - STM4: 115200
    - OC12: 615.
22. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.

Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

- STM-4/OC-12: 1 – 768000.

Default: The default values differ for SDH and SONET and the different rates:

- STM4: 115200
- OC3: 615.

23. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
24. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000.
    Default: The default values differ for SDH and SONET and the different rates:
    - STM4: 2400
    - OC12: 616.
25. portClass – Port Class
    This identifies the port class of the AID.
    portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.
26. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
    portControl is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.

27. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(default) ...255.
28. rsmstca – RS/MS TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
29. rspm – RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
30. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimca shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE (default): enable consequent action for TIM
    - DISABLE: disable consequent action for TIM.
31. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor

32. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET ASAP for the SONET ports of corresponding line rate (see definition of output parameter SONET in RTRV-OC12) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
33. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON.
34. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
35. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    srlgList is introduced specifically for use by ONNS application. The max. number of identities that can be provisioned per port may be release dependent. The order of the identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only less than the max. number of identities are provisioned, the remaining ones shall be set to the default value 0, e.g. 3-2-1 given yields 3-2-1-0-0-0-0-0-0-0, if the max number that can be given is 10.
    Type: Ten numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0-0-0-0-0-0-0-0.
36. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string

Range:

- 1: for specific repeating byte (SONET)
- 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
- 16: for 16 byte specific string (ITU/ETSI mode 1).
- 64: for 64 byte string (SONET).

37. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
38. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
39. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.

Two thresholding methods are applicable:

- TR-only (lso known as the implicit reset method)
- TR-RTR (lso known as the explicit reset method).

Type: alphanumeric value set.
Range: TR or TRRTR (default).

40. unequiposig – Unequipped Output Signal List
    This parameter is a list of VCn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need the identical setting. Mixed rates for tx and rx side of the port are allowed.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3, 4 or 4C representing VC3, VC4 or VC4-4C.
    Default: 44.

Example output

```
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ENT-STM4:1-1-#-#-1-1::servcond=DISABLE,inputsig=44,
;
```

□

ENT-STM16 notification

Output format

The ENT-STM16 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ENT-STM16`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Access Identifier of STM16 port.
   Type: AID.
   Range: SPortAID of STM16 port.
   The keyword `all` is not allowed.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....65535
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.

4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the Tributary Input Rate Signal List.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 3, 4, 4C or 16C representing VC3, VC4, VC4-4C or VC4-16C.
5. degthr – Signal Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
6. dexcthr – Excessive Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –3; –4; –5.
   Default: –3.
7. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
8. femspm – Far-end Multiplex Section PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
9. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.

Range:

- ENABLE , set a forced DUS/DNU
- DISABLE (default), clear a forced DUS/DNU

10. fsflpbkstat – Far Side Facililiy Loopback Status
    This parameter specifies the current far-side facility loopback status of the considered output *aid.*
    A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
    Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
11. inputsig – Tributary Input Signal Rate List
    This parameter is a list of VCn rates across the port's bandwidth.
    Type: numeric value set.
    Range: NX-NX-NX-...
    N is the number of Xs. X can be 3, 4, 4C or 16C representing VC3, VC4, VC4-4C or VC4-16C.
    Default: The initial value of X is 4.
    Example:
    An STM-16 signal might be represented by 93-14-14C-243 which implies 9 VC3s, 1 VC4, 1 VC4-4C, 24 VC3s. The representation is not unique, for example it could also be 33-63-14-14C-243. Worst case of string length for STM16: 47 characters.
12. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter istddflt.
    Type: alphanumeric value set.
    Range: SDH.
    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
13. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.

Range:

- YES
- NO (default).

14. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC416C (default), VC44C, VC4, VC3.
15. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC3 (default), VC4, VC44C, VC416C.
16. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
17. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.

18. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN. If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″
19. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborPortID is introduced specifically for use by NN application.
    Type: Four dash separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0-0-0-0.
    Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.
20. nemspm – MS Near-End PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
21. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.

Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

- STM-16/OC-48: 1 – 3072000
- STM-64/OC-192: 1 – 12288000
- STM-256/OC-768: 1 – 49152000.

Default: The default values differ for SDH and SONET and the different rates:

- STM16: 460800
- STM64: 1843200
- STM256: 7372800
- SONET OC48: 2459
- SONET OC192: 9835
- SONET OC768: 39340.

22. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.
23. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set

Range:

- AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
- MON indicates that alarm monitoring is taking place on the port.
- NMON means that alarm monitoring is not occurring on the port.

24. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
Type: numeric value set.
Range (superset of allowed ranges for SDH and SONET):1 – 64000
Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392
    - SONET OC192: 8554
    - SONET OC768: 22776.
25. portClass – Port Class
This identifies the port class of the AID.
portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
Type: alphanumeric value set.
Range: TRADITIONAL (default), INNI, EDGE.
26. portControl – Port Control (PortAdministrative Mode)
This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
portControl is introduced specifically for use by ONNS application.
Type: alphanumeric value set.
Range: NORMAL (default), LOCKOUT.
27. propagationDelay - Propagation Delay
This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
propagationDelay is introduced specifically for use by ONNS application.
Type: Numeric string
Range: 0(default) ...255.

28. rsmstca – RS/MS TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
29. rspm – RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
30. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0). This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimca shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE (default): enable consequent action for TIM
    - DISABLE: disable consequent action for TIM.
31. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0). This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
32. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET Alarm Severity Assignment Profile for the SONET ports (see definition of output parameter SONET in "RTRV-OC48: Retrieve OC48 port" (p. 4-1894)) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.

33. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON.
34. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
35. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    srlgList is introduced specifically for use by ONNS application. The order of the three identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only one or two identities are provisioned, the remaing one shall be set to the default value 0, e.g. 3-0-0.
    Type: Ten numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0-0-0-0-0-0-0-0.
36. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).

37. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string dependent on the strcwfmt parameter.

    Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
38. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
39. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable:
    - TR-only (lso known as the implicit reset method)
    - TR-RTR (lso known as the explicit reset method).

    Type: alphanumeric value set.
    Range: TR or TRRTR (default).
40. unequiposig – Unequipped Output Signal List
    This parameter is a list of VCn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need the identical setting. Mixed rates for tx and rx side of the port are allowed.

Type: numeric value set.
Range: NX-NX-NX-...
N is the number of Xs. X can be 3, 4, 4C or 16C representing VC3, VC4, VC4-4C or VC4-16C.
Default: 164 = all VC4.

Example output

```
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ENT-STM16:1-1-#-#-1-1::servcond=DISABLE,inputsig
;
```

ENT-STM16T notification

Output format

The ENT-STM16T notification shall use the general format of a REPT DBCHG Report Database Change notification.

Syntax

`ENT-STM16T`*:aid::spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Access Identifier of STM16 port.
   Type: AID.
   Range: SPortAID of STM16 port.
   The keyword `all` is not allowed.

Spec block parameters

1. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
2. exprstrcout - Value of Expected J0 in outgoing direction
   Expected regenerator section trace identifier in outgoing (egress) direction.
   The parameter expstrcout specifying the expected path trace is only relevant for the section trace supervision in outgoing direction when the related trace read format strcfmtout is set to 16 (16-byte-specific-string mode).
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte shall be expressed as two hexadecimal digits (example value: 6D). The first byte value shall be in the range from 80 to FF. The other byte values shall be in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex

3. fsflpbkstat - Far Side Facility Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output *aid.*
   A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
   Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).
4. istd – Interface Standard
   Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter istddflt.
   Type: alphanumeric value set.
   Range: SDH.
   Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
5. lpbk - Loopback
   This parameter specifies the current near-side loopback status of the considered output *aid*.
   A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).
6. pmode – Port Mode
   This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
   Type: alphanumeric value set
   Range:
   - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
   - MON indicates that alarm monitoring is taking place on the port.
   - NMON means that alarm monitoring is not occurring on the port.

7. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
   This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET.
   Type: numeric value set.
   Range (superset of allowed ranges for SDH and SONET):1 – 64000
   Default: The default values differ for SDH and SONET and the different rates:
   - SDH (all rates): 2400
   - SONET OC48: 2392
   - SONET OC192: 8554
   - SONET OC768: 22776.
8. pmrsnesesout - Performance Monitoring Section/RS Near-End SES Threshold in Outgoing Direction
   This parameter describes the Section/RS Near-End SES threshold value for the outgoing (egress) direction. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severly errored. The default value depends on the interface standard and may differ between SDH and SONET.
   Type: numeric value set
   Range (superset of allowed ranges for SDH and SONET): 1 - 64000
   Default:
   The default values differ for SDH and SONET and the different rates:
   - SDH (all rates): 2400
   - SONET OC48: 2392
9. rsmstca – RS/MS TCA Profile Pointer
   Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
   Type: alphanumeric string.
   Range: String with maximum of 24 characters.
   Default: DEFAULT0.
10. rspm - RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).

    For ENT-STM16T Notification this parameter refers to the incoming (ingress) direction.

11. rspmout - RS PM Enable in Outgoing Direction
    Enable or disable regenerator section (section) performance monitoring for the outgoing (egress) direction.
    Type: alphanumeric value set.
    Range: ENABLE, DISABLE (default).
12. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor

    For ENT-STM16T this parameter refers to the incoming (Ingress) direction.
13. rstimmonout - RS TIM Monitor Enable in Outgoing direction
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0) in outgoing (egress) direction. This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set
    Range: ENABLE - enable TIM Monitor, DISABLE (default) - disable TIM Monitor
14. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET Alarm Severity Assignment Profile for the SONET ports to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
15. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
16. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string

Range:

- 1: for specific repeating byte (SONET)
- 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
- 16: for 16 byte specific string (ITU/ETSI mode 1).
- 64: for 64 byte string (SONET).

For ENT-STM16T this parameter refers to the incoming (Ingress) direction.

17. strcfmtout - Format of outgoing J0
    The read format of J0 in outgoing (egress) direction, the outgoing section trace (strcout) and the expected section trace (exprstrcout).
    Type: numeric string
    Range:
    - 1, for specific repeating byte (SONET)
    - 2 (default), for non-specific repeating byte (ITU/ETSI mode 2)
    - 16, for 16 byte specific string (ITU/ETSI mode 1)
    - 64, for 64 byte string (SONET).
18. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable:
    - TR-only (lso known as the implicit reset method)
    - TR-RTR (lso known as the explicit reset method).

    Type: alphanumeric value set.
    Range: TR or TRRTR (default).

Example output

```
   UNITE-NE 00-11-28 08:00:00
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ENT-STM16T:1-1-#-#-1-1::
   servcond=DISABLE,rspm=ENABLE,...,strcwfmt=16:"
;
```

□

ENT-STM64 notification

Output format

The ENT-STM64 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ENT-STM64`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID
   Range: STM-64 port AID

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....65535
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the Tributary Input Rate Signal List.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 3, 4, 4C, 16C or C64 representing VC3, VC4, VC4-4C, VC4-16C or VC-64C.

5. degthr – Signal Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
6. dexcthr – Excessive Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –3; –4; –5.
   Default: –3.
7. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
8. fec – FEC Enable
   Forward Error Correction Enable. Enable to include the FEC information in the outgoing signal.
   Type: alphanumeric value set.
   Range:

   DISABLE (only) for:

   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics
   - OC192 / STM64 low cost intra office 1310nm optics
   - OC768/STM256 basis low cost intra office 1.3m optics.

   ENABLE / DISABLE for:

   - OC192 / STM64 OLS800G compatible 80 colour optics
   - OC768 / STM256 Long Reach / Long Haul 1.5m optics (80km)
   - OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

ENABLE (only)for:

- OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G

Default:

DISABLE for:

- OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
- OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
- OC192 / STM64 Long Reach / Long Haul 1550 nm optics
- OC192 / STM64 low cost intra office 1310nm optics
- OC768/STM256 basis low cost intra office 1.3m optics.

ENABLE for:

- OC192 / STM64 OLS800G compatible 80 colour optics
- OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G
- OC768 / STM256 Long Reach / Long Haul 1.5æ optics with strong FEC (80km)
- OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

9. femspm – Far-end Multiplex Section PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
10. frcdus – Force to DUS
    Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
    Type: alphanumeric value set.
    Range:
    - ENABLE: (set a forced DUS/DNU)
    - DISABLE (default): (clear a forced DUS/DNU).
11. fsflpbkstat – Far Side Facililiy Loopback Status
    This parameter specifies the current far-side facility loopback status of the considered output *aid*.
    A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
    Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
    Type: alphanumeric value set.

Range:

- YES
- NO (default).

12. inputsig – Tributary Input Signal Rate List
    This parameter is a list of VCn rates across the port's bandwidth.
    Type: numeric value set.
    Range: NX-NX-NX-...
    N is the number of Xs. X can be 3, 4, 4C, 16C or C64 representing VC3, VC4, VC4-4C, VC4-16C or VC4-64C.
    Default: 644.
13. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter istddflt.
    Type: alphanumeric value set.
    Range: SDH.
    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
14. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
15. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC464C (default), VC416C, VC44C, VC4, VC3.
16. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC3 (default), VC4, VC44C, VC416C, VC464C.

17. msrei – MS-REI mode
    Definition: An special extended MS REI mode is standardized for STM64/OC192 interfaces. To support the interworking with older STM64/OC192 interfaces the single byte mode (non-extended) should also be supported.
    Type: alphanumeric value set.
    Range:
    - SINGLE
    - EXTENDED (default).
18. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
19. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
20. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN. If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″

21. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborPortID is introduced specifically for use by NN application.
    Type: Four dash separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0-0-0-0.
    Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.
22. nemspm – MS Near-End PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
23. och – optical channel enable
    Enable or disable of the optical channel. If the optical channel is disabled the further optical channel parameters don't have any impact on transmission.
    Type: alphanumeric value set.
    Range:
    - for OP10 packs, which support to enable or disable OCH: ENABLE: enable optical channel; DISABLE: disable optical channel
    - for OP10 and OP40 packs, which cannot support OCH: DISABLE: disable optical channel
    - for OP10 and OP40 packs, which only support OCH: ENABLE: enable optical channel.

    Default:
    - for OP10 and OP40 packs, which cannot support OCH: DISABLE
    - for OP10 packs, which cannot support OCH: ENABLE
    - for OP10 and OP40 packs, which only support OCH: ENABLE.

24. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.
25. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.

26. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
27. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000
    Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392
    - SONET OC192: 8554
    - SONET OC768: 22776.
28. polynomial - Optical Channel Scrambling Polynomial
    This parameter is used by the Wavewrapper scrambler on the optical channel. This parameter is relevant only if the optical channel is enabled (och == ENABLE).
    Type: numeric value set.
    Range: 1x7 + x + 1; 2x16 + x12 + x3 + x + 1.
    Default: 2.
29. portClass – Port Class
    This identifies the port class of the AID.
    portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.
30. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.

Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
portControl is introduced specifically for use by ONNS application.
Type: alphanumeric value set.
Range: NORMAL (default), LOCKOUT.

31. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(default) ...255.
32. rsmstca – RS/MS TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
33. rspm – RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
34. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimca shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE (default): enable consequent action for TIM
    - DISABLE: disable consequent action for TIM.
35. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.

Range:

- ENABLE: enable TIM Monitor
- DISABLE (default): disable TIM Monitor

36. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET Alarm Severity Assignment Profile for the SONET ports (see definition of output parameter SONET in "RTRV-OC192: Retrieve OC192 port" (p. 4-1916)) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
37. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON.
38. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
39. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    srlgList is introduced specifically for use by ONNS application. The order of the three identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only one or two identities are provisioned, the remaing one shall be set to the default value 0, e.g. 3-0-0.
    Type: Ten numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0-0-0-0-0-0-0-0.

40. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
41. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string dependent on the strcwfmt parameter.

    Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
42. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
43. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.

Two thresholding methods are applicable:

- TR-only (lso known as the implicit reset method)
- TR-RTR (lso known as the explicit reset method).

Type: alphanumeric value set.
Range: TR or TRRTR (default).

44. trbmd – Tributary mode
    If *trbmd* is FIXED, then *inputsig* constrains the cross-connection rates that can be entered for the port. If *trbmd* is ADAPTIVE, then input *inputsig* has no effect.
    Type: alphanumeric value set.
    Range: ADAPTIVE, FIXED.
    Default: The initial value is defined as the *trbmddflt* parameter on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720) command.
45. unequiposig – Unequipped Output Signal List
    This parameter is a list of VCn rates across the port's bandwidth. It determines the rate(s) of the *unequipped* signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need the identical setting. Mixed rates for *tx* and *rx* side of the port are allowed.
    Type: numeric value set.
    Range: NX-NX-NX-...
    N is the number of Xs. X can be 3, 4, 4C, 16C or C64 representing VC3, VC4, VC4-4C, VC4-16C or VC4-64C.
    Default: 644 = all VC4.

Example output

```
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ENT-STM64:1-1-#-#-1-1::
   servcond=DISABLE,och=DISABLE,inputsig=644,...,
   unequiposig=644,fec=DISABLE,feccor=DISABLE,
   fectype=INBAND"
;
```

□

ENT-STM256 notification

Output format

The ENT-STM256 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ENT-STM256`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID.
   Range: STM-256 port AID.

Spec block Parameter

1. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
2. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
3. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the Tributary Input Rate Signal List.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 3, 4, 4C, 16C or C64 representing VC3, VC4, VC4-4C, VC4-16C or VC-64C.
4. degthr – Signal Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.

5. dexcthr – Excessive Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –3; –4; –5.
   Default: –3.
6. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
7. fec – FEC Enable
   Forward Error Correction Enable. Enable to include the FEC information in the outgoing signal.
   Type: alphanumeric value set.
   Range:

   DISABLE (only) for:

   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics
   - OC192 / STM64 low cost intra office 1310nm optics
   - OC768/STM256 basis low cost intra office 1.3m optics

   ENABLE / DISABLE for:

   - OC192 / STM64 OLS800G compatible 80 colour optics
   - OC768 / STM256 Long Reach / Long Haul 1.5æ optics with strong FEC (80km)
   - OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

   ENABLE (only) for:

   - OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G

   Default:

DISABLE (only) for:

- OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
- OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
- OC192 / STM64 Long Reach / Long Haul 1550 nm optics
- OC192 / STM64 low cost intra office 1310nm optics
- OC768/STM256 basis low cost intra office 1.3m optics.

ENABLE / DISABLE for:

- OC192 / STM64 OLS800G compatible 80 colour optics
- OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G
- OC768 / STM256 Long Reach / Long Haul 1.5æ optics with strong FEC (80km)
- OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

8. femspm – Far-end Multiplex Section PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
9. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE: (set a forced DUS/DNU)
   - DISABLE (default): (clear a forced DUS/DNU).
10. fsflpbkstat – Far Side Facililiy Loopback Status
    This parameter specifies the current far-side facility loopback status of the considered output *aid*.
    A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
    Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).

11. inputsig – Tributary Input Signal Rate List
    This parameter is a list of VCn rates across the port's bandwidth.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3, 4, 4C, 16C, C64 representing VC3, VC4, VC4-4C, VC4-16C or VC64C.
    Default: 2564 (all VC4).
12. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter istddflt.
    Type: alphanumeric value set.
    Range: SDH.
    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
13. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
14. nemspm – MS Near-End PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
15. och – optical channel enable
    Enable or disable of the optical channel. If the optical channel is disabled the further optical channel parameters don't have any impact on transmission.
    Type: alphanumeric value set.
    Range:
    - for OP10 packs, which support to enable or disable OCH: ENABLE: enable optical channel; DISABLE: disable optical channel
    - for OP10 and OP40 packs, which cannot support OCH: DISABLE: disable optical channel
    - for OP10 and OP40 packs, which only support OCH: ENABLE: enable optical channel.

Default:

- for OP10 and OP40 packs, which cannot support OCH: DISABLE
- for OP10 packs, which can support OCH: ENABLE
- for OP10 and OP40 packs, which only support OCH: ENABLE.

16. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
Type: numeric value set.

    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:

    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.

17. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
Type: numeric value set.

    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:

    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800

- SONET OC48: 2459
- SONET OC192: 9835
- SONET OC768: 39340.

18. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
19. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000
    Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392
    - SONET OC192: 8554
    - SONET OC768: 22776.
20. rsmstca – RS/MS TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
21. rspm – RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).

22. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimca shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE (default): enable consequent action for TIM
    - DISABLE: disable consequent action for TIM.
23. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
24. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET Alarm Severity Assignment Profile for the SONET ports (see definition of output parameter SONET in "RTRV-OC768: Retrieve OC768 port" (p. 4-1931)) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
25. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON.
26. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.

27. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
28. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
29. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
30. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.

Two thresholding methods are applicable:

- TR-only (lso known as the implicit reset method)
- TR-RTR (lso known as the explicit reset method).

Type: alphanumeric value set.
Range: TR or TRRTR (default).

31. unequiposig – Unequipped Output Signal List
    This parameter is a list of VCn rates across the port's bandwidth. It determines the rate(s) of the *unequipped* signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need the identical setting. Mixed rates for *tx* and *rx* side of the port are allowed.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3, 4, 4C, 16C, C64 representing VC3, VC4, VC4-4C, VC4-16C or VC4-64C.
    Default: 2564 = all VC4.

Example output

```
   UNITE-NE 00-11-28 08:00:30
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ENT-STM256:1-1-#-#-4-1::
   servcond=DISABLE,och=DISABLE,inputsig=2564,...,
   unequiposig=2564,fec=DISABLE,feccor=DISABLE,
   fectype=INBAND"
;
```

□

ENT-STS1 notification

Output format

The ENT-STS1 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ENT-STS1`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   AID of the SONET tributary. The keyword `all` is not allowed on any level.
   Type: AID
   Range: STS1NumAID

Spec block parameters

1. brstintvl – Bursty Interval
   Measurement period for determining bursty errors The setting of this parameter is used when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
2. brstthr – Bursty Error Threshold
   The values are set in percent for the degradation threshold. The setting of this parameter is used when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, 15, 20, 25, 30, … 50.
   Default: 30.
3. crslpbkstat – Cross-connect loopback status
   State of cross- connect loopback.
   Type: alphanumeric value set.
   Range:
   - YES = Cross-connect loopback is provisioned
   - NO (default) = No cross-connect loopback is provisioned.
4. degthr – Signal Degrade Threshold
   The setting of this parameter are used when *sdsfmode*=POISSON
   Type: numeric value set.
   Range (as exponents of 10): –5; –6 (default); –7; –8; –9
5. dexcthr – Excessive Degrade Threshold
   The setting of this parameter are used when *sdsfmode*=POISSON. The values are set as exponent of 10.
   Type: numeric value set.
   Range (as exponent of 10) –3 (default); –4; –5.

6. exphptrc – Expected Path Trace (J1)
   The parameter *exphptrc* specifying the expected path trace is only relevant for the path trace supervision when the path trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex.
7. feppm – Far-End Path PM Enable
   It indicates whether this performance monitoring feature is enabled or disabled.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
8. hptimmon – Path Trace Monitoring Enable (J1)
   Description: High order path trace (J1) identifier mismatch (TIM) monitor enable. This parameter is relevant only if the related trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
9. loca – Ring A-node TID
   This parameter specifies the TID of the node at which the service is added to the BLSR ring. This parameter is required for the input of tributaries to be used by ONNS on ports of *portClass* =EDGE being members in BLSR/MSSPRING protection groups. The *loca* parameter value shall be an empty string for all other tributaries.
   loca is introduced specifically for use related to ONNS application.
   Type: TID or empty-string.
   Range: Please refer to the TID definition in "RTRV-HDR: Retrieve header" (p. 4-1736) description.
   Default: empty string: ″″. This is displayed as \″\″ in output direction.
10. locz – Ring Z-node TID
    This parameter specifies the TID of the node at which the service is dropped from the BLSR ring. This parameter is required for the output of tributaries to be used by ONNS on ports of *portClass*=EDG E being members in BLSR/MSSPRING protection groups. The *locz* parameter value shall be an empty string for all other tributaries.

locz is introduced specifically for use related to ONNS application.
Type: TID or empty-string.
Range: Please refer to the TID definition in the "RTRV-HDR: Retrieve header" (p. 4-1736) description.
Default: empty string: "". This is displayed as \"\" in output direction.

11. neppm – Near-End Path PM Enable
    It indicates whether this performance monitoring feature is enabled or disabled.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
12. pmhpfeses – Performance Monitoring Path Far-End SES Threshold
    This parameter describes the Path Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. When the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of ranges for SDH and SONET): 1-64000.
    Default: 2400.
13. pmhpneses – Performance Monitoring Path Near-End SES Threshold
    This parameter describes the Path Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. When the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of ranges for SDH and SONET): 1-64000.
    Default: 2400.
14. pse – PDI-P Switching Enable
    The PDI-P Switching Enable parameter indicates if the PDI-P contributes to the automatic path protection switch criteria.
    Type: alphanumeric value set
    Range:
    - ENABLE
    - DISABLE (default).
15. ptca – Path TCA Profile Pointer
    Type: alphanumeric string.
    Range: string with up to 24 characters.
    Default: DEFAULT0.
16. ptrcrfmt – Path Trace Read Format (J1)
    The read format of J1, the incoming path trace (*ptrc*).
    Type: numeric string.

Range:

- 2: for non-specific repeating byte
- 16: for 16 byte specific string.
- 64: for 64 byte string.

  Default: 2.

17. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in BURST or POISSON mode.
    Type: alphanumeric value set.
    Range:
    - BURST
    - POISSON (default).
18. substr - Sub Structured
    The parameter substr indicates if the tributary is sub structured. A sub structured HO tributary has a HO path termination associated which provides LO tributaries to be used for LO cross-connections.
    The parameter substr is set autonomously when LO cross-connections are created or deleted with ENT-CRS or DLT-CRS commands. (See also the lower order cross-connection creation/deletion behaviour description for the commands ENT-CRS and DLT-CRS.) A sub structured HO tributary cannot be used to set up HO cross-connections.
    Type: alphanumeric value set.
    Range: YES, NO
19. tmonmd – Tributary Monitoring Mode
    This parameter indicates the mode of the tributary.
    Type: alphanumeric value set.
    Range:
    - MON = alarm monitoring is taking place on the port.
    - NMON (default) = alarm monitoring is not occurring on the port.
20. tribsonetpn – Tributary Alarm Severity Assignment Profile
    This parameter points to a tributary ASAP profile name of type PATH for the designated AID.
    Type: Alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.

Example output

```
   UNITE-NE 00-10-14 14:59:09
A  592 REPT DBCHG
   "TIME=14-59-09,DATE=00-10-14:ENT-STS1:1-1-#-#-3-1-1::
   tmonmd=MON,tribsonetpn=Default,...,pmhpneses=30,
   pmhpfeses=30"
;
```

ENT-T3 notification

Output format

The ENT-T3 notification shall use the general format of a REPT DBCHG notification.

Syntax

`ENT-T3:`*aid::spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID
   Range: APortAID of DS3 port.

Spec block parameters

1. ds3pn - DS3 ASAP
   DS3 Alarm Severity Assignment Profile. This parameter retrieves the ASAP profile name of type DS3 to which the designated AID points.
   Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: String with a maximum of 24 characters.
   Default: DEFAULT.
2. eif - Electrical Interface Type
   The parameter eif indicates the type of input the port has been provisioned to receive.
   Type: alphanumeric value set.
   Range: DS3
3. fmt - Signal Format
   This parameter shows the format for the DS3 signal
   Type: alphanumeric value set. A hyphen (-) is additionally allowed in the alphanumeric values.
   Range:
   - C-BIT (default): C-bit parity channelized DS3 format
   - M23: M23 channelized DS3 format
   - UNFRAMED-CC: UNFRAMED and CLEAR-CHANNEL format

4. fsflpbkstat – Far Side Facililiy Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output *aid.*
   A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
   Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).
5. infepm - Incoming DS3 Far End Path PM Enable
   This parameter enables/disables the incoming DS3 far end path performance monitoring.
   Type: alphanumeric value set.
   Range: ENABLE, DISABLE (default).
6. inlnpm - Incoming DS3 Line PM Enable
   This parameter enables/disables the incoming DS3 line performance monitoring.
   Type: alphanumeric value set.
   Range: ENABLE, DISABLE (default).
7. inpm - Incoming DS3 Near End Path PM Enable
   This parameter enables/disables the incoming DS3 near end path performance monitoring.
   Type: alphanumeric value set.
   Range: ENABLE, DISABLE (default).
8. lbo - Line Build Out
   This parameter defines the cable length applicable for the DS3 port.
   Type: alphanumeric value set.
   Range:
   - SHORT (default): 0 ... 68.5 m (0 ... 225 ft)
   - LONG: 68.5 ... 137 m (225 ... 450 ft).
9. lpbk – Loopback
   This parameter specifies the current near-side loopback status of the considered output *aid*.
   A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).

10. outmntc - Outgoing Maintenance Signal
    This parameter determines whether an AIS, a DS3AIS or IDLE signal is transmitted in response to an unconnected input.
    Type: alphanumeric value set.
    Range: AIS (default), DS3AIS, IDLE
11. outfepm - Outgoing DS3 Far End Path PM Enable
    This parameter enables/disables the outgoing DS3 far end path performance monitoring.
    Type: alphanumeric value set.
    Range: ENABLE, DISABLE (default).
12. outpm - Outgoing DS3 Near End Path PM Enable
    This parameter enables/disables the outgoing DS3 near end path performance monitoring.
    Type: alphanumeric value set.
    Range: ENABLE, DISABLE (default).
13. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
14. pmsesl - PM Threshold for SES - Line
    PM Threshold (errors in a second) for declaring SES - Line
    Type: numeric value set.
    Range: 1 ... 8000
    Default: 44
15. pmsesp - PM Threshold for SES - Path Incoming
    PM Threshold (errors in a second) for declaring SES - Path in incoming direction.
    Type: numeric value set.
    Range: 1 ... 8000
    Default: 44
16. pmsespfe - PM Threshold for Far-End SES - Path Incoming
    PM Threshold (errors in a second) for declaring Far-End SES - Path in incoming direction.
    Type: numeric value set.
    Range: 1 ... 8000
    Default: 44

17. pmsespfeout - PM Threshold (errors in a second) for declaring Far-End SES - Path in outgoing direction.
    Type: numeric value set.
    Range: 1 ... 8000
    Default: 44
18. pmsespout - PM Threshold for SES - Path Outgoing
    PM Threshold (errors in a second) for declaring SES - Path in outgoing direction.
    Type: numeric value set.
    Range: 1 ... 8000
    Default: 44
19. sdthr - Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-3 to 10exp-9.
    Type: numeric value set.
    Range: (as exponents of 10): -4, -5 -6 (default), -7, -8, -9
20. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
21. tca - DS3 PM TCA
    The parameter tca assigns an DS3 PM TCA profile name to the designated AID.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters: DEFAULT, DEFAULT0 (default)
22. vmr - Violation Monitoring Mode
    This parameter indicates the status of the DS3 P-bit parity violation monitoring and removal.
    Type: alphanumeric value set. A hyphen (-) is additionally allowed in the alphanumeric values.
    Range: VMR, VM, NO-VM (default)

Example output

```
   UNITE 00-11-13 12:00:00
A  001 REPT DBCHG
   "TIME=08-00-12,DATE=00-11-28:ENT-T3:1-1-#-#-21-1::
   cbitmis=NORMAL,eif=DS3,ptype=T3,fmt=C-BIT,....
   sigmis=NORMAL,vmr=NO-VM "
;
```

□

ENT-TCA-PROF: Enter TCA Profile

The ENT-TCA-PROF command allows the user to create a new Performance Monitoring (PM) Threshold Crossing Alert (TCA) profile with a specific name. The system supports two default sets of profiles called ″Default″ and ″Default0.″ When a new profile is created, all the threshold values shall be copied from the ″Default″ profile.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): PM3

Priority: 1

Abortable: Yes

Input format

Command Syntax:

`ENT-TCA-PROF:`*tid::ctag::pftype,pfname;*

Input parameters

Command parameters

1. tid – Target Identifier
   See definition in “RTRV-HDR: Retrieve header” (p. 4-1736).
2. ctag – Correlation Tag
   See definition in “RTRV-HDR: Retrieve header” (p. 4-1736).
3. pftype – Profile Type
   This indicates the type of PM TCA profile for the selected facility.
   Type: value set.
   Range: SECTION-LINE, RS-MS, HOVC, PATH, ENET, ODU, LOVC, LOPATH, DS3
4. pfname – Profile Name
   This indicates the name of the PM TCA profile which was already established by the command ENT-TCA-PROF. If this field is NULL, the output will only consist of a list of all profile names for the specific profile type that was requested. If a valid profile name is inserted in this field, the output will display the parameters within the profile with their values. A *pfname* value will always uniquely identify an existing profile for a specified *pftype* value. NULL means, that the Profile Name is omitted.
   Type: alphanumeric string.
   Range: This is an alphanumeric character string with a maximum of 24 characters.
   Default: If this field is NULL, the output will only consist of a list of all profile names for the specific profile type that was requested.

Output format

If the NE fully complies with the ENT-TCA-PROF request, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

Output parameters

The output parameters *sid, date, time* and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behaviour description

The command shall establish/create a new TCA profile of type as specified by means of parameter pftype. The name of the new TCA profile corresponds to the parameter pfname. The creation of the new TCA profile shall be reported by means of an ENT-TCA-PROF notification.

Example input/output

The following example shows the successful completion of a ENT-TCA-PROF command by the NE:

```
ENT-TCA-PROF:UNITE-NE::123456::section-line,DTAG;
UNITE-NE 00-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section.

Validation rule: Maximum number of TCA profiles reached

If the maximum number of TCA profiles reached, the error message shall be generated.

Error code: `SSRE - Status, System Resources Exceeded, limit of profiles exceeded`

Validation rule: profile name already exists

If the system receives a new profile name that already exists for that profile type, the following error response is returned.

Error code: `IEAE - Input, Entity Already Exists, duplicate profile name`

Related TL1 messages

- "RTRV-TCA-PROF: Retrieve TCA Profile" (p. 4-2184)
- "DLT-TCA-PROF: Delete TCA Profile" (p. 4-186)
- "ED-TCA-PROF: Edit TCA profile" (p. 4-852)

References

GR-833-CORE

□

ENT-TCA-PROF notification

Output format

The ENT-TCA-PROF notification shall use the general format of a REPT DBCHG (Report Database Change) notification.

Command syntax: `ENT-TCA-PROF`*::pftype,pfname:spec_block;*

Output parameters

Command parameters

1. pftype – Profile Type
   This indicates the type of PM TCA profile for the selected facility.
   Type: value set.
   Range: SECTION-LINE, RS-MS, HOVC, PATH, ENET, ODU, LOVC, LOPATH, DS3.
2. pfname – Profile Name
   This indicates the name of the PM TCA profile which was already established by the command ENT-TCA-PROF. If this field is NULL, the output will only consist of a list of all profile names for the specific profile type that was requested. If a valid profile name is inserted in this field, the output will display the parameters within the profile with their values. A *pfname* value will always uniquely identify an existing profile for a specified *pftype* value. NULL means, that the Profile Name is omitted.
   Type: alphanumeric string.
   Range: This is an alphanumeric character string with a maximum of 24 characters.
   Default: If this field is NULL, the output will only consist of a list of all profile names for the specific profile type that was requested.

Spec block parameters - profile parameters of type SECTION-LINE

1. qhcvsoc3
   15-minute threshold for CV-S bin for OC-3.
   Type: integer
   Range: 0-57599100
   Default: 140.
2. daycvsoc3
   Day threshold for CV-S bin of OC-3.
   Type: integer
   Range: 0-4294967295
   Default: 1344.
3. qhcvsoc12
   15-minute threshold for CV-S bin for OC-12.
   Type: integer
   Range: 0-57599100
   Default: 560.

4. daycvsoc12
   Day threshold for CV-S bin for OC-12.
   Type: integer
   Range: 0-4294967295
   Default: 5376.
5. qhcvsoc48
   15-minute threshold for CV-S bin for OC-48.
   Type: integer
   Range: 0-57599100
   Default: 2240.
6. daycvsoc48
   Day threshold for CV-S bin for OC-48.
   Type: integer
   Range: 0-4294967295
   Default: 21504.
7. qhcvsoc192
   15-minute threshold for CV-S bin for OC-192.
   Type: integer
   Range: 0-57599100
   Default: 8960.
8. daycvsoc192
   Day threshold for CV-S bin for OC-192.
   Type: integer
   Range: 0-4294967295
   Default: 86016.
9. qhcvsoc768
   15-minute threshold for CV-S bin for OC-768.
   Type: integer
   Range: 0-57599100
   Default: 35840.
10. daycvsoc768
    Day threshold for CV-S bin for OC-768.
    Type: integer
    Range: 0-4294967295
    Default: 344064.
11. qhcvsec1
    15-minute threshold for CV-S bin for EC-1.
    Type: integer
    Range: 0-57599100
    Default: 47

12. daycvsec1
    Day threshold for CV-S bin of EC-1.
    Type: integer
    Range: 0-4294967295
    Default: 448
13. qhess
    15-minute threshold for ES-S bin.
    Type: integer
    Range: 0-900
    Default: 25.
14. dayess
    Day threshold for ES-S bin.
    Type: integer
    Range: 0-86400
    Default: 250.
15. qhsess
    15-minute threshold for SES-S bin.
    Type: integer
    Range: 0-810
    Default: 10.
16. daysess
    Day threshold for ES-S bin.
    Type: integer
    Range: 0-77760
    Default: 40.
17. qhsefss
    15-minute threshold for SEFS-S bin.
    Type: integer
    Range: 0-900
    Default: 5.
18. daysefss
    Day threshold for SEFS-S bin.
    Type: integer
    Range: 0-86400
    Default: 10.
19. qhcvloc3
    15-minute threshold for CV-L and CV-LFE bin for OC-3.
    Type: integer
    Range: 0-172799100
    Default: 140.

20. daycvloc3
    Day threshold for CV-L bin and CV-LFE for OC-3.
    Type: integer
    Range: 0-4294967295
    Default: 1344.
21. qhcvloc12
    15-minute threshold for CV-L and CV-LFE bin for OC-12.
    Type: integer
    Range: 0-691199100
    Default: 560.
22. daycvloc12
    Day threshold for CV-L bin and CV-LFE for OC-12.
    Type: integer
    Range: 0-4294967295
    Default: 5376.
23. qhcvloc48
    15-minute threshold for CV-L and CV-LFE bin for OC-48.
    Type: integer
    Range: 0-2764799100
    Default: 2240.
24. daycvloc48
    Day threshold for CV-L and CV-LFE bin for OC-48.
    Type: integer
    Range: 0-4294967295
    Default: 21504.
25. qhcvloc192
    15-minute threshold for CV-L and CV-LFE bin for OC-192.
    Type: integer
    Range: 0-4294967295
    Default: 8960.
26. daycvloc192
    Day threshold for CV-L and CV-LFE bin for OC-192.
    Type: integer
    Range: 0-4294967295
    Default: 86016.
27. qhcvloc768
    15-minute threshold for CV-L and CV-LFE bin for OC-768.
    Type: integer
    Range: 0-4294967295
    Default: 35840.

28. daycvloc768
    Day threshold for CV-L and CV-LFE bin for OC-768.
    Type: integer
    Range: 0-4294967295
    Default: 344064.
29. qhcvlec1
    15-minute threshold for CV-L and CV-LFE bin for EC-1.
    Type: integer
    Range: 0-57599100
    Default: 47
30. daycvlec1
    Day threshold for CV-L bin and CV-LFE for EC-1.
    Type: integer
    Range: 0-4294967295
    Default: 448
31. qhesl
    15-minute threshold for ES-L and ES-LFE bin.
    Type: integer
    Range: 0-900
    Default: 25.
32. dayesl
    Day threshold for ES-L and ES-LFE bin.
    Type: integer
    Range: 0-86400
    Default: 250.
33. qhfeccloc192
    15-minute threshold for FECC-L bin for OC-192.
    Type: integer
    Range: 0 - 4294967295
    Default: 5184.
34. dayfeccloc192
    Day threshold for FECC-L bin for OC-192.
    Type: integer
    Range: 0 - 4294967295
    Default: 497644.
35. qhfeccloc768
    15-minute threshold for FECC-L bin for OC-768.
    Type: integer
    Range: 0 - 4294967295
    Default: 20736.

36. dayfeccloc768
    Day threshold for FECC-L bin for OC-768.
    Type: integer
    Range: 0 - 4294967295
    Default: 1990656.
37. qhsesl
    15-minute threshold for SES-L and SES-LFE bin.
    Type: integer
    Range: 0-810
    Default: 10.
38. daysesl
    Day threshold for SES-L and SES-LFE bin.
    Type: integer
    Range: 0-77760
    Default: 40.
39. qhuasl
    15-minute threshold for UAS-L and UAS-LFE bin.
    Type: integer
    Range: 0-900
    Default: 10.
40. dayuasl
    Day threshold for UAS-L and UAS-LFE bin.
    Type: integer
    Range: 0-86400
    Default: 10.

Spec block parameters - profile parameters of type RS-MS

1. qhrsnbbe
   15-minute threshold for RS_N_BBE bin.
   Type: integer
   Range: 0-7199100
   Default: 9000.
2. dayrsnbbe
   Day threshold for RS_N_BBE bin.
   Type: integer
   Range: 0-691113600
   Default: 48000.
3. qhrsnes
   15-minute threshold for RS_N_ES bin.
   Type: integer
   Range: 0-900
   Default: 180.

4. dayrsnes
   Day threshold for RS_N_ES bin.
   Type: integer
   Range: 0-86400
   Default: 1500.
5. qhrsnses
   15-minute threshold for RS_N_SES bin.
   Type: integer
   Range: 0-810
   Default: 15.
6. dayrsnses
   Day threshold for RS_N_SES bin.
   Type: integer
   Range: 0-77760
   Default: 20.
7. qhrsnuas
   15-minute threshold for RS_N_UAS bin.
   Type: integer
   Range: 0-900
   Default: 15.
8. dayrsnuas
   Day threshold for RS_N_UAS bin.
   Type: integer
   Range: 0-86400
   Default: 20.
9. qhmsbbestm1
   15-min threshold for MS_N_BBE and MS_F_BBE for stm1 bin.
   Type: integer
   Range: 0-172799100
   Default: 228000.
10. daymsbbestm1
    Day threshold for MS_N_BBE and MS_F_BBE for stm1 bin.
    Type: integer
    Range: 0-4294967295
    Default: 432000.
11. qhmsbbestm4
    15-min threshold for MS_N_BBE and MS_F_BBE for stm4 bin.
    Type: integer
    Range: 0-691199100
    Default: 912000.

12. daymsbbestm4
    Day threshold for MS_N_BBE and MS_F_BBE for stm4 bin.
    Type: integer
    Range: 00-4294967295
    Default: 1728000.
13. qhmsbbestm16
    15-min threshold for MS_N_BBE and MS_F_BBE for stm16 bin.
    Type: integer
    Range: 0-2764799100
    Default: 3648000.
14. daymsbbestm16
    Day threshold for MS_N_BBE and MS_F_BBE for stm16 bin.
    Type: integer
    Range: 0-4294967295
    Default: 6912000.
15. qhmsbbestm64
    15-min threshold for MS_N_BBE and MS_F_BBE for stm64 bin.
    Type: integer
    Range: 0-4294967295
    Default: 14592000.
16. daymsbbestm64
    Day threshold for MS_N_BBE and MS_F_BBE for stm64 bin.
    Type: integer
    Range: 0-4294967295
    Default: 27648000.
17. qhmsbbestm256
    15-min threshold for MS_N_BBE and MS_F_BBE for stm256 bin.
    Type: integer
    Range: 0-4294967295
    Default: 58368000.
18. daymsbbestm256
    Day threshold for MS_N_BBE and MS_F_BBE for stm256 bin.
    Type: integer
    Range: 0-4294967295
    Default: 110592000.
19. qhmses
    15-minute threshold for MS_N_ES and MS_F_ES bin.
    Type: integer
    Range: 0-900
    Default: 50.

20. daymses
    Day threshold for MS_N_ES and MS_F_ES bin.
    Type: integer
    Range: 0-86400
    Default: 150.
21. qhmsnfeccstm64
    15-minute threshold for MS-N-FECC bin forSTM-64.
    Type: integer
    Range: 0 - 4294967295
    Default: 5184.
22. daymsnfeccstm64
    Day threshold for MS-N-FECC bin forSTM-64.
    Type: integer
    Range: 0 - 4294967295
    Default: 49764.
23. qhmsnfeccstm256
    15-minute threshold for MS-N-FECC bin forSTM-256.
    Type: integer
    Range: 0 - 4294967295
    Default: 20736.
24. daymsnfeccstm256
    Day threshold for MS-N-FECC bin forSTM-256.
    Type: integer
    Range: 0 - 4294967295
    Default: 1990656.
25. qhmsses
    15-minute threshold for MS_N_SES and MS_F_SES bin.
    Type: integer
    Range: 0-810
    Default: 10.
26. daymsses
    Day threshold for MS_N_SES and MS_F_SES bin.
    Type: integer
    Range: 0-77760
    Default: 15.

27. qhmsuas
    15-min threshold for MS_N_UAS and MS_F_UAS for stm64 bin.
    Type: integer
    Range: 0-900
    Default: 15.
28. daymsuas
    Day threshold for MS_N_UAS and MS_F_UAS for stm64 bin.
    Type: integer
    Range: 0-86400
    Default: 20.

Spec block parameters - reset profile parameters of type RS-MS

1. qhrtrrsnbbe
   15-minute reset threshold for RS_N_BBE bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
2. dayrtrrsnbbe
   Day reset threshold for RS_N_BBE bin.
   Type: integer
   Range: 0-691113600
   Default: 4800.
3. qhrtrrsnes
   15-minute reset threshold for RS_N_ES bin.
   Type: integer
   Range: 0-900
   Default: 20.
4. dayrtrrsnes
   Day reset threshold for RS_N_ES bin.
   Type: integer
   Range: 0-86400
   Default: 150.
5. qhrtrrsnses
   15-minute reset threshold for RS_N_SES bin.
   Type: integer
   Range: 0-810
   Default: 0.
6. dayrtrrsnses
   Day reset threshold for RS_N_SES bin.
   Type: integer
   Range: 0-77760
   Default: 0.

7. qhrtrrsnuas
   15-minute reset threshold for RS_N_UAS bin.
   Type: integer
   Range: 0-900
   Default: 0.
8. dayrtrrsnuas
   Day reset threshold for RS_N_UAS bin.
   Type: integer
   Range: 0-86400
   Default: 0.
9. qhrtrmsbbestm1
   15-min reset threshold for MS_N_BBE and MS_F_BBE for stm1 bin.
   Type: integer
   Range: 0-172799100
   Default: 2400.
10. dayrtrmsbbestm1
    Day reset threshold for MS_N_BBE and MS_F_BBE for stm1 bin.
    Type: integer
    Range: 0-4294967295
    Default: 43200.
11. qhrtrmsbbestm4
    15-min reset threshold for MS_N_BBE and MS_F_BBE for stm4 bin.
    Type: integer
    Range: 0-691199100
    Default: 9600.
12. dayrtrmsbbestm4
    Day reset threshold for MS_N_BBE and MS_F_BBE for stm4 bin.
    Type: integer
    Range: 0-4294967295
    Default: 172800.
13. qhrtrmsbbestm16
    15-min reset threshold for MS_N_BBE and MS_F_BBE for stm16 bin.
    Type: integer
    Range: 0-2764799100
    Default: 38400.
14. dayrtrmsbbestm16
    Day reset threshold for MS_N_BBE and MS_F_BBE for stm16 bin.
    Type: integer
    Range: 0-4294967295
    Default: 691200.

15. qhrtrmsbbestm64
    15-min reset threshold for MS_N_BBE and MS_F_BBE for stm64 bin.
    Type: integer
    Range: 0-4294967295
    Default: 153600.
16. dayrtrmsbbestm64
    Day reset threshold for MS_N_BBE and MS_F_BBE for stm64 bin.
    Type: integer
    Range: 0-4294967295
    Default: 2764800.
17. qhrtrmsbbestm256
    15-min reset threshold for MS_N_BBE and MS_F_BBE for stm256 bin.
    Type: integer
    Range: 0-4294967295
    Default: 614400.
18. dayrtrmsbbestm256
    Day reset threshold for MS_N_BBE and MS_F_BBE for stm256 bin.
    Type: integer
    Range: 0-4294967295
    Default: 11059200.
19. qhrtrmses
    15-minute reset threshold for MS_N_ES and MS_F_ES bin.
    Type: integer
    Range: 0-900
    Default: 5.
20. dayrtrmses
    Day reset threshold for MS_N_ES and MS_F_ES bin.
    Type: integer
    Range: 0-86400
    Default: 15.
21. qhrtrmsnfeccstm64
    15-minute reset threshold for MS-N-FECC bin forSTM-64.
    Type: integer
    Range: 0 - 4294967295
    Default: 0.
22. dayrtrmsnfeccstm64
    Day reset threshold for MS-N-FECC bin forSTM-64.
    Type: integer
    Range: 0 - 4294967295
    Default: 0.

23. qhrtrmsnfeccstm256
    15-minute reset threshold for MS-N-FECC bin forSTM-256.
    Type: integer
    Range: 0 - 4294967295
    Default: 0.
24. dayrtrmsnfeccstm256
    Day reset threshold for MS-N-FECC bin forSTM-256.
    Type: integer
    Range: 0 - 4294967295
    Default: 0.
25. qhrtrmsses
    15-minute reset threshold for MS_N_SES and MS_F_SES bin.
    Type: integer
    Range: 0-810
    Default: 0.
26. dayrtrmsses
    Day reset threshold for MS_N_SES and MS_F_SES bin.
    Type: integer
    Range: 0-77760
    Default: 0.
27. qhrtrmsuas
    15-min reset threshold for MS_N_UAS and MS_F_UAS.
    Type: integer
    Range: 0-900
    Default: 0.
28. dayrtrmsuas
    Day reset threshold for MS_N_UAS and MS_F_UAS.
    Type: integer
    Range: 0-86400
    Default: 0.

Spec block parameters - profile parameters of type ODU

1. qhodupbbeodu1
    15-minute threshold for ODU_N_BBE bin and ODU_F_BBE for ODU1P.
    Type: integer
    Range: 0-18377100
    Default: 32000.
2. dayodupbbeodu1
    Day threshold for ODU_N_BBE bin and ODU_F_BBE for ODU1P.
    Type: integer
    Range: 0-1764201600
    Default: 61000.

3. qhodupes
   15-minute threshold for ODU_N_ES and ODU_F_ES bin for ODU1P.
   Type: integer
   Range: 0-900
   Default: 50.
4. dayodupes
   Day threshold for ODU_N_ES and ODU_F_ES bin for ODU1P..
   Type: integer
   Range: 0-86400
   Default: 150.
5. qhodupses
   15-minute threshold for ODU_N_SES and ODU_F_SES bin for ODU1P.
   Type: integer
   Range: 0-810
   Default: 10.
6. dayodupses
   Day threshold for ODU_N_SES and ODU_F_SES bin for ODU1P.
   Type: integer
   Range: 0-77760
   Default: 15.
7. qhodupuas
   15-minute threshold for ODU_N_UAS and ODU_F_UAS bin for ODU1P.
   Type: integer
   Range: 0-900
   Default: 15.
8. dayodupuas
   Day threshold for ODU_N_UAS and ODU_F_UAS bin for ODU1P.
   Type: integer
   Range: 0-86400
   Default: 20.

Spec block parameters - reset profile parameters of type ODU

1. qhrtrodupbbeodu1
   15-minute reset threshold for ODU_N_BBE bin and ODU_F_BBE for ODU1P.
   Type: integer
   Range: 0-18377100
   Default: 200.
2. dayrtrodupbbeodu1
   Day reset threshold for ODU_N_BBE bin and ODU_F_BBE for ODU1P.
   Type: integer
   Range: 0-1764201600
   Default: 4800.

3. qhrtrodupes
   15-minute reset threshold for ODU_N_ES and ODU_F_ES bin for ODU1P.
   Type: integer
   Range: 0-900
   Default: 5.
4. dayrtrodupes
   Day reset threshold for ODU_N_ES and ODU_F_ES bin for ODU1P.
   Type: integer
   Range: 0-86400
   Default: 15.
5. qhrtrodupses
   15-minute reset threshold for ODU_N_SES and ODU_F_SES bin for ODU1P.
   Type: integer
   Range: 0-810
   Default: 0.
6. dayrtrodupses
   Day reset threshold for ODU_N_SES and ODU_F_SES bin for ODU1P.
   Type: integer
   Range: 0-77760
   Default: 0.
7. qhrtrodupuas
   15-minute threset reshold for ODU_N_UAS and ODU_F_UAS bin for ODU1P.
   Type: integer
   Range: 0-900
   Default: 0.
8. dayrtrodupuas
   Day reset threshold for ODU_N_UAS and ODU_F_UAS bin for ODU1P.
   Type: integer
   Range: 0-86400
   Default: 0.

Spec block parameters - profile parameters of type HO-VC

1. qhvcbbevc3
   15-minute threshold for VC_N_BBE and VC_F_BBE for VC3 bin.
   Type: integer
   Range: 0-7199100
   Default: 36000.
2. dayvcbbevc3
   Day threshold for VC_N_BBE and VC_F_BBE for VC3 bin.
   Type: integer
   Range: 0-691113600
   Default: 48000.

3. qhvcbbevc4
   15-minute threshold for VC_N_BBE and VC_F_BBE for VC4 bin.
   Type: integer
   Range: 0-7199100
   Default: 36000.
4. dayvcbbevc4
   Day threshold for VC_N_BBE and VC_F_BBE for VC4 bin.
   Type: integer
   Range: 0-691113600
   Default: 48000.
5. qhvcbbevc44c
   15-minute threshold for VC_N_BBE and VC_F_BBE for VC44C bin.
   Type: integer
   Range: 0-7199100
   Default: 36000.
6. dayvcbbevc44c
   Day threshold for VC_N_BBE and VC_F_BBE for VC44C bin.
   Type: integer
   Range: 0-691113600
   Default: 48000.
7. qhvcbbevc416c
   15-minute threshold for VC_N_BBE and VC_F_BBE for VC416C bin.
   Type: integer
   Range: 0-7199100
   Default: 36000.
8. dayvcbbevc416c
   Day threshold for VC_N_BBE and VC_F_BBE for VC416C bin.
   Type: integer
   Range: 0-691113600
   Default: 48000.
9. qhvcbbevc464c
   15-minute threshold for VC_N_BBE and VC_F_BBE for VC464C bin.
   Type: integer
   Range: 0-7199100
   Default: 36000.
10. dayvcbbevc464c
    Day threshold for VC_N_BBE and VC_F_BBE for VC464C bin.
    Type: integer
    Range: 0-691113600
    Default: 48000.

11. qhvcesvc3
    15-minute threshold for VC_N_ES and VC_F_ES VC3 bin.
    Type: integer
    Range: 0-900
    Default: 150.
12. dayvcesvc3
    Day threshold for VC_N_ES and VC_F_ES VC3 bin.
    Type: integer
    Range: 0-86400
    Default: 600.
13. qhvcesvc4
    15-minute threshold for VC_N_ES and VC_F_ES for VC4 bin.
    Type: integer
    Range: 0-900
    Default: 180.
14. dayvcesvc4
    Day threshold for VC_N_ES and VC_F_ES for VC4 bin.
    Type: integer
    Range: 0-86400
    Default: 1500.
15. qhvcesvc44c
    15-minute threshold for VC_N_ES and VC_F_ES for VC4-4C bin.
    Type: integer
    Range: 0-900
    Default: 180.
16. dayvcesvc44c
    Day threshold for VC_N_ES and VC_F_ES for VC4-4C bin.
    Type: integer
    Range: 0-86400
    Default: 1500.
17. qhvcesvc416c
    15-minute threshold for VC_N_ES and VC_F_ES for VC4-16C bin.
    Type: integer
    Range: 0-900
    Default: 180.
18. dayvcesvc416c
    Day threshold for VC_N_ES and VC_F_ES for VC4-16C bin.
    Type: integer
    Range: 0-86400
    Default: 1500.

19. qhvcesvc464c
    15-minute threshold for VC_N_ES and VC_F_ES for VC4-64C bin.
    Type: integer
    Range: 0-900
    Default: 180.
20. dayvcesvc464c
    Day threshold for VC_N_ES and VC_F_ES for VC4-64C bin.
    Type: integer
    Range: 0-86400
    Default: 1500.
21. qhvcsesvc3
    15-minute threshold for VC_N_SES and VC_F_SES for VC3 bin.
    Type: integer
    Range: 0-810
    Default: 15.
22. dayvcsesvc3
    Day threshold for VC_N_SES and VC_F_SES for VC3 bin.
    Type: integer
    Range: 0-77760
    Default: 20.
23. qhvcsesvc4
    15-minute threshold for VC_N_SES and VC_F_SES for VC4 bin.
    Type: integer
    Range: 0-810
    Default: 15.
24. dayvcsesvc4
    Day threshold for VC_N_SES and VC_F_SES for VC4 bin.
    Type: integer
    Range: 0-77760
    Default: 20.
25. qhvcsesvc44c
    15-minute threshold for VC_N_SES and VC_F_SES for VC44C bin.
    Type: integer
    Range: 0-810
    Default: 15.
26. dayvcsesvc44c
    Day threshold for VC_N_SES and VC_F_SES for VC44C bin.
    Range: 0-77760
    Default: 20.

27. qhvcsesvc416c
    15-minute threshold for VC_N_SES and VC_F_SES for VC416C bin.
    Type: integer
    Range: 0-810
    Default: 15.
28. dayvcsesvc416c
    Day threshold for VC_N_SES and VC_F_SES for VC416C bin.
    Type: integer
    Range: 0-77760
    Default: 20.
29. qhvcsesvc464c
    15-minute threshold for VC_N_SES and VC_F_SES for VC464C bin.
    Type: integer
    Range: 0-810
    Default: 15.
30. dayvcsesvc464c
    Day threshold for VC_N_SES and VC_F_SES for VC464C bin.
    Type: integer
    Range: 0-77760
    Default: 20.
31. qhvcuasvc3
    15-minute threshold for VC_N_UAS and VC_F_UAS for VC3 bin.
    Type: integer
    Range: 0-900
    Default: 15.
32. dayvcuasvc3
    Day threshold for VC_N_UAS and VC_F_UAS for VC3 bin.
    Type: integer
    Range: 0-86400
    Default: 20.
33. qhvcuasvc4
    15-minute threshold for VC_N_UAS and VC_F_UAS for VC4 bin.
    Type: integer
    Range: 0-900
    Default: 15.
34. dayvcuasvc4
    Day threshold for VC_N_UAS and VC_F_UAS for VC4 bin.
    Type: integer
    Range: 0-86400
    Default: 20.

35. qhvcuasvc44c
    15-minute threshold for VC_N_UAS and VC_F_UAS for VC44C bin.
    Type: integer
    Range: 0-900
    Default: 15.
36. dayvcuasvc44c
    Day threshold for VC_N_UAS and VC_F_UAS for VC44C bin.
    Type: integer
    Range: 0-86400
    Default: 20.
37. qhvcuasvc416c
    15-minute threshold for VC_N_UAS and VC_F_UAS for VC416C bin.
    Type: integer
    Range: 0-900
    Default: 15.
38. dayvcuasvc416c
    Day threshold for VC_N_UAS and VC_F_UAS for VC416C bin.
    Type: integer
    Range: 0-86400
    Default: 20.
39. qhvcuasvc464c
    15-minute threshold for VC_N_UAS and VC_F_UAS for VC464C bin.
    Type: integer
    Range: 0-900
    Default: 15.
40. dayvcuasvc464c
    Day threshold for VC_N_UAS and VC_F_UAS for VC464C bin.
    Type: integer
    Range: 0-86400
    Default: 20.

Spec block parameters - reset profile parameters of type HO-VC

1. qhrtrvcbbevc3
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for VC3 bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
2. dayrtrvcbbevc3
   Day reset threshold for VC_N_BBE and VC_F_BBE for VC3 bin.
   Type: integer
   Range: 0-691113600
   Default: 4800.

3. qhrtrvcbbevc4
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for VC4 bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
4. dayrtrvcbbevc4
   Day reset threshold for VC_N_BBE and VC_F_BBE for VC4 bin.
   Type: integer
   Range: 0-691113600
   Default: 4800.
5. qhrtrvcbbevc44c
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for VC44C bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
6. dayrtrvcbbevc44c
   Day reset threshold for VC_N_BBE and VC_F_BBE for VC44C bin.
   Type: integer
   Range: 0-691113600
   Default: 4800.
7. qhrtrvcbbevc416c
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for VC416C bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
8. dayrtrvcbbevc416c
   Day reset threshold for VC_N_BBE and VC_F_BBE for VC416C bin.
   Type: integer
   Range: 0-691113600
   Default: 4800.
9. qhrtrvcbbevc464c
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for VC464C bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
10. dayrtrvcbbevc464c
    dayrtrvcbbevc464c
    Type: integer
    Range: 0-691113600
    Default: 4800.

11. qhrtrvcesvc3
    15-minute reset threshold for VC_N_ES and VC_F_ES VC3 bin.
    Type: integer
    Range: 0-900
    Default: 10.
12. dayrtrvcesvc3
    Day reset threshold for VC_N_ES and VC_F_ES VC3 bin.
    Type: integer
    Range: 0-86400
    Default: 60.
13. qhrtrvcesvc4
    15-minute reset threshold for VC_N_ES and VC_F_ES for VC4 bin.
    Type: integer
    Range: 0-900
    Default: 20.
14. dayrtrvcesvc4
    Day reset threshold for VC_N_ES and VC_F_ES for VC4 bin.
    Type: integer
    Range: 0-86400
    Default: 150.
15. qhrtrvcesvc44c
    15-minute reset threshold for VC_N_ES and VC_F_ES for VC4-4C bin.
    Type: integer
    Range: 0-900
    Default: 20.
16. dayrtrvcesvc44c
    Day reset threshold for VC_N_ES and VC_F_ES for VC4-4C bin.
    Type: integer
    Range: 0-86400
    Default: 150.
17. qhrtrvcesvc416c
    15-minute reset threshold for VC_N_ES and VC_F_ES for VC4-16C bin.
    Type: integer
    Range: 0-900
    Default: 20.
18. dayrtrvcesvc416c
    Day reset threshold for VC_N_ES and VC_F_ES for VC4-16C bin.
    Type: integer
    Range: 0-86400
    Default: 150.

19. qhrtrvcesvc464c
    15-minute reset threshold for VC_N_ES and VC_F_ES for VC4-64C bin.
    Type: integer
    Range: 0-900
    Default: 20.
20. dayrtrvcesvc464c
    Day reset threshold for VC_N_ES and VC_F_ES for VC4-64C bin.
    Type: integer
    Range: 0-86400
    Default: 150.
21. qhrtrvcsesvc3
    15-minute reset threshold for VC_N_SES and VC_F_SES for VC3 bin.
    Type: integer
    Range: 0-810
    Default: 0.
22. dayrtrvcsesvc3
    Day reset threshold for VC_N_SES and VC_F_SES for VC3 bin.
    Type: integer
    Range: 0-77760
    Default: 0.
23. qhrtrvcsesvc4
    15-minute reset threshold for VC_N_SES and VC_F_SES for VC4 bin.
    Type: integer
    Range: 0-810
    Default: 0.
24. dayrtrvcsesvc4
    Day reset threshold for VC_N_SES and VC_F_SES for VC4 bin.
    Type: integer
    Range: 0-77760
    Default: 0.
25. qhrtrvcsesvc44c
    15-minute reset threshold for VC_N_SES and VC_F_SES for VC44C bin.
    Type: integer
    Range: 0-810
    Default: 0.
26. dayrtrvcsesvc44c
    Day reset threshold for VC_N_SES and VC_F_SES for VC44C bin.
    Type: integer
    Range: 0-77760
    Default: 0.

27. qhrtrvcsesvc416c
    15-minute reset threshold for VC_N_SES and VC_F_SES for VC416C bin.
    Type: integer
    Range: 0-810
    Default: 0.
28. dayrtrvcsesvc416c
    Day reset threshold for VC_N_SES and VC_F_SES for VC416C bin.
    Type: integer
    Range: 0-77760
    Default: 0.
29. qhrtrvcsesvc464c
    15-minute reset threshold for VC_N_SES and VC_F_SES for VC464C bin.
    Type: integer
    Range: 0-810
    Default: 0.
30. dayrtrvcsesvc464c
    Day reset threshold for VC_N_SES and VC_F_SES for VC464C bin.
    Type: integer
    Range: 0-77760
    Default: 0.
31. qhrtrvcuasvc3
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for VC3 bin.
    Type: integer
    Range: 0-900
    Default: 0.
32. dayrtrvcuasvc3
    Day reset threshold for VC_N_UAS and VC_F_UAS for VC3 bin.
    Type: integer
    Range: 0-86400
    Default: 0.
33. qhrtrvcuasvc4
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for VC4 bin.
    Type: integer
    Range: 0-900
    Default: 0.
34. dayrtrvcuasvc4
    Day reset threshold for VC_N_UAS and VC_F_UAS for VC4 bin.
    Type: integer
    Range: 0-86400
    Default: 0.

35. qhrtrvcuasvc44c
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for VC44C bin.
    Type: integer
    Range: 0-900
    Default: 0.
36. dayrtrvcuasvc44c
    Day reset threshold for VC_N_UAS and VC_F_UAS for VC44C bin.
    Type: integer
    Range: 0-86400
    Default: 0.
37. qhrtrvcuasvc416c
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for VC416C bin.
    Type: integer
    Range: 0-900
    Default: 0.
38. dayrtrvcuasvc416c
    Day reset threshold for VC_N_UAS and VC_F_UAS for VC416C bin.
    Type: integer
    Range: 0-86400
    Default: 0.
39. qhrtrvcuasvc464c
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for VC464C bin.
    Type: integer
    Range: 0-900
    Default: 0.
40. dayrtrvcuasvc464c
    Day reset threshold for VC_N_UAS and VC_F_UAS for VC464C bin.
    Type: integer
    Range: 0-86400
    Default: 0.

Spec block parameters - profile parameters of type PATH

1. qhcvpsts1
   15-minute threshold for CV-P and CV-PFE bin for STS1.
   Type: integer
   Range: 0-57599100
   Default: 15.
2. daycvpsts1
   Day threshold for CV-P and CV-PFE bin for STS1.
   Type: integer
   Range: 0-4294967295
   Default: 125.

3. qhcvpsts3c
   15-minute threshold for CV-P and CV-PFE bin for STS3C.
   Type: integer
   Range: 0-57599100
   Default: 25.
4. daycvpsts3c
   Day threshold for CV-P and CV-PFE bin for STS3C.
   Type: integer
   Range: 4294967295
   Default: 250.
5. qhcvpsts12c
   15-minute threshold for CV-P and CV-PFE bin for STS12C.
   Type: integer
   Range: 0-57599100
   Default: 75.
6. daycvpsts12c
   Day threshold for threshold for CV-P and CV-PFE bin for STS12C.
   Type: integer
   Range: 4294967295
   Default: 750.
7. qhcvpsts48c
   15-minute threshold for CV-P and CV-PFE bin for STS48C.
   Type: integer
   Range: 0-57599100
   Default: 300.
8. daycvpsts48c
   Day threshold for CV-P and CV-PFE bin for STS48C.
   Type: integer
   Range: 4294967295
   Default: 3000.
9. qhcvpsts192c
   Day threshold for CV-P and CV-PFE bin for STS192C.
   Type: integer
   Range: 0-57599100
   Default: 1200.
10. daycvpsts192c
    Day threshold for CV-P and CV-PFE bin for STS192C.
    Type: integer
    Range: 0-4294967295
    Default: 12000.

11. qhespsts1
    15-minute threshold for ES-P and ES-PFE bin for STS1.
    Type: integer
    Range: 0-900
    Default: 12.
12. dayespsts1
    Day threshold for ES-P and ES-PFE bin for STS1.
    Type: integer
    Range: 0-86400
    Default: 100.
13. qhespsts3c
    15-minute threshold for ES-P and ES-PFE bin for STS3C.
    Type: integer
    Range: 0-900
    Default: 20.
14. dayespsts3c
    Day threshold for ES-P and ES-PFE bin for STS3C.
    Type: integer
    Range: 0-86400
    Default: 200.
15. qhespsts12c
    15-minute threshold for ES-P and ES-PFE bin for STS12C.
    Type: integer
    Range: 0-900
    Default: 60.
16. dayespsts12c
    Day threshold for ES-P and ES-PFE bin for STS12C.
    Type: integer
    Range: 0-86400
    Default: 600.
17. qhespsts48c
    15-minute threshold for ES-P and ES-PFE bin for STS48C.
    Type: integer
    Range: 0-900
    Default: 240.
18. dayespsts48c
    Day threshold for ES-P and ES-PFE bin for STS48C.
    Type: integer
    Range: 0-86400
    Default: 2400.

19. qhespsts192c
    Day threshold for ES-P and ES-PFE bin for STS192C.
    Type: integer
    Range: 0-900
    Default: 240.
20. dayespsts192c
    Day threshold for ES-P and ES-PFE bin for STS192C.
    Type: integer
    Range: 0-86400
    Default: 9600.
21. qhsesp
    15-minute threshold for SES-P and SES-PFE bin.
    Type: integer
    Range: 0-810
    Default: 3.
22. daysesp
    Day threshold for SES-P and SES-PFE bin.
    Type: integer
    Range: 0-77760
    Default: 7.
23. qhuasp
    15-minute threshold for UAS-P and UAS-PFE bin.
    Type: integer
    Range: 0-900
    Default: 10.
24. dayuasp
    Day threshold for UAS-P and UAS-PFE bin.
    Type: integer
    Range: 0-86400
    Default: 10.

Spec block parameters - profile parameters of type ENET

1. qhpdege
    15-minute threshold for PDE bin for GE.
    Type: integer
    Range: 0-183000000
    Default: 187500.
2. daypdege
    Day threshold for PDE bin for GE.
    Type: integer
    Range: 0-4294967295
    Default: 9000000.

3. qhpdevcg
   15-minute threshold for PDE bin for VCG.
   Type: integer
   Range: 0-183000000
   Default: 10.
4. daypdevcg
   Day threshold for PDE bin for VCG.
   Type: integer
   Range: 0-4294967295
   Default: 50.

Spec block parameters - reset profile parameters of type ENET

1. qhrtrpdege
   15-minute reset threshold for PDE bin for GE.
   Type: integer
   Range: 0-183000000
   Default: 937500.
2. dayrtrpdege
   Day reset threshold for PDE bin for GE.
   Type: integer
   Range: 0-4294967295
   Default: 4500000.
3. qhrtrpdevcg
   15-minute reset threshold for PDE bin for VCG.
   Type: integer
   Range: 0-183000000
   Default: 2.
4. dayrtrpdevcg
   Day reset threshold for PDE bin for VCG.
   Type: integer
   Range: 0-4294967295
   Default: 5.

Spec block parameters- profile parameters of type LOVC

1. qhvcbbevc12
   15-minute threshold for VC_N_BBE and VC_F_BBE for VC12 bin.
   Type: integer
   Range: 0-1799100
   Default: 9000.
2. dayvcbbevc12
   Day threshold for VC_N_BBE and VC_F_BBE for VC12 bin.
   Type: integer
   Range: 0-172713600
   Default: 12000.

3. qhvcbbelovc3
   15-minute threshold for VC_N_BBE and VC_F_BBE for lower order VC3 bin.
   Type: integer
   Range: 0-7199100
   Default: 36000.
4. dayvcbbelovc3
   Day threshold for VC_N_BBE and VC_F_BBE for lower order VC3 bin.
   Type: integer
   Range: 0-691113600
   Default: 48000.
5. qhvcesvc12
   15-minute threshold for VC_N_ES and VC_F_ES for VC12 bin.
   Type: integer
   Range: 0-900
   Default: 120.
6. dayvcesvc12
   Day threshold for VC_N_ES and VC_F_ES for VC12 bin.
   Type: integer
   Range: 0-86400
   Default: 350.
7. qhvceslovc3
   15-minute threshold for VC_N_ES and VC_F_ES for lower order VC3 bin.
   Type: integer
   Range: 0-900
   Default: 150.
8. dayvceslovc3
   Day threshold for VC_N_ES and VC_F_ES for lower order VC3 bin.
   Type: integer
   Range: 0-86400
   Default: 600.
9. qhvcsesvc12
   15-minute threshold for VC_N_SES and VC_F_SES for VC12 bin.
   Type: integer
   Range: 0-810
   Default: 15.
10. dayvcsesvc12
    Day threshold for VC_N_SES and VC_F_SES for VC12 bin.
    Type: integer
    Range: 0-77760
    Default: 20.

11. qhvcseslovc3
    15-minute threshold for VC_N_SES and VC_F_SES for lower order VC3 bin.
    Type: integer
    Range: 0-810
    Default: 15.
12. dayvcseslovc3
    Day threshold for VC_N_SES and VC_F_SES for lower order VC3 bin.
    Type: integer
    Range: 0-77760
    Default: 20.
13. qhvcuasvc12
    15-minute threshold for VC_N_UAS and VC_F_UAS for VC12 bin.
    Type: integer
    Range: 0-900
    Default: 15.
14. dayvcuasvc12
    Day threshold for VC_N_UAS and VC_F_UAS for VC12 bin.
    Type: integer
    Range: 0-86400
    Default: 20.
15. qhvcuaslovc3
    15-minute threshold for VC_N_UAS and VC_F_UAS for lower order VC3 bin.
    Type: integer
    Range: 0-900
    Default: 15.
16. dayvcuaslovc3
    Day threshold for VC_N_UAS and VC_F_UAS for lower order VC3 bin.
    Type: integer
    Range: 0-86400
    Default: 20.

Spec block parameters- reset profile parameters of type LOVC

1. qhrtrvcbbevc12
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for VC12 bin.
   Type: integer
   Range: 0-1799100
   Default: 50.
2. dayrtrvcbbevc12
   Day reset threshold for VC_N_BBE and VC_F_BBE for VC12 bin.
   Type: integer
   Range: 0-172713600
   Default: 1200.

3. qhrtrvcbbelovc3
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for lower order VC3 bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
4. dayrtrvcbbelovc3
   Day reset threshold for VC_N_BBE and VC_F_BBE for lower order VC3 bin.
   Type: integer
   Range: 0-691113600
   Default: 4800.
5. qhrtrvcesvc12
   15-minute reset threshold for VC_N_ES and VC_F_ES for VC12 bin.
   Type: integer
   Range: 0-900
   Default: 5.
6. dayrtrvcesvc12
   Day reset threshold for VC_N_ES and VC_F_ES for VC12 bin.
   Type: integer
   Range: 0-86400
   Default: 35.
7. qhrtrvceslovc3
   15-minute reset threshold for VC_N_ES and VC_F_ES for lower order VC3 bin.
   Type: integer
   Range: 0-900
   Default: 10.
8. dayrtrvceslovc3
   Day reset threshold for VC_N_ES and VC_F_ES for lower order VC3 bin.
   Type: integer
   Range: 0-86400
   Default: 60.
9. qhrtrvcsesvc12
   15-minute reset threshold for VC_N_SES and VC_F_SES for VC12 bin.
   Type: integer
   Range: 0-810
   Default: 0.
10. dayrtrvcsesvc12
    Day reset threshold for VC_N_SES and VC_F_SES for VC12 bin.
    Type: integer
    Range: 0-77760
    Default: 0.

11. qhrtrvcseslovc3
    15-minute reset threshold for VC_N_SES and VC_F_SES for lower order VC3 bin.
    Type: integer
    Range: 0-810
    Default: 0.
12. dayrtrvcseslovc3
    Day reset threshold for VC_N_SES and VC_F_SES for lower order VC3 bin.
    Type: integer
    Range: 0-77760
    Default: 0.
13. qhrtrvcuasvc12
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for VC12 bin.
    Type: integer
    Range: 0-900
    Default: 0.
14. dayrtrvcuasvc12
    Day reset threshold for VC_N_UAS and VC_F_UAS for VC12 bin.
    Type: integer
    Range: 0-86400
    Default: 0.
15. qhrtrvcuaslovc3
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for lower order VC3 bin.
    Type: integer
    Range: 0-900
    Default: 0.
16. dayrtrvcuaslovc3
    Day reset threshold for VC_N_UAS and VC_F_UAS for lower order VC3 bin.
    Type: integer
    Range: 0-86400
    Default: 0.

Spec block parameters.- Profile Parameters of Type LOPATH

1. qhcvvt1
    15-minute threshold for CV-P and CV-PFE bin for VT1.
    Type: integer
    Range: 0-14399100
    Default: 75.
2. daycvvt1
    Day threshold for CV-P and CV-PFE bin for VT1.
    Type: integer
    Range: 0-1382313600
    Default: 750.

3. qhesvt1
   15-minute threshold for ES-P and ES-PFE bin for VT1.
   Type: integer
   Range: 0-900
   Default: 40.
4. dayesvt1
   Day threshold for ES-P and ES-PFE bin for VT1.
   Type: integer
   Range: 0-86400
   Default: 900.
5. qhsesvt1
   15-minute threshold for SES-P and SES-PFE bin for VT1.
   Type: integer
   Range: 0-810
   Default: 40.
6. daysesvt1
   Day threshold for SES-P and SES-PFE bin for VT1.
   Type: integer
   Range: 0-77760
   Default: 900.
7. qhuasvt1
   15-minute threshold for UAS-P and UAS-PFE bin for VT1.
   Type: integer
   Range: 0-900
   Default: 40.
8. dayuasvt1
   Day threshold for UAS-P and UAS-PFE bin for VT1.
   Type: integer
   Range: 0-86400
   Default: 900.

Spec block parameters - profile parameters of type DS3

1. qhcvl
   15-minute threshold for CV-L bin of DS3 Line.
   Type: integer
   Range: 0-7200000
   Default: 387.
2. daycvl
   Day threshold for CV-L bin of DS3 Line.
   Type: integer
   Range: 0- 691200000
   Default: 3865.

3. qhesl
   15-minute threshold for Es-L bin of DS3 Line.
   Type: integer
   Range: 0-900
   Default: 25.
4. dayesl
   Day threshold for ES-L bin of DS3 Line.
   Type: integer
   Range: 0-86400
   Default: 250.
5. qhesal
   15-minute threshold for ESA-L bin of DS3 Line.
   Type: integer
   Range: 0-900
   Default: 25.
6. dayesal
   Day threshold for ESB-L bin of DS3 Line.
   Type: integer
   Range: 0-86400
   Default: 250.
7. qhesbl
   15-minute threshold for ESB-L bin of DS3 Line.
   Type: integer
   Range: 0-900
   Default: 25.
8. dayesbl
   Day threshold for ESB-L bin of DS3 Line.
   Type: integer
   Range: 0-86400
   Default: 250.
9. qhsesl
   15-minute threshold for SES-L bin of DS3 Line.
   Type: integer
   Range: 0-810
   Default: 4.
10. daysesl
    Day threshold for SES-L bin of DS3 Line.
    Type: integer
    Range: 0-77760
    Default: 40.

11. qhcvp
    15-minute threshold for CV-P and CV-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-7200000
    Default: 382.
12. daycvp
    Day threshold for CV-P and CV-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-691200000
    Default: 3820.
13. qhesp
    15-minute threshold for ES-P and ES-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-900
    Default: 25.
14. dayesp
    Day threshold for ES-P and ES-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-86400
    Default: 250.
15. qhesap
    15-minute threshold for ESA-P and ESA-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-900
    Default: 25.
16. dayesap
    Day threshold for ESA-P and ESA-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-86400
    Default: 250.
17. qhesbp
    15-minute threshold for ESB-P and ESB-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-900
    Default: 25.

18. dayesbp
    Day threshold for ESB-P and ESB-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-86400
    Default: 250.
19. qhsesp
    15-minute threshold for SES-P and SES-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-810
    Default: 4.
20. daysesp
    Day threshold for SES-P and SES-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-77760
    Default: 40.
21. qhuasp
    15-minute threshold for UAS-P and UAS-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-900
    Default: 10.
22. dayuasp
    Day threshold for UAS-P and UAS-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-86400
    Default: 10.
23. qhsasp
    15-minute threshold for SAS-P and SAS-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-900
    Default: 2.
24. daysasp
    Day threshold for SAS-P and SAS-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-86400
    Default: 8.

Example output

The following example reports the creation of the TCA profile DTAG:

```
LT-UNITE 00-11-03 15:00:00
A  000 REPT DBCHG
   "TIME=15-00-00,DATE=00-11-03:ENT-TCA-PROF::RS-MS,DTAG:
qhrsnes=10,qhrsnbbe=6"
;
```

□

ENT-ULS: Enter upper layer stack

The ENT-ULS command is used to provision parameters of the TCP/IP stack.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S4

Priority: 1

Abortable: No.

Input format

Command Syntax: `ENT-ULS:`*tid::ctag:::spec_block;*

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of tid in RTRV-ULS.
2. ctag – Correlation Tag
   See definition of ctag in RTRV-ULS.

Spec block parameters

1. ip_ad_astn – IP Address of ASTN
   This parameter shall be used to set the router ID for the SCN and the SNN node.
   Note: The provisioning of this IP address is ONLY ALLOWED ONCE.
   Type: Four dot separated numeric strings.
   Range: 0.0.0.0 ... 223.255.255.255 with the exception of 0.0.0.0.
2. ip_drad – IP Default Router Address
   This parameter shall be used to set or retrieve the IP default router address (IPv4) to which the host points to, needed for the T-TD functionality.
   Type: Four dot separated numeric strings.
   Range: Each numeric string: 0 .. 255.
3. ip_drlan – IP Default Router LAN port AID
   This parameter specifies with which LAN port the default router is associated.
   Type: AID.
   Range: LanPortAID. The value lanall is not allowed.
   Default: 1-1-lan1.

4. lv_port – T-TD Length Value Port
   This parameter shall be used to set or retrieve the port number over which the T-TD function is accessible using the Length Value encoding method.
   Type: Numeric string
   Range: Each numeric string: 0 .. 65535, except the vlaue 3083.
   Default: 3081.
5. raw_port – T-TD Raw Mode Port
   This parameter shall be used to set or retrieve the port AID of number over which the T-TD function is accessible using raw-mode encoding.
   Type: Numeric string
   Range: Each numeric string: 0 .. 65535, except the vlaue 3083.
   Default: 3082.

Output format

If the ENT-ULS request is successful, the following normal completion message shall be returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736) .

Detailed behavior description

The command setsthe parameters as specified for the input spec_block parameters.

Reset: Modification of any of the parameters *ip_ad_astn*, *lv_port*, *raw_port* leads to a reset of the DCF controller and disconnection of management communications.

Example input/output

The following example shows the result of an ENT-ULS command, which modifies the port number used for T-TD length value encoding:

```
ENT-ULS:LT-UNITE::123456:::lv_port=7777;
   LT-UNITE 00-11-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the ENT-ULS command.

Validation rule: no TCP port number change with enabled T-TD function

T-TD related port numbers cannot be changed as long as T-TD function is enabled.

Error Code: `SNVS - Status, Not in Valid State, port numbers cannot be changed when T-TD is enabled`

Validation rule: check for correct IP configuration

The ENT-ULS command shall only be allowed if there is already a valid IP configuration (ip_ad - IP address of LAN, ip_snm - subnet mask of LAN) provisioned for the LAN port specified by ip_drlan.

Error Code: `SNVS - Status, Not in Valid State, incomplete IP configuration`

Validation rule: check for correct configured Default Router LAN Port

The system do not allow to change the default router address (ip_drad) as long as there is no default router LAN port (ip_drlan) specified which has a valid IP Address (ip_ad) and IP Subnet Mask (ip_snm) configured.

Furtheron the LAN must be enabled, i.e. ip_lanstat=ENABLE and lanstat=ENABLE.

Error Code: `SNVS - Status, Not in Valid State, default router LAN port not configured`

Validation rule: check for correct OSI node configuration

The system shall not allow to set *ip_drlan* (IP Default Router LAN) as long as this LAN port is not assigned to OSI node 1(see ENT-FECOM-LAN).

Error Code: `SNVS - Status, Not in Valid State, wrong IP configuration.`

Validation rule: check that *raw_port* and *lv_port* are unequal

The ENT-ULS command shall be refused, if the two port parameters *raw_port* and *lv_port* are set to equal values.

Error Code: `IDNC - Input, Data Not Consistent, raw_port and lv_port must be unequal`

Validation rule: check of the maintenance condition

System must be in MCOND for change of *ip_ad_astn*.

Error Code: `SNVS - Status, Not in Valid State, not in Maintenance Condition`

Related TL1 messages

- "RTRV-ULS: Retrieve upper layer stack" (p. 4-2223)

□

ENT-ULS Notification

Output format

The ENT-ULS notification shall use the general format of a REPT DBCHG (Report Database Change) notification.

The ENT-ULS notification shall have following specific syntax:

`ENT-ULS`*:::spec_block*

The output parameters *sid*, *date*, *time*, and *ctag* are described in the REPT DBCHG notification.

Output parameters

1. ip_ad_astn – IP Address of ASTN
   This parameter shall be used to set the router ID for the SCN and the SNN node.
   Note: The provisioning of this IP address is ONLY ALLOWED ONCE.
   Type: Four dot separated numeric strings.
   Range: 0.0.0.0 ... 223.255.255.255 with the exception of 0.0.0.0.
2. ip_drad – IP Default Router Address
   This parameter shall be used to set or retrieve the IP default router address (IPv4) to which the host points to, needed for the T-TD functionality.
   Type: Four dot separated numeric strings.
   Range: Each numeric string: 0 .. 255.
3. ip_drlan – IP Default Router LAN port AID
   This parameter specifies with which LAN port the default router is associated.
   Type: AID.
   Range: LanPortAID. The value lanall is not allowed.
   Default: 1-1-lan1.
4. lv_port – T-TD Length Value Port
   This parameter shall be used to set or retrieve the port number over which the T-TD function is accessible using the Length Value encoding method.
   Type: Numeric string
   Range: Each numeric string: 0 .. 65535, except the vlaue 3083.
   Default: 3081.
5. raw_port – T-TD Raw Mode Port
   This parameter shall be used to set or retrieve the port AID of number over which the T-TD function is accessible using raw-mode encoding.
   Type: Numeric string
   Range: Each numeric string: 0 .. 65535, except the vlaue 3083.
   Default: 3082.

Example output

The following is an example ENT-ULS notification in case the lv_port parameter was changed:

```
   LT-UNITE 00-11-01 15:00:00
A  000 REPT DBCHG
   "TIME=15-00-00,DATE=00-11-03:ENT-ULS:::lv_port=7777"
;
```

□

ENT-ULSDCC-L3: Create a further OSI node

The ENT-ULSDCC-L3 command is used to create a new OSI node. Up to 8 independent OSI instances can exist in a NE: Node-1 has a NSAP and the nodes 2-8 have each a Network Entity Title (NET). NSAP = NET + SEL Node-1 with AID osinode1 is created by start up of the UNITE NE as default. Node 2-8 can be created and configured with this command by entering an osinode AID which is not used until now, a NET area address and an IS-IS Level. Parameter in the SYSTEM field of the NET are predefined. Further parameter for configuration can be set like IS domain, RA prefix and RA destination node.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S4

Priority: 1

Abortable: No.

Input format

Command Syntax: `ENT-ULSDCC-L3`:*tid*::*ctag*::*osinode*:*spec_block*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
3. osinode
   A *LambdaUnite*® MSS NE can have up to 8 instances of the OSI stack. Node-1 (osinode1) is default. Node 2-8 (osinode{2-8}) can be created and configured.
   Type: AID.
   Range: osinode{2-8}.

Spec block parameters

1. l3afi – NSAP/NET Authority and Format Identifier
   This parameter sets or retrieves the format for the rest of the address.
   Type: hexadecimal number.
   Range: 10 – 99
   Default: 39. This value identifies the iso_dcc format.
2. l3idi – NSAP/NET initial Domain Identifier

This parameter consists of two values:

- a 3 semi-octet (3-digit hexadecimal) IDI part to specify the country code indicating the registration authority responsible for the allocation and assignment of the NSAP address.
- a 1 semi-octet (1-digit hexadecimal) IDI pad part. The parameter is used for set and retrieve values.

Type: hexadecimal number.
Range: 0000 – FFFF
Default:
SONET: IDI = 840; IDI pad = F
SDH: IDI = 000; IDI pad = 0.

3. l3dfi – NSAP/NET DSP Format Identifier
   This parameter (2-digit hex) NSAP is used to set or retrieve the format for the rest of the address.
   Type: hexadecimal number.
   Range: 00 – FF.
   Default: 80. This value represents the SONET DSP format.
4. l3org – NSAP/NET Organization Identifier
   This parameter of NSAP is used to set or retrieve the NSP (allocated Company Code).
   Type: hexadecimal number.
   Range: 000000 – FFFFFF.
   Default: 000000.
5. l3res – NSAP/NET Reserved
   This NSAP part currently has not been assigned a specific purpose.
   Type: hexadecimal number.
   Range: 0000 – FFFF.
   Default: 0000.
6. l3rd – NSAP/NET Routing Domain
   This parameter of NSAP is used to set or retrieve a unique routing domain within an administrative domain. A standard for use has not been defined until now.
   Type: hexadecimal number.
   Range: 0000 – FFFF.
   Default: 0000.
7. l3area – NSAP/NET Area Identifier
   This parameter of NSAP is used to set or retrieve the area. So NEs can be identified in the same area.
   Type: hexadecimal number.
   Range: 0000 – FFFF.
   Default: 0000.

8. l3isisnl – Layer 3 IS Level
   This parameter indicates the network router type: ES-IS (level1, value L1), IS-IS (level2, value L2) and partition repair capability (value3).
   Note: This parameter is not reported when output parameter *osinode*=scnnode.
   Type: alphanumeric string.
   Range:
   - L1: this means level1, IS-IS, only allowed when parameter l3radesnode=0
   - L12: this means level2, IS-IS which contains also level1, ES-IS
   - L12PRC : this means partition repair capable (PRC) and contains also level1 and level2.

   Default: L1.
9. l3domain – Layer3 IS Domain
   Per node in a NE, a domain group must be specified. This will be done with this parameter which can be set and retrieved. All nodes in the NE with the same domain-number are interconnected and can communicate without the need for inter-domain routing via RA-PREFIX.
   Note: This parameter is not reported when output parameter *osinode*=scnnode.
   Type: alphanumeric string.
   Range:
   - 1 for osinode1
   - 1 – 2 for osinode2 to osinode8.

   Default: 1.
10. l3raprefix – Layer3 Reachable Address Prefix
    This value specifies an area address or a part of an area address representing an area address group. This parameter is needed when nodes in different routing domains (see *l3domain*) must communicate. The node must forward then CLNP PDUs to the RA-Destination-Node if the destination NSAPs of CLNP PDUs match with the PA-Prefix.
    Note: This parameter is not reported when output parameter *osinode*=scnnode.
    Type: hexadecimal number.
    Range:
    - NONE,
    - a string of 1 to 13 bytes: first byte (most significant): 10 – 99; rest: 0000 – FFFF.

    The value represents an area address or a part of an area address beginning with AFI.
    Default: empty string.

11. l3radesnode – Layer3 Reachable Address Destination Node
    This parameter is in combination with parameter l3raprefix necessary. The value represents the destination node in the same NE. An internal connection over a domain-boundary is established between this node and the RA-Destination-Node, with IS-IS disabled over that connection.
    Note: This parameter is not reported when output parameter *osinode*=scnnode.
    Type: AID and digit value.
    Range:
    - 0, osinode{2-8} for osinode1
    - 0, osinode1 for osinode2 to osinode 8.

    Value 0 indicates that functionality of RA-Prefix is disabled.
    Default: 0.
12. nsapthlev - Number of OSI Nodes Threshold Level
    This parameter indicates the NSAP count threshold level for monitoring the number of OSI nodes (NSAPs) for the level 1 area in which the OSI node specified by the *osinode* parameter is located. A threshold value of zero (0) indicates that NSAP threshold alarming is disabled. The parameter shall be omitted for the SCN node.
    Type: numeric string
    Range: 0 no alarming; 1 - 250threshold alarming
    Default: 0

Output format

If the ENT-ULSDCC-L3 is successful, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The command creates a new OSI node as specified in the command line. The command leads to a reset of the DCF controller and disconnection of management communication. The update shall be reported by means of ENT-ULSDCC-L3 notification.

Example input/output

The following example shows the result of ENT-ULSDCC-L3:

```
ENT-ULSDCC-L3:NE-UNITE::4744843::osinode8:l3afi=39,
l3idi=840F,l3dfi=80,l3org=100100,l3res=0000,l3rd=0020,
```

```
l3area=4711,l3isinl=L12,l3domain=2;
   NE-UNITE 01-01-15 11:59:02
M  4744843 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the ENT-ULSDCC-L3 command.

Validation rule: OSI Node is already created

If the command is used with a value for parameter osinode which is already used for a creation of a OSI node, the command shall be rejected. This means the operation shall be rejected when the node ID is already in the created state.

Error code: `IEAE - Input, Entity Already Exists, osinode`

Validation rule: Address area value – RA-Prefix value

If a new RA-Prefix matches with the concerning part of the new area address the provisioning of the new NSAP area address must be rejected.

Error code: `IDNV - Input, Data Not Valid, NSAP Area Address matches with RA-Prefix`

Validation rule: RA-prefix value – Address area value

If a RA-Prefix will be initiated and the value matches with the concerning part of the NSAP Area Address of this node the command must be rejected. The prefix should be specific enough, so that it matches not with NSAPs in both domains.

Error code: `IDNV - Input, Data Not Valid, RA-Prefix matches with the NSAP Area Address`

Validation rule: *l3radesnode* value must be different from osinode

The command will be rejected when parameter *l3radesnode* is equal to the *osinode* parameter of the node.

Error code: `IDNV - Input, Data Not Valid, equal node IDs`

Validation rule: *l3radesnode* must be in the created state

If the destination node (*l3radesnode* parameter) is not in the created state, the command must be rejected.

Error code: `SNVS - Status, Not in Valid State, l3radesnode not in created state`

Validation rule: consistency of *l3radesnode* with *l3raprefix*

If the value for the RA Destination Node (l3radesnode parameter) is equal to 0 while the value of the RA Prefix (l3raprefix parameter) is not NONE the command must be rejected.

Error code: `IDNV - Input, Data Not Valid, l3prefix and l3radesnode inconsistent`

Validation rule: *l3radesnode* value and *l3isisnl* value

The l3isisnl parameter value L1 (Level1) is only allowed when the entered l3radesnode=0

Error code: `IDNV - Input, Data Not Valid, constraint l3radesnode`

Validation rule: only one single node in a separate domain supported

The command shall be rejected when l3domain has an other value than 1 and there is already an other osinode which has a value other than 1 for l3domain.

Error code: `IDNV - Input, Data Not Valid, only a single node in separate domain supported`

Validation Rule: consistency *l3domain* with *l3radesnode* for nodes 2 to 8

The command shall be rejected when l3domain for osinode2 to osinode8 has a value of 1 and l3radesnode is not equal to 0.

Error code: `IDNV - Input, Data Not Valid, inconsistency l3domain with l3radesnode`

Related TL1 messages

- "RTRV-ULSDCC-L3: Retrieve layer 3 related parameters" (p. 4-2226)

□

ENT-ULSDCC-L3 Notification

The ENT-ULSDCC-L3 command effects a communication SW-reset (protocol stack) and the management connection is lost. Therefore it cannot be guaranteed that a notification could be returned as described below.

Output format

The ENT-ULSDCC-L3 notification shall use the general format of a REPT DBCHG (Report Database Change) notification.

The ENT-ULSDCC-L3 notification has following specific syntax:

`ENT-ULSDCC-L3`*::osinode:spec_block*

Output parameters

Command parameters

1. osinode
   A *LambdaUnite*® MSS NE can have up to 8 instances of the OSI stack. Node-1 (osinode1) is default. Node 2-8 (osinode{2-8}) can be created and configured.
   Type: AID.
   Range: osinode{1-8}.

Spec block parameters

1. l3afi – NSAP/NET Authority and Format Identifier
   This parameter sets or retrieves the format for the rest of the address.
   Type: hexadecimal number.
   Range: 10 – 99
   Default: 39. This value identifies the iso_dcc format.
2. l3idi – NSAP/NET initial Domain Identifier
   This parameter consists of two values:
   - a 3 semi-octet (3-digit hexadecimal) IDI part to specify the country code indicating the registration authority responsible for the allocation and assignment of the NSAP address.
   - a 1 semi-octet (1-digit hexadecimal) IDI pad part. The parameter is used for set and retrieve values.

   Type: hexadecimal number.
   Range: 0000 – FFFF
   Default:
   SONET: IDI = 840; IDI pad = F
   SDH: IDI = 000; IDI pad = 0.

3. l3dfi – NSAP/NET DSP Format Identifier
   This parameter (2-digit hex) NSAP is used to set or retrieve the format for the rest of the address.
   Type: hexadecimal number.
   Range: 00 – FF.
   Default: 80. This value represents the SONET DSP format.
4. l3org – NSAP/NET Organization Identifier
   This parameter of NSAP is used to set or retrieve the NSP (allocated Company Code).
   Type: hexadecimal number.
   Range: 000000 – FFFFFF.
   Default: 000000.
5. l3res – NSAP/NET Reserved
   This NSAP part currently has not been assigned a specific purpose.
   Type: hexadecimal number.
   Range: 0000 – FFFF.
   Default: 0000.
6. l3rd – NSAP/NET Routing Domain
   This parameter of NSAP is used to set or retrieve a unique routing domain within an administrative domain. A standard for use has not been defined until now.
   Type: hexadecimal number.
   Range: 0000 – FFFF.
   Default: 0000.
7. l3area – NSAP/NET Area Identifier
   This parameter of NSAP is used to set or retrieve the area. So NEs can be identified in the same area.
   Type: hexadecimal number.
   Range: 0000 – FFFF.
   Default: 0000.
8. l3isisnl – Layer 3 IS Level
   This parameter indicates the network router type: ES-IS (level1, value L1), IS-IS (level2, value L2) and partition repair capability (value3).
   Note: This parameter is not reported when output parameter *osinode*=scnnode.
   Type: alphanumeric string.
   Range:
   - L1: this means level1, IS-IS, only allowed when parameter l3radesnode=0
   - L12: this means level2, IS-IS which contains also level1, ES-IS
   - L12PRC : this means partition repair capable (PRC) and contains also level1 and level2.

   Default: L1.

9. l3domain – Layer3 IS Domain
   Per node in a NE, a domain group must be specified. This will be done with this parameter which can be set and retrieved. All nodes in the NE with the same domain-number are interconnected and can communicate without the need for inter-domain routing via RA-PREFIX.
   Note: This parameter is not reported when output parameter *osinode*=scnnode.
   Type: alphanumeric string.
   Range:
   - 1 for osinode1
   - 1 – 2 for osinode2 to osinode8.

   Default: 1.
10. l3raprefix – Layer3 Reachable Address Prefix
    This value specifies an area address or a part of an area address representing an area address group. This parameter is needed when nodes in different routing domains (see *l3domain*) must communicate. The node must forward then CLNP PDUs to the RA-Destination-Node if the destination NSAPs of CLNP PDUs match with the PA-Prefix.
    Note: This parameter is not reported when output parameter *osinode*=scnnode.
    Type: hexadecimal number.
    Range:
    - NONE,
    - a string of 1 to 13 bytes: first byte (most significant): 10 – 99; rest: 0000 – FFFF.

    The value represents an area address or a part of an area address beginning with AFI.
    Default: empty string.
11. l3radesnode – Layer3 Reachable Address Destination Node
    This parameter is in combination with parameter l3raprefix necessary. The value represents the destination node in the same NE. An internal connection over a domain-boundary is established between this node and the RA-Destination-Node, with IS-IS disabled over that connection.
    Note: This parameter is not reported when output parameter *osinode*=scnnode.
    Type: AID and digit value.

Range:

- 0, osinode{2-8} for osinode1
- 0, osinode1 for osinode2 to osinode 8.

Value 0 indicates that functionality of RA-Prefix is disabled.
Default: 0.

12. nsapthlev - Number of OSI Nodes Threshold Level
    This parameter indicates the NSAP count threshold level for monitoring the number of OSI nodes (NSAPs) for the level 1 area in which the OSI node specified by the *osinode* parameter is located. A threshold value of zero (0) indicates that NSAP threshold alarming is disabled. The parameter shall be omitted for the SCN node.
    Type: numeric string
    Range: 0 no alarming; 1 -250 threshold alarming
    Default: 0

Example output

```
   NE-UNITE 01-01-13 01:57:42
A  000 REPT DBCHG
"TIME=01-47-43,DATE=01-01-13:ENT-ULSDCC-L3::
osinode7:l3afi=39,l3idi=850F,l3dfi=80,l3org=100100,
l3res=0000,l3rd=0020,l3area=4711,l3isisnl=L12,
l3domain=2,l3raprefix=3984,l3radesnode=osinode1,
nsapthlev=0"
;
```

□

ENT-ULSDCC-L4: Enter layer 4 related parameters of the OSI stacks

Among other Layer 4 covers the TARP functionality. The parameter of this command for *LambdaUnite*® MSS NEs are only related to the TARP.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S4

Priority: 1

Abortable: No.

Input format

Command Syntax: `ENT-ULSDCC-L4`:*tid*::*ctag*::*osinode*:[*spec_block*];

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
3. osinode
   A *LambdaUnite*® MSS NE can have up to 8 instances of the OSI stack. Node-1 is created by start up of the *LambdaUnite*® MSS NE as default. Node 2-8 can be created and configured.
   Type: AID.
   Range: osinode{1-8}.

Spec block parameters

1. l4etdc - TARP Data Cache
   This parameter is only valid for node-1. It is used to enable or disable TARP data cache.
   Type: Alphanumeric value set
   Range: ENABLE (default), DISABLE.
2. l4etof - TARP origination
   This parameter only valid for node-1. It is used to enable or disable TARP Origination function and is valid for all interfaces of a node.
   Type: Alphanumeric value set.
   Range: ENABLE, DISABLE.
   Default: ENABLE (for osinode1), DISABLE (for osinode2-8, fixed).

3. l4etpf – TARP propagation
   This parameter is used to enable or disable TARP Propagation function for a node.
   Type: Alphanumeric value set.
   Range:
   - ENABLE (default)
   - DISABLE.
4. l4etrf – TARP responder
   This parameter is only valid for node-1. It is used to enable or disable TARP responder function
   Type: Alphanumeric value set
   Range:
   - ENABLE
   - DISABLE.

   Default: For node-1: ENABLE DISABLE (fixed for nodes 2-8).
5. l4ajafi – TARP Man. Adjacency: NET Authority and Format Identifier
   This parameter of NSAP is used to set or retrieves the format for the rest of the address.
   Type: hexadecimal number.
   Range: 10 – 99.
   Default: Value of authority and format identifier part of NET of node defined by parameter *osinode*.
6. l4ajidi – TARP Man. Adjacency: NET initial Domain Identifier
   This NSAP part consists two values:
   - a 3 semi-octet (3-digit hexadecimal) IDI part to specify the country code indicating the registration authority responsible for the allocation and assignment of the NSAP address.
   - a 1 semi-octet (1-digit hexadecimal) IDI pad part.

   The parameter is used for set and retrieve values.
   Type: hexadecimal number.
   Range: 0000 – FFFF.
   Default: Value of initial domain identifier part of NET of node defined by parameter *osinode*.
7. l4ajdfi – TARP Man. Adjacency: NET DSP Format Identifier
   The purpose of this 1 octet (2-digit hex) NSAP part is to set or retrieve the format for the rest of the address.
   Type: hexadecimal number.
   Range: 00 – FF.
   Default: Value of DSP format identifier part of NET of node defined by parameter *osinode*.

8. l4ajorg – TARP Man. Adjacency: NET Organization Identifier
   This parameter of NSAP is used to set or retrieve the NSP (allocated company code).
   Type: hexadecimal number.
   Range: 000000 – FFFFFF.
   Default: Value of organization part of NET of node defined by parameter *osinode*.
9. l4ajres -TARP Man. Adjacency: NET Reserved
   This NSAP part currently has not been assigned a specific purpose.
   Type: hexadecimal number.
   Range: 0000 – FFFF.
   Default: Value of reserved part of NET of node defined by parameter *osinode*.
10. l4ajrd – TARP Man. Adjacency: NET Routing Domain
    This parameter of NSAP is used to set or retrieve a unique routing domain within an administrative domain. A standard for use has not been defined until now.
    Type: hexadecimal number.
    Range: 0000 – FFFF.
    Default: Value of routing domain part of NET of node defined by parameter *osinode*.
11. l4ajarea – TARP Man. Adjacency: NET Area Identifier
    This parameter of NSAP is used to set or retrieve the area. So NEs can be identified in the same area.
    Type: hexadecimal number.
    Range: 0000 – FFFF.
    Default: Value of area part of NET of node defined by parameter *osinode*.
12. l4ajsys – TARP Man. Adjacency: NET System Identifier
    This system parameter of the NSAP is set by the Equipment Manufacturer. The value is fix and globally unique among all NEs. For values of NSAP/NET system parameter.
    Type: hexadecimal number.
    Range: 000000000000 – FFFFFFFFFFFF.

Output format

If the ENT-ULSDCC-L4 is successful, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output Parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736) .

Detailed behavior description

The command sets respectively modifies layer 4 parameter for a node as specified in the spec_block of the command line. Result should be an update of the OSI stack.

Modification of any of the parameters *l4etof, l4etpf, l4etrf* leads to a reset of the DCF controller and disconnection of management communication.

The update is reported by means of ENT-ULSDCC-L4 notification.

Up to two TARP manual adjacencies are possible for each node in an *LambdaUnite®* MSS NE. One manual adjacency is added with each command request.

In order to update/modify an already provisioned manual adjacency, the following command sequence must be applied:

1. delete the manual adjacency to be modified by means of DLT-ULSDCC-L4
2. add the manual adjacency with the new values by means of ENT-ULSDCC-L4.

The sequence of disabling and enabling the TARP Data Cache (l4etdc=DISABLE - l4etdc=ENABLE) shall flush the TDC. If remote NEs are accessed via a gateway NE using the T-TD function, remote NEs may not be reachable after NSAP changes at the remote NEs. In this case flushing of the TARP Data Cache at the gateway NE by disabling and enabling it can be used to reestablish the accessibility of remote NEs.

Example input/output

The following example shows the result of ENT-ULSDCC-L4:

```
ENT-ULSDCC-L4:NE-UNITE::4744843::osinode1:l4ajafi=39,
l4ajidi=840F,l4ajdfi=80,l4ajorg=100100,l4ajres=0000,
l4ajrd=0020,l4ajarea=4711,l4ajsys=08006A112345;
   NE-UNITE 01-01-18 10:09:52
M  4744843 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the ENT-ULSDCC-L4 command.

Validation rule: TARP origination only valid for node-1

The parameter *l4etof* can only be set to ENABLE for osinode1. When trying to ENABLE *l4etof* for osinode2-8 the command should be rejected.

Error code: `IDRG - Input, Data Range Error, osinode`

Validation rule: TARP responder only valid for node-1

The parameter *l4etrf* can only be set to ENABLE for osinode1. When trying to ENABLE *l4etrf* for osinode2-8 the command should be rejected.

Error code: `IDRG - Input, Data Range Error, osinode`

Validation rule: TARP data cache enabling only valid for node-1

The parameter *l4etdc* can only be set to ENABLE or DISABLE for osinode1. When trying to set *l4etdc* for osinode2-8 the command should be rejected.

Error code: `IDRG - Input, Data Range Error, osinode`

Validation rule: TARP data cache change only if TARP origination enabled

The parameter *l4etdc* can only be changed while the TARP origination function is enabled (l4etof=ENABLE).

Error code: `SNVS - Status, Not in Valid State, TARP origination function disabled`

Validation rule: Not allowed to disable TARP when T-TD is enabled

The parameters *l4etof, l4etpf, l4etrf* for osinode1 can not be disabled when T-TD is enabled (see "ED-NE: Edit NE" (p. 4-320) *tl1tcpipgw*). The command should be rejected in this case.

Error code: `SNVS - Status, Not in Valid State, T-TD enabled.`

Validation rule: Can't disable TARP propagation while LAN TARP storm suppression is enabled

If it is tried to set l4etpf=DISABLE while lantlss=ENABLE (see RTRV-FECOM-LAN) the command shall be denied.

Error code: `INVS - Status, Not in Valid State, TARP propagation can not be disabled`

Validation rule: *l4ajsys* must be supplied

The parameter *l4ajsys* must be supplied when manual adjacencies are configured, i.e. when any of the other NET parameters *l4ajafi, l4ajidi, l4ajdfi, l4ajorg, l4ajrd, l4ajarea* is present, otherwise the command should be rejected.

Error code: `IDNC - Input, Data Not Consistent`

Validation rule: *l4ajsys* per osinode must be different

Each manual adjacency for one osinode must have a different value for the parameter *l4ajsys*, i.e. all pairs of *osinode/l4ajsys* must be unique in the system.

Error code: `IDNV - Input, Data Not Valid, l4ajsys/osinode not unique`

Validation rule: no more than two TARP manual adjacencies per node

In case two TARP manual adjacencies are already created for a node, the creation of a third TARP manual adjacency for that node shall be denied:

Error code: `SROF - Status, Requested Operation Failed`

Validation rule: Provisioning of TARP manual adjacencies only if TARP enabled

The system shall deny an attempt to provision a TARP manual djacency if the TARP Origination and the TARP Propagation functions are disabled.

Error code: `SROF - Status, Requested Operation Failed`

Related TL1 messages

- "RTRV-ULSDCC-L4: Retrieve OSI layer 4 related parameters" (p. 4-2232)
- "DLT-ULSDCC-L4: Delete TARP manual adjacent NSAP address in layer 4 of the specified OSI stack" (p. 4-194)

□

ENT-ULSDCC-L4 notification

Output format

The ENT-ULSDCC-L4 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: The ENT-ULSDCC-L4 notification has the following specific syntax:

`ENT-ULSDCC-L4`::*osinode*:*spec_block*

Output parameters

Command parameters

1. osinode
   A *LambdaUnite*® MSS NE can have up to 8 instances of the OSI stack. Node-1 is created by start up of the *LambdaUnite*® MSS NE as default. Node 2-8 can be created and configured.
   Type: AID.
   Range: osinode{1-8}.

Spec block parameters

1. l4etdc - TARP Data Cache
   This parameter is only valid for node-1. It is used to enable or disable TARP data cache.
   Type: Alphanumeric value set
   Range: ENABLE (default), DISABLE
2. l4etof - TARP origination
   This parameter only valid for node-1. It is used to enable or disable TARP Origination function and is valid for all interfaces of a node.
   Type: Alphanumeric value set.
   Range: ENABLE, DISABLE.
   Default: ENABLE (for osinode1), DISABLE (for osinode2-8, fixed).
3. l4etpf – TARP propagation
   This parameter is used to enable or disable TARP Propagation function for a node.
   Type: Alphanumeric value set.
   Range:
   - ENABLE (default)
   - DISABLE.
4. l4etrf – TARP responder
   This parameter is only valid for node-1. It is used to enable or disable TARP responder function
   Type: Alphanumeric value set

Range:

- ENABLE
- DISABLE.

Default: For node-1: ENABLE DISABLE (fixed for nodes 2-8).

5. l4ajafi – TARP Man. Adjacency: NET Authority and Format Identifier
   This parameter of NSAP is used to set or retrieves the format for the rest of the address.
   Type: hexadecimal number.
   Range: 10 – 99.
   Default: Value of authority and format identifier part of NET of node defined by parameter *osinode*.
6. l4ajidi – TARP Man. Adjacency: NET initial Domain Identifier
   This NSAP part consists two values:
   - a 3 semi-octet (3-digit hexadecimal) IDI part to specify the country code indicating the registration authority responsible for the allocation and assignment of the NSAP address.
   - a 1 semi-octet (1-digit hexadecimal) IDI pad part.

   The parameter is used for set and retrieve values.
   Type: hexadecimal number.
   Range: 0000 – FFFF.
   Default: Value of initial domain identifier part of NET of node defined by parameter *osinode*.
7. l4ajdfi – TARP Man. Adjacency: NET DSP Format Identifier
   The purpose of this 1 octet (2-digit hex) NSAP part is to set or retrieve the format for the rest of the address.
   Type: hexadecimal number.
   Range: 00 – FF.
   Default: Value of DSP format identifier part of NET of node defined by parameter *osinode*.
8. l4ajorg – TARP Man. Adjacency: NET Organization Identifier
   This parameter of NSAP is used to set or retrieve the NSP (allocated company code).
   Type: hexadecimal number.
   Range: 000000 – FFFFFF.
   Default: Value of organization part of NET of node defined by parameter *osinode*.
9. l4ajres -TARP Man. Adjacency: NET Reserved
   This NSAP part currently has not been assigned a specific purpose.
   Type: hexadecimal number.
   Range: 0000 – FFFF.
   Default: Value of reserved part of NET of node defined by parameter *osinode*.

10. l4ajrd – TARP Man. Adjacency: NET Routing Domain
    This parameter of NSAP is used to set or retrieve a unique routing domain within an administrative domain. A standard for use has not been defined until now.
    Type: hexadecimal number.
    Range: 0000 – FFFF.
    Default: Value of routing domain part of NET of node defined by parameter *osinode*.
11. l4ajarea – TARP Man. Adjacency: NET Area Identifier
    This parameter of NSAP is used to set or retrieve the area. So NEs can be identified in the same area.
    Type: hexadecimal number.
    Range: 0000 – FFFF.
    Default: Value of area part of NET of node defined by parameter *osinode*.
12. l4ajsys – TARP Man. Adjacency: NET System Identifier
    This system parameter of the NSAP is set by the Equipment Manufacturer. The value is fix and globally unique among all NEs. For values of NSAP/NET system parameter.
    Type: hexadecimal number.
    Range: 000000000000 – FFFFFFFFFFFF.

Example output

```
   NE-UNITE 01-01-19 04:29:01
A  000 REPT DBCHG
   "TIME=04-29-00,DATE=01-01-19:ENT-ULSDCC-L4::
osinode1:l4etof=DISABLE,l4etpf=ENABLE,l4etrf=DISABLE,
l4ajafi=39,l4ajidi=0,l4ajdfi=80,l4ajorg=100100,
l4ajres=0000,l4ajrd=0020,l4ajarena=4711,
l4ajsys=08006A112345"
;
```

□

ENT-USER-SECU: Enter user security

The ENT-USER-SECU command is used by an administrator to enter a new user and security parameters associated with that user.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S5

Priority: 1

Abortable: No.

Input format

Command Syntax: `ENT-USER-SECU`:*tid*:*uid*:*ctag*::*pid*,,[*upc*]:[*spec_block*];

Input parameters

Important! During a software download (CIT to NE) it may happen that the *Navis*® Optical EMS-NE connection get lost. This is caused by the *tmout* (inactivity timeout period) parameter. A value of 0 will disable the timeout function (see Spec block parameters description below).

Note: The new setting becomes operational only after a new login.

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. uid – User ID
   This parameter specifies the new user ID (*uid*) name.
   Type: alphanumeric string (case-sensitive)
   Range: 1 – 10 characters
   The *uid* ALL is not allowed in any combination of upper or lower cases.
3. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
4. pid – Password ID
   This parameter specifies the password ID for the *uid*.
   This required parameter is the confidential password authenticator for the given *uid*. Password strings are transmitted in non-encrypted form in the ACT-USER command; are encrypted when stored in the NE; and are never transmitted from the NE.
   Type: character string (case-sensitive)
   Range: 6 to 10 legal characters. Valid passwords consist of at least two

non-alphabetic characters with at least one special character. The special character can be one of the required non-alpha characters. For example, TEST1+ is a valid password. The first character of a password must be a letter.
Default: For the two superusers the default password is: UNITE+01 for User ID LUC01 and UNITE+02 for User ID LUC02. For other users: not applicable.

5. upc – User Privilege Code List
   This parameter specifies the user privilege code UCFC/UCAL pair assigned to a user. Multiple UCFC/UCALs can be specified using single ampersands (&). If a user try to operate a command with a privilege code higher than assigned to the user for the category of the command the command will be denied.
   Type: alphanumeric string Also allowed is '&' for concatenation.
   Range: Pi, Mi, Ti, Si, PMi, Di where ″i″ is an integer ranging from 0 to 5, with i=0 implying that there is no authorization for the functional category. S0 is not allowed.
   Default: P1&M1&T1&S1&PM1 except for super users: P5&M5&T5&S5&PM5
   Note: The system does not support commands for the D (DEBUG) category. Setting this privilege code does not have any effect on the system behavior and it will not be visible in output direction. It is only for compatibility.
   See also "List of user privilege codes" (p. 15-2).

Spec block parameters

1. page – Password Aging Interval
   This parameter specifies the period in days after which the user has to change the password of their account. If the value is set to 0 then the password aging function is disabled.
   Type: integer
   Range: 0, 7-999 [days]
   Default: 90

2. screen – Message Screening
   This parameter specifies what output messages are associated with the *uid*. This parameter is omitted if the user has none of these values. Any combination of these values may be specified using ampersand (&)
   Type: alphanumeric string. An '&' is also allowed for concatenation of values.
   Range:

   - DBCHG

     Data Base Change notifications: changes in creation of entities, in user provisionable parameters, in deletion of entities will be reported (data base changes).

     File Transfer In-progress notifications: The user will receive REPT DBCHG and REPT EVT FXFR messages.

     The value DBCHG shall always be used together with the value STCHG.

   - STCHG

     State Change notifications – report changes in user non-provisionable parameters (state changes). The user will receive REPT DBCHG messages.

The value STCHG shall always be used together with the value DBCHG.

- PSCHG

  Protection switch notifications – report protection switch changes. User will receive REPT EVT and REPT SW messages.

- ALARMS

  Alarm notifications. The user will receive REPT ALM ENV, REPT ALM, and REPT EVT messages.

- ONNS

  ONNS Notifications. Database and state changes associated with entities managed by ONNS application and only issued when *xcsetup* = NN. The related ONNS TL1 notifications are REPT PTHCHG, REPT PTHEVT, REPT NNCHG, REPT NNEVT.

- SECURITY: Security event notifications

- ALL

  All notifications.

  All Notifications: This value can be used in input direction as a short-hand notation for DBCHG&STCHG&PSCHG&ALARMS&ONNS&SECURITY

- OWN

  Responses to own commands. The user will receive no other notifications.

- NA

  Not applicable. For users with uidclass=MEMADMIN only this value is allowed. The notification behavior is controlled in this case by the user class. If the value NA is applied for users of other user classes, then the value has the same effect as DBCHG.

- Default: OWN

  If more than one value is set the values will be concatenated by '&'. Example: DBCHG&STCHG&ALARMS

Restriction: When *uidclass* is set to MEMADMIN, *screen* must be set to NA.

3. tmout – Inactivity Timeout Period
   If there are no messages between the user and the NE over the Timeout Period, the session is logged off. A value of 0 disables the timeout function.
   Type: integer
   Range: 0 – 999 [minutes]
   Default: 30
4. uidclass – UID Class
   This is the user class of a *uid*.
   Type: alphanumeric value set

Range:

- OTHER – This is the default class. For users in this class, command privileges and notifications are controlled only by their UPCs and their notification Registration List.
- MEMADMIN – User class for memory administration users. All users of this class share the same atag counter for autonomous messages and are allowed to execute the command RTRV-AO.

Default: OTHER.

Restriction: When *uidclass* is set to MEMADMIN, *screen* must be set to NA.

Output format

After receiving the ENT-USER-SECU command, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

This command creates the NE's user data. A new user *uid* (User ID) will be established. The values of *pid* (Password ID), *upc* (User Privilege Code List), *alw_login* (Allow Login), *screen* (Message Screening), *page* (Password Aging Interval), *tmout* (Inactivity Timeout Period) will be assigned to the new user. If optional values are not specified the default values will be used.

This update is reported via the corresponding ENT-USER-SECU notification – see "ENT-USER-SECU notification" (p. 4-1416)section.

The execution of ENT-USER-SECU command is entered in the Security Information Log.

The NE will always have two preinstalled users with full privileges in all functional categories. These two users will be referred to as super-users. The two super-users are also Security Administrators because they have the S5 privilege code. The NE will not allow adding additional super-user type users. It will not be possible to remove either of the original super-user login IDs. An existing login ID (*uid*) except the super-user login IDs cannot be renamed. It must be deleted and re-entered with new *uid* value.

Example input/output

The following example shows the successful completion of the ENT-USER-SECU command by the NE:

```
ENT-USER-SECU:LT-UNITE-123:nbguser1:123456::pass12+,,
P3&M3:screen=DBCHG&STCHG&PSCHG,page=345,tmout=360;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

The general error responses defined in "RTRV-HDR: Retrieve header" (p. 4-1736) are also valid for this command.

Validation rule: Entering user's own or existing uid.

If the NE receives an ENT-USER-SECU command from a user trying to enter his or her own *uid* or an existing *uid.*

Error code: `IDNV - Input, Data Not Valid, duplicate UID`

Validation rule: Maximum number of *uids* reached

If the NE receives an ENT-USER-SECU command when it already has reached its maximum number of defined User IDs.

Error code: `SLEM - Status, List Exceeds Maximum UIDs`

Validation rule: Invalid *upc*

If the NE receives an ENT-USER-SECU command with a upc=P5&M5&T5&S5&PM5 or a upc=S0.

Error code: `IDNV - Input, Data Not Valid, invalid UPC`

Validation rule: Compatibility screen, uidclass parameter

If the NE receives an ENT-USER-SECU command with *uidclass*=MEMADMIN and *screen* !=NA it rejects the command with

Error code: `IDNV - Input, Data Not Valid, incompatible screen, uidclass parameters`

Related TL1 messages

- "DLT-USER-SECU: Delete user security" (p. 4-197)
- "ED-USER-SECU: Edit user security" (p. 4-945)
- "RTRV-USER-SECU: Retrieve user security" (p. 4-2240)

References

TR-NWT-000835, OTGR Section 12.5: Operations Applications Messages – NE and Network System Security Administration Messages.

□

ENT-USER-SECU notification

Output format

See definition of "REPT DBCHG: Report data base change" (p. 4-1517).

The ENT-USER-SECU notification will have following specific syntax:

`ENT-USER-SECU`:*uid*:,,[*upc*]:*spec_block*

Output parameters

Command parameters

1. uid – User Identifier
   This is the unique user login identifier for which the ACT-USER login command is intended. Grouping and/or ranging of *uid* values for the ACT-USER command are not allowed. Valid *uid* values for the ACT-USER command are case-sensitive alphanumeric strings which have been previously provisioned as valid login IDs in the NE.
   Type: alphanumeric string (case-sensitive)
   Range: 5 – 10 characters
   The *uid* ALL is not allowed in any combination of upper or lower cases.
   Default: not applicable
2. upc – User Privilege Code List
   This parameter specifies the user privilege code UCFC/UCAL pair assigned to a user. Multiple UCFC/UCALs can be specified using single ampersands (&). If a user try to operate a command with a privilege code higher than assigned to the user for the category of the command the command will be denied.
   Type: alphanumeric string Also allowed is '&' for concatenation.
   Range: Pi, Mi, Ti, Si, PMi, Di where ″i″ is an integer ranging from 0 to 5, with i=0 implying that there is no authorization for the functional category. S0 is not allowed.
   Default: P1&M1&T1&S1&PM1 except for super users: P5&M5&T5&S5&PM5

Spec block parameters

1. alw_login – Allow Login
   This parameter displays the enable/disable state of a User ID.
   A User ID can be automatically disabled by the system when the time specified by parameter *usrage* (see "RTRV-NE-SECU: Retrieve NE security" (p. 4-1828)) expires or via the ED-USER-SECU command. A User ID can be enabled via the ED-USER-SECU command.
   If a User ID is disabled, logins with that User ID are denied.
   Type: alphanumeric value set

Range:

- YES: User ID is enabled
- NO: User ID is disabled

Default: YES

2. page – Password Aging Interval
   This parameter specifies the period in days after which the user has to change the password of their account. If the value is set to 0 then the password aging function is disabled.
   Type: integer
   Range: 0, 7-999 [days]
   Default: 90
3. screen – Message Screening
   This parameter specifies what output messages are associated with the *uid*. This parameter is omitted if the user has none of these values. Any combination of these values may be specified using ampersand (&)
   Type: alphanumeric string. An '&' is also allowed for concatenation of values.
   Range:
   - DBCHG

     Data Base Change notifications: changes in creation of entities, in user provisionable parameters, in deletion of entities will be reported (data base changes).

     File Transfer In-progress notifications: The user will receive REPT DBCHG and REPT EVT FXFR messages.
   - STCHG

     State Change notifications – report changes in user non-provisionable parameters (state changes). The user will receive REPT DBCHG messages.
   - PSCHG

     Protection switch notifications – report protection switch changes. User will receive REPT EVT and REPT SW messages.
   - ALARMS

     Alarm notifications. The user will receive REPT ALM ENV, REPT ALM, and REPT EVT messages.
   - ONNS

     ONNS Notifications. Database and state changes associated with entities managed by ONNS application and only issued when *xcsetup* = NN.

     The related ONNS TL1 notifications are REPT PTHCHG, REPT PTHEVT, REPT NNCHG, REPT NNEVT.
   - SECURITY: Security event notifications
   - OWN

     Responses to own commands. The user will receive no other notifications.

     Note: OWN will never be shown in conjunction with DBCHG, STCHG, PSCHG or ALARMS.

- NA

  Not applicable. For users with uidclass=MEMADMIN only this value is allowed. The notification behavior is controlled in this case by the user class. If the value NA is applied for users of other user classes, then the value has the same effect as DBCHG.

- Default: OWN

  If more than one value is set the values will be concatenated by '&'. Example: DBCHG&STCHG&ALARMS

4. tmout – Inactivity Timeout Period
   If there are no messages between the user and the NE over the Timeout Period, the session is logged off. A value of 0 disables the timeout function.
   Type: integer
   Range: 0 – 999 [minutes]
   Default: 30
5. uidclass – UID Class
   This is the user class of a *uid*.
   Type: alphanumeric value set
   Range:
   - OTHER – This is the default class. For users in this class, command privileges and notifications are controlled only by their UPCs and their notification Registration List.
   - MEMADMIN – User class for memory administration users. All users of this class share the same atag counter for autonomous messages and are allowed to execute the command RTRV-AO.

   Default: OTHER.
   Restriction: When *uidclass* is set to MEMADMIN, *screen* must be set to NA.

Example output

The example shows a normal notification after an ENT-USER-SECU Command:

```
   LT-UNITE-123 00-01-01 08:00:50
A 815 REPT DBCHG
   "TIME=08-00-12,DATE=00-01-01:ENT-USER-SECU:nbguser1:,,
   P3&M3:screen=DBCHG&STCHG&PSCHG,page=345,tmout=360,
   uidclass=OTHER,alw_login=YES"
;
```

□

ENT-VC3 notification

Output format

The ENT-VC3 notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: `ENT-VC3`:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
   Description: AID of the SDH tributary. The keyword `all` is not allowed on any level.
   Type: AID
   Range: STS1NumAID

Spec block parameters

1. brstintvl – Bursty Interval
   Measurement period for determining bursty errors The setting of this parameter is used when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
2. brstthr – Bursty Error Threshold
   The values are set in percent for the degradation threshold. The setting of this parameter is used when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, 15, 20, 25, 30, … 50.
   Default: 30.
3. crslpbkstat – Cross-connect loopback status
   State of cross- connect loopback.
   Type: alphanumeric value set.
   Range:
   - YES = Cross-connect loopback is provisioned
   - NO (default) = No cross-connect loopback is provisioned.
4. degthr – Signal Degrade Threshold
   The setting of this parameter are used when *sdsfmode*=POISSON
   Type: numeric value set.
   Range (as exponents of 10): –5; –6 (default); –7; –8; –9

5. dexcthr – Excessive Degrade Threshold
   The setting of this parameter are used when *sdsfmode*=POISSON. The values are set as exponent of 10.
   Type: numeric value set.
   Range (as exponent of 10) –3 (default); –4; –5.
6. exphptrc – Expected Path Trace (J1)
   The parameter *exphptrc* specifying the expected path trace is only relevant for the path trace supervision when the path trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex.
7. feppm – Far-End Path PM Enable
   It indicates whether this performance monitoring feature is enabled or disabled.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
8. hptimmon – Path Trace Monitoring Enable (J1)
   Description: High order path trace (J1) identifier mismatch (TIM) monitor enable. This parameter is relevant only if the related trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
9. loca – Ring A-node TID
   This parameter specifies the TID of the node at which the service is added to the BLSR ring. This parameter is required for the input of tributaries to be used by ONNS on ports of *portClass* =EDGE being members in BLSR/MSSPRING protection groups. The *loca* parameter value shall be an empty string for all other tributaries.
   loca is introduced specifically for use related to ONNS application.
   Type: TID or empty-string.
   Range: Please refer to the TID definition in “RTRV-HDR: Retrieve header” (p. 4-1736) description.
   Default: empty string: ″″. This is displayed as \″\″ in output direction.

10. locz – Ring Z-node TID
    This parameter specifies the TID of the node at which the service is dropped from the BLSR ring. This parameter is required for the output of tributaries to be used by ONNS on ports of *portClass*=EDG E being members in BLSR/MSSPRING protection groups. The *locz* parameter value shall be an empty string for all other tributaries.
    locz is introduced specifically for use related to ONNS application.
    Type: TID or empty-string.
    Range: Please refer to the TID definition in the "RTRV-HDR: Retrieve header" (p. 4-1736) description.
    Default: empty string: "". This is displayed as \"\" in output direction.
11. neppm – Near-End Path PM Enable
    It indicates whether this performance monitoring feature is enabled or disabled.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
12. pmhpfeses – Performance Monitoring Path Far-End SES Threshold
    This parameter describes the Path Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. When the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of ranges for SDH and SONET): 1-64000.
    Default: 2400.
13. pmhpneses – Performance Monitoring Path Near-End SES Threshold
    This parameter describes the Path Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. When the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of ranges for SDH and SONET): 1-64000.
    Default: 2400.
14. ptca – Path TCA Profile Pointer
    Type: alphanumeric string.
    Range: string with up to 24 characters.
    Default: DEFAULT0.
15. ptrcrfmt – Path Trace Read Format (J1)
    The read format of J1, the incoming path trace (ptrc).
    Type: numeric string.

Range:

- 2: for non-specific repeating byte
- 16: for 16 byte specific string.
- 64: for 64 byte string.

  Default: 2.

16. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in BURST or POISSON mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON
17. substr - Sub Structured
    The parameter substr indicates if the tributary is sub structured. A sub structured HO tributary has a HO path termination associated which provides LO tributaries to be used for LO cross-connections.
    The parameter substr is set autonomously when LO cross-connections are created or deleted with ENT-CRS or DLT-CRS commands. (See also the lower order cross-connection creation/deletion behaviour description for the commands ENT-CRS and DLT-CRS.) A sub structured HO tributary cannot be used to set up HO cross-connections.
    Type: alphanumeric value set.
    Range: YES, NO
18. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable:
    - TR-only (also known as the implicit reset method)
    - TR-RTR (also known as the explicit reset method).

      Type: alphanumeric value set.
      Range: TR, TRRTR (default).
19. tmonmd – Tributary Monitoring Mode
    This parameter indicates the mode of the tributary.
    Type: alphanumeric value set.
    Range:
    - MON = alarm monitoring is taking place on the port.
    - NMON (default) = alarm monitoring is not occurring on the port.
20. tribsdhpn – Tributary Alarm Severity Assignment Profile
    This parameter points to a tributary ASAP profile name of type PATH for the designated AID.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: string with a maximum of 24 characters.
    Default: DEFAULT.

Example output

```
   UNITE-NE 00-10-14 14:59:09
A  592 REPT DBCHG
   "TIME=14-59-09,DATE=00-10-14:ENT-VC3:1-1-#-#-3-1-1::
   tmonmd=MON,tribsdhpn=Default,...,pmhpneses=30,
   pmhpfeses=30"
;
```

ENT-VCG notification

Output format

The ENT-VCG notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Syntax: The ENT-VCG notification has following specific syntax:

`ENT-VCG`*:aid::spec_block;*

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter specifies the VCG to be operated on.
   Type: AID.
   Range: VCGAID as defined in AID structure with the exception of the value *vall.*

Spec block parameters

1. cnprole – Customer/Network Port Role
   This parameter specifies whether the addressed port is used as a customer WAN port or a network WAN port.
   Type: alphanumeric value set.
   Range: CUSTOMER, for a customer WAN port. NETWORK (default), for a network WAN port.
2. dftpri – Default User Priority
   This parameter specifies the default user priority acc. the IEEE 802.1Q tagging scheme.
   Type: alphanumeric value set.
   Range:
   - HIGH
   - LOW (default).
3. dftvlan – Default VLAN Identifier
   This parameter specifies the value of the VLAN identifier which is applied to frames (tagging) at LAN ingress (i.e. from LAN into the Ethernet-port). This only applies to frames carrying no VLAN identifier, yet. This parameter is also used to provision the customer tag (CID) to be used in transparent tagging mode.
   Type: alphanumeric value set.
   Range:
   - 1, 2, 3, ... 4092, 4093
   - UNAVAILABLE (default).

   To express the state UNAVAILABLE system internally the invalid VLAN ID 4094 is used.

4. enetpn – Ethernet Alarm Severity Assignment Profile Name
   This parameter points to a tributary ASAP profile name of type ENET for the designated AID.
   Ethernet port and VCG port have the same ASAP profile named ENET.
   Type: Alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: 1 … 24 characters length.
   Default: DEFAULT.
5. enettca – Ethernet TCA Profile Name
   This parameter specifies the name of the threshold crossing alert (TCA) profile used for the VCG.
   Type: alphanumeric string.
   Range: 1 ... 24 characters length.
   Default: DEFAULT0.
6. eportClass – Ethernet Port Class
   This identifies the ethernet port class of the AID. *eportClass* is used to specify ethernet ports for use by NN application.
   Type: alphanumeric value set.
   Range: TRADITIONAL (default), EDGE .
7. eportControl – Ethernet Port Control (Ethernet Port Administrative Mode)
   This identifies the administrative mode of ethernet ports of *eportlass*=EDGE. For ethernet ports of other ethernet port class this parameter shall not be relevant. *eportControl* is introduced specifically for use by NN application.
   Type: alphanumeric value set.
   Range: NORMAL (default), MAINT, LOCKOUT .
8. htmr – Hold-Off Time
   The parameter *htmr* shall specify the hold off time for the LCAS protection. If a tributary is configured to take part on transmission for the VCG and it goes to state faulty then this tributary is taken out of transmission by LCAS after the hold off time. This time is configured on group level, i.e. all tributaries have the same value for hold-off time. This parameter only affects NE behaviour if lcasmd=ENABLED.
   Type: numeric value set.
   Range: 0 (default), 100, 200, ..., 9900, 10000 [milliseconds].
9. inputsig – Tributary Input Signal Rate List
   This parameter reports the tributary structure of the VCG port in input direction. This will implicitly give the maximum capacity of the VCG port, too. The tributary structure depends on interface standard specified for this VCG by istd . For definition of *istd* refer to "RTRV-VCG: Retrieve virtual concatenation group" (p. 4-2254) Output parameters.
   Type: numeric string of the form NX
   - N shall specify the count of container type X
   - X shall specify the container type (or envelope).

Range:

- istd=SDH: N=7, X = 4 for VC-4
- istd=SONET: N=21, X=1 for STS-1.

Default: istd=SDH: 74; istd=SONET: 211.

10. istd – Interface Standard
    This parameter specifies the interface standard of this VCG. This value is applied for both input and output direction.
    Type: alphanumeric value set.
    Range:
    - SDH
    - SONET.

    Default: As derived from parameter *istddflt* specified at configuration management, section System RTRV-EQPT.
11. lcasmd – LCAS Mode
    This parameter specifies the operation mode of the Link Capacity Adjustment Scheme for this VCG. This value is bi-directional.
    Type: alphanumeric value set.
    Range:
    - DISABLE
    - ENABLE (default).
12. stdis – Spanning Tree Protocol Disable
    This parameter allows to enable or disable the Spanning Tree Protocol for the given port. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: alphanumeric value set.
    Range: DISABLE, STP is disabled, i.e. the port is not used to build the spanning tree. ENABLE (default), STP is enabled, i.e. the port is used to build the spanning tree.
    As VCGs are by default network ports the default value is to enable STP.
13. stpcost – Spanning Tree Path Cost
    This parameter specifies the STP-related cost of the path egressing the given port. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: integer.
    Range: 1 to 200000000.
    Default: 20000.
    The default value depends on the provisioned VCG size. As currently only a fix size of 7 VC4s or 21 STS1s corresponding to approx. 1 Gbit is supported the default value is as shown above.

14. stpp – Spanning Tree Port Priority
    This parameter specifies the priority of the given port for the Spanning Tree Protocol. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: integer.
    Range: 0 to 255.
    The stepping as recommended by the standard (steps of 16 starting at 0) should be implemented by the management system. The NE will accept any value in the range described above. This has the consequence, that also the range restriction ″0 to 240″ is not done by the NE.
    Default: 128.
15. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable: TR-only, (also known as the implicit reset method). TR-RTR, (also known as the explicit reset method).
    Type: alphanumeric value set.
    Range: TR, TRRTR.
    Default: TRRTR in SDH mode; TR in SONET mode.
16. unequiposig – Unequipped Tributary Output Signal Rate List
    The parameter unequiposig shall specify the tributary structure and the capacity of the VCG port in output direction. As long as there is no cross-connection applied the specified tributaries shall be occupied by an unequipped signal. The parameter will implicitly give the maximum capacity of the VCG port, too. The tributary structure depends on interface standard specified for this VCG by istd . For definition of istd refer to RTRV-VCG Output Parameters. The signal will be immediately terminated on the unit. So no unequipped signal is visible to the outside world.

    Type: numeric string of the form NX

    - N shall specify the count of container type X
    - X shall specify the container type (or envelope).

    Range:

    - istd=SDH: N=7, X=4 for VC-4
    - istd=SONET: N=21, X=1 for STS-1.

    Default: istd=SDH: 74; istd=SONET: 211.
17. vmode – VCG Monitoring Mode
    The parameter vmode shall specify the monitoring mode for VCG. Alarms for this port will be reported if in mode MON otherwise not. There is no automatic mode.
    Type: alphanumeric value set.

    Range:

    - MON, for monitored
    - NMON (default), for not monitored.

18. vpm – VCG Performance Monitoring
    The parameter *vpm* shall specify whether the performance monitoring is enabled or disabled for this port.
    Type: alphanumeric value set.
    Range:
    - DISABLE (default)
    - ENABLE.
19. vrtswid – Virtual Switch Identifier
    This parameter identifiers the instance of the virtual switch.
    - A Virtual Switch ID is unique within a single circuit pack. When creating a new Virtual Switch, the system automatically assigns a unique ID to it.
    - There will be one virtual switch per physical switch, implicitly all LAN ports and all WAN ports on the physical switch are part of the single virtual switch. The ID of this virtual switch is fixed to 1. A future release may support multiple virtual switches per physical switch.

    Type: integer.
    Range: 1 - Currently this is the only allowed value.
    Default: 1.
    Option: This parameter is reported only if the virtual switch entity exists (i.e. the VLAN tagging mode vlantagmd of the slot the addressed VCG belongs to is set to 802.1TAG).
20. vvidls – Valid VLAN Identifier List (static)
    This parameter specifies a list of all static VLAN identifiers allowed for this port. The list shall be ampersand grouped (& and &&). The list shall be packed by the NE and the management systems as good as possible by using '&' and '&&' . The vlan identifier of an incoming frame must be a member of this static VLAN Id list or the dynamic VLAN Id list *vvidlsd*. Frames tagged by a vlan identifier not member of these lists will be discarded. The port VLAN identifier (refer to parameter dftvlan of RTRV-EPORT Output Parameters) is not part of this list. This parameter is also used in transparent tagging mode to specify the list of valid customer tags (CIDs) for network ports (cnprole == NETWORK).
    Type: alphanumeric string and the character '&'.
    Range:
    - Value of each single member (valid VLAN identifier) in the list 1, 2, ..., 4092, 4093
    - In case the list has no members (empty list) -1.

    The length of the list is limited only by the usual system limitations like e.g. TL1 line length. The number of entries in this list is limited to 64 by some NE-internal restrictions. Ranging and grouping by using the operators '&' and '&&' has no impact on the number of entries, it only reduces the length of the list being transported to/from CIT/EMS.
    Default: -1.
    Example 1:

vvidls=-1. The list has no members (empty list).
Example 2:
vvidls=3&5&40&&45. This list has the members 3, 5, 40, 41, 42, 43, 44 and 45.
Example 3:
vvidls=1&&4093 This list has the members 1,2, 3, ..., 4092, 4093.

21. wtr – Wait To Restore Time
    The parameter wtr shall specify the wait to restore time for the LCAS protection. If a tributary is configured to take part on transmission for the VCG and it recovers from a faulty state then this tributary is taken in again to transmission by LCAS after the wait-to-restore time. This time is configured on group level, i.e. all tributaries have the same value for the wait-to-restore time. This parameter only affects NE behaviour if lcasmd=ENABLED.
    Type: alphanumeric value set.
    Range: 0, 1, 2, ..., 59, 60 [minutes].
    Default: 5.

□

ENT-VCG-TRANS notification

Output format

The ENT-VCG-TRANS notification uses the general format of a REPT DBCHG notification.

Syntax

`ENT-VCG`*:aid::spec_block;*

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter specifies the VCG to be operated on.
   Type: AID.
   Range: VCGAID as defined in AID structure. The values `vall` for Simple_VCGAID and `usall` for Simple_UnivSlotAID shall be accepted.

Spec block parameters

1. camd - Consequent Action Mode
   This parameter specifies the mode of the consequent action to be executed in egress direction (to the synchronous port) on detected signal fail conditions (dPLM, AI_TSF or detected generic AIS) on the ODU layer
   Type: alphanumeric value set.
   Range: GENERICAIS (default), MSAIS, LASEROFF
2. enetpn – Ethernet Alarm Severity Assignment Profile Name
   This parameter points to a tributary ASAP profile name of type ENET for the designated AID.
   Type: Alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: 1 … 24 characters length.
   Default: DEFAULT.
3. inputsig – Tributary Input Signal Rate List
   This parameter reports the tributary structure of the VCG port in input direction. This will implicitly give the maximum capacity of the VCG port, too. The tributary structure is independent from the interface standard istd specified for this VCG.
   Type: numeric string of the form NX
   - N shall specify the count of container type X
   - X shall specify the container type (or envelope).

   Range:
   - N=17,
   - X = 4 for VC-4 / STS3-3c.

   Default: 174.

4. nevpm - Near End VCG Performance Monitoring
   The parameter nevpm shall specify whether the near end performance monitoring is enabled or disabled for this port. For the fully transparent application performance monitoring is actually done on the ODUkP layer and on the VCG level. This parameter enables/disable therefore near end PM on the ODUkP layer.
   Type:alphanumeric value set
   Range: DISABLE (default), ENABLE
5. istd – Interface Standard
   This parameter specifies the interface standard of this VCG. This value is applied for both input and output direction.
   Type: alphanumeric value set.
   Range:
   - SDH
   - SONET.

   Default: As derived from parameter *istddflt* specified at configuration management, section System RTRV-EQPT.
6. nevpm - Near End VCG Performance Monitoring
   This parameter specifies whether the near end performance monitoring is enabled or disabled for this port.
   Type: alphanumeric value set.
   Range: DISABLE (default), ENABLE
7. pmvcgfeses - Performance Monitoring VCG Far-End SES Threshold
   This parameter describes the VCG (actually ODUkP) Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severly errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
   Type: numeric value set.
   Range: (the range depends on the ODUkP rate but is identical for the corresponding SDH and SONET rates): ODU1P: 1 - 163360
   Default: ODU1P: 3064.
8. pmvcgneses - Performance Monitoring VCG Near-End SES Threshold
   This parameter describes the VCG (actually ODUkP) Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severly errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
   Type: numeric value set.
   Range: (the range depends on the ODUkP rate but is identical for the corresponding SDH and SONET rates): ODU1P: 1 - 163360
   Default: ODU1P: 3064.

9. tcamd – TCA mode
   This parameter shows the modus of the PM thresholding.
   Two thresholding methods are applicable: TR-only, (also known as the implicit reset method). TR-RTR, (also known as the explicit reset method).
   Type: alphanumeric value set.
   Range: TR, TRRTR.
   Default: TRRTR in SDH mode; TR in SONET mode.
10. transpn - Transparent Alarm Severity Assignment Profile Name
    This parameter points to a ASAP profile name of type TRANSPARENCY for the designated AID.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: 1 ... 24 characters length
    Default: DEFAULT.
11. transtca - Transparent TCA Profile Name
    The parameter transtca shall specify the name of the threshold crossing alert (TCA) profile used for the VCG..
    Type: alphanumeric string.
    Range: 1 ... 24 characters length
    Default: DEFAULT0
12. unequiposig - Unequipped Tributary Output Signal Rate List
    This parameter specifies the tributary structure and the capacity of the VCG port in output direction. As long as there is no cross-connection applied the specified tributaries shall be occupied by an unequipped signal. The parameter will implicitly give the maximum capacity of the VCG port, too. The tributary structure is independentof the interface standard specified for this VCG.
    Type: numeric string of the form NX.
    - N shall specify the count of container type X
    - X shall specify the container type (or envelope)

    Range:
    - N = 17
    - X = 4 for VC-4 / STS-3C

    Default: 174
13. vmode - VCG Monitoring Mode
    This parameter wtr specifies the monitoring mode for VCG.
    Type: alphanumeric value set.
    Range: MON: for monitored; NMON (default): for not monitored.

Example output

```
   LT-UNITE 01-03-20 09:05:00
A  001 REPT DBCHG
   "TIME=11-10-30,DATE=00-11-11:ENT-VCG-TRANS:
   1-1-#-#-2-V3::camd=GENERICAIS,enetpn=DEFAULT,
   fevpm=DISABLE,inputsig=174,nevpm=DISABLE,
```

```
   pmvcgfeses=3064,pmvcgneses=3064,istd=SDH,
   rplt=01,tcamd=TRRTR,transpn=DEFAULT,transtca=DEFAULTO,
   unequiposig=174,vmode=NMON"
;
```

ENT-VCGTRIB notification

Output format

The ENT-VCGTRIB notification uses the general format of a REPT DBCHG Report Database Change notification.

Syntax: The ENT-VCGTRIB notification has the following specific syntax:

`ENT-VCGTRIB`-modifier*:aid::spec_block*;

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter specifies the VCG tributary whose attributes are reported.
   Type: AID.
   Range: VCGNumAID as defined in AID structure with exception of value all.
2. modifier
   This parameter specifies the type of the tributary.
   Type: alphanumeric value set.
   Range: STS, VC, STST, VCT.

Spec block parameters

1. brstintvl - Bursty Interval
   This parameter specifies the measurement period for degraded defect if *sdsfmode* is set to BURST. If *sdsfmode* is not set to BURST then *brstintvl* has no affect to NE behaviour.
   Type: integer..
   Range: 2, 3, ..., 10 [seconds].
   Default: 7 [seconds].
2. brstthr - Bursty Error Threshold
   This parameter specifies the degradation threshold for degraded defect if *sdsfmode* is set to BURST. If *sdsfmode* is not set to BURST then *brstthr* has no affect to NE behaviour.
   Type: integer.
   Range: 5, 10, 15, ... 50 [%].
   Default: 30 [%].
3. crslpbkstat - Cross-connect Loopback Status
   This parameter reports the configuration of the cross-connection loopback of this tributary. For changing the loopback operation refer to “OPR-LPBK (here cross-connection loopback)” (p. 4-1458).
   Type: alphanumeric value set.
   Range: YES, for enabled loopback; NO, for disabled loopback.

4. degthr - Signal Degrade Threshold
   This parameter specifies the exponent to base 10 for building the degraded threshold level. The degraded threshold level is used for building the degraded defect if sdsfmode is set to POISSON. If *sdsfmode* is not set to POISSON then *degthr* has no affect to NE behaviour. For the definition of *sdsfmode* refer to the Output parameters section.
   Type: integer.
   Range: -5, -6, -7, -8, -9 i.e. range is 10exp-9 to 10exp-5.
   Default: -6
5. dexcthr - Excessive Degrade Threshold
   This parameter specifies the exponent to base 10 for building the excessive threshold level. The excessive threshold level is used for building the excessive bit error defect if *sdsfmode* is set to POISSON. If *sdsfmode* is not set to POISSON then *dexcthr* has no affect to NE behaviour. For the definition of *sdsfmode* refer to the Output parameters section.
   Type: integer.
   Range: -3, -4, -5 i.e. range is 10exp-5 to 10exp-3.
   Default: -3.
6. exphptrc - Expected HP trace identifier
   This parameter specifies the Expected Higher Order Path Trace Identifier (J1). The first byte value shall be in the range from 80 to FF (MSB always set to 1). The other byte values shall be in the range from 00 to 7F (MSB always set to 0). This parameter is only useful if ptrcrfmt is set to 16.
   Type: hexadecimal number without a preceding 'H'.
   Range: length, 32 hexadecimal digits; value, specific string acc. ITU/ETSI mode 1.
   Default: 89000000000000000000000000000000.
7. feppm - Far End Path PM Enable
   This parameter specifies whether the performance monitoring for the far end is enabled or disabled for this tributary.
   Type: alphanumeric value set.
   Range: DISABLE (default), ENABLE.
8. hptimais - HP Trace Identifier Mismatch AIS Insertion
   This parameter specifies if a detected TIM will cause AIS insertion. This parameter is relevant only if the related trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set.
   Range: DISABLE , ENABLE.
   Default: The default value depends on interface standard specified by istd for the VCG owning this tributary. For definition of *istd* refer to "RTRV-VCG: Retrieve virtual concatenation group" (p. 4-2254) Output parameters. DISABLE, if *istd*=SONET; ENABLE, if *istd*=SDH.

9. hptimmon - HP Trace Identifier Mismatch Monitor
   This parameter specifies if the mode of the TIM detection. This parameter is relevant only if the related trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set.
   Range: DISABLE (default), ENABLE.
10. inmbs - Input Membership
    This parameter specifies if the tributary shall take part to the transmission of its owning VCG in input direction. The addressing scheme of the tributaries by using VCGNumAIDs is ensuring that only legal AIDs are used. So no consideration about the 'illegal' tributaries (e.g. 1-1-#-#-1-1-3 for VC-4) is necessary.
    Type: alphanumeric value set.
    Range: DISABLE , ENABLE.
    Default: DISABLE. The VCG has as default the size 0, i.e. it has no member. So the default for the parameter above for VCGTRIB needs to be DISABLE.
11. inmbst - Input Member Status
    This parameter reports the status of the tributary related to its VCG membership in input direction.
    Type: alphanumeric value set.
    Range:
    - NA, for not applicable, i.e. the trib. is no member of the VCG
    - ADD, the tributary is in the LCAS state ″Wait-for-Add″, ″Add″ or ″Wait-for-ACK″
    - ACTIVE, the tributary is member of the VCG and working
    - DNU, the tributary is member of the VCG but taken off by LCAS (incoming failed condition for the sink tributary)
    - UNAVAILABLE, for not available, i.e. the trib. is member of the VCG but the current data is not retrievable for any reason.

      The state DNU can only be reported if lcasmd is set to ENABLE for the VCG owning this tributary. For parameter *lcasmd* refer to the Output parameters section of "RTRV-VCG: Retrieve virtual concatenation group" (p. 4-2254). For a detailed explanation of the ADD state in the LCAS protection scheme, please refer to SRD_DATA_Virtual_Concatenation.
12. neppm - Near End Path PM Enable
    This parameter specifies whether the performance monitoring for the near end is enabled or disabled for this tributary.
    Type: alphanumeric value set.
    Range:
    - DISABLE (default)
    - ENABLE.

13. outmbs - Output Membership
    This parameter specifies if the tributary shall take part to the transmission of its owning VCG in input direction.
    Type: alphanumeric value set.
    Range:
    - DISABLE
    - ENABLE.

    Default: DISABLE. The VCG has as default the size 0, i.e. it has no member. So the default for the parameter above for VCGTRIB needs to be DISABLE.
14. outmbst - Output Member Status
    This parameter reports the status of the tributary related to its VCG membership in output direction.
    Type: alphanumeric value set.
    Range:
    - NA, for not applicable, i.e. the trib. is no member of the VCG
    - ADD, the tributary is in the LCAS state ″Wait-for-Add″, ″Add″ or ″Wait-for-ACK″
    - ACTIVE, the tributary is member of the VCG and working
    - FAILE, the tributary is member of the VCG but not working due to a failure condition. Includes period during ″Hold-Off″.
    - WTR, failure condition has cleared, tributary is in wait to restore condition.
    - UNAVAILABLE, for not available, i.e. the trib. is member of the VCG but the current data is not retrievable for any reason.

      The state WTR can only be reported if lcasmd is set to ENABLE for the VCG owning this tributary. For parameter lcasmd refer to RTRV-VCG Output Parameters. For a detailed explanation of the ADD state in the LCAS protection scheme, please refer to SRD_DATA_Virtual_Concatenation.
15. pmhpfeses - PM HP Far End SES Threshold
    This parameter specifies the Higher Order Path Far End Severely Errored Seconds Performance Monitoring Threshold for errored frames. If errored frames are crossing this threshold this will result in an SES count for the far end. The behaviour depends on interface standard specified by *istd* for the VCG owning this tributary. For definition of *istd* refer to the output parameters section of “RTRV-VCG: Retrieve virtual concatenation group” (p. 4-2254). If *istd* is not set to SDH then *pmhpfeses* has no affect to NE behaviour.
    Type: integer.
    Range: 1, 2, 3, ..., 63998, 63999, 64000, includes SDH/SONET range.
    Default: 2400.

16. pmhpneses - PM HP Near End SES Threshold
    This parameter specifies the Higher Order Path Near End Severely Errored Seconds Performance Monitoring Threshold for errored frames. If errored frames are crossing this threshold this will result in an SES count for the near end. The behaviour depends on interface standard specified by *istd* for the VCG owning this tributary. For definition of *istd* refer to the output parameters section of "RTRV-VCG: Retrieve virtual concatenation group" (p. 4-2254). If *istd* is not set to SDH then *pmhpneses* has no affect to NE behaviour.
    Type: integer.
    Range: 1, 2, 3, ..., 63998, 63999, 64000, includes SDH/SONET range.
    Default: 2400.
17. ptca - Path TCA Profile Pointer
    This parameter specifies the name of the threshold crossing alert (TCA) profile used for this tributary.
    Type: alphanumeric string.
    Range: 1 ... 24 characters.
    Default: DEFAULT0.
18. ptpn - Path Terminating ASA Profile Name
    This parameter points to a tributary ASAP profile name pfname for the designated AID.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: 1 ... 24 characters.
    Default: DEFAULT.
19. ptrcrfmt - Path Trace Read Format
    This parameter specifies the format of the path trace (J1 byte) to be received (sink).
    Type: numeric string.
    Range:
    - 2, for non-specific repeating byte
    - 16, for 16 byte specific string
    - 64, for 64 byte string.

    Default: 2.
20. ptrcwfmt - Path Trace Write Format
    This parameter specifies the format of the path trace (J1 byte) to be sent (source).
    Type: numeric string.
    Range:
    - 2, for non-specific repeating byte
    - 16, for 16 byte specific string
    - 64, for 64 byte string.

    Default: 2.

21. sdsfmode - Signal Degrade/Signal Fail Mode
    This parameter specifies the determination mode of degraded defect for transmission.
    Type: alphanumeric value set.
    Range: BURST or POISSON.
    Default: The default value depends on interface standard specified by istd for the VCG owning this tributary. For definition of istd refer to RTRV-VCG Output Parameters. POISSON, if *istd*=SONET BURST, if *istd*=SDH.
22. tcamd - TCA mode
    This parameter is only available for SDH mode. This means the modifier must be VC. The parameter shows the modus of the PM thresholding. Two thresholding methods are applicable for SDH: TR-only (also known as the implicit reset method), TR-RTR (also known as the explicit reset method). For SONET the parameter tcamd does not exist. SONET ports only support ″TR-only″ mode. Thus the mode must be internally set to ″TR-only″.
    Type: alphanumeric value set.
    Range: TR, TRRTR.
    Default: SDH mode: TRRTR. SONET mode: TR (internal). For SONET the parameter tcamd does not exist. SONET ports only support ″TR-only″ mode. Thus the mode must be internally set to ″TR-only″.
23. tmonmd - Tributary Monitoring Mode
    This parameter specifies the monitoring mode for the tributary.
    Type: alphanumeric value set.
    Range: MON or NMON (default).
24. trc - Outgoing Path Trace
    This parameter specifies the path trace (J1) to be sent (source). For the 16 byte path trace format the following syntactical rule shall be applied: The first byte value shall be in the range from 80 to FF (MSB always set to 1). The other byte values shall be in the range from 00 to 7F (MSB always set to 0). This parameter is irrelevant if the format is non-specific repeating byte (ptrcwfmt=2).
    Type: hexadecimal number without a preceding H’.
    Range: the range depends on the parameter ptrcwfmt specified in RTRV-VCGTRIB Output parameters length
    - 32, hexadecimal digits, if ptrcwfmt=16
    - 128, hexadecimal digits, if ptrcwfmt=64
    - value: specific string acc. ITU/ETSI mode 1, if ptrcwfmt=16; 64 byte string, if ptrcwfmt=64.

    Default: 00. This implies also that ptrcwfmt is set to 2. Refer to [18] for details.
25. tslmmon - Trail Signal Label Mismatch Monitor
    This parameter specifies the mode of the TSL mismatch detection.
    Type: alphanumeric value set.

Range:

- DISABLE
- ENABLE (default).

Example output

```
   LT-UNITE 00-11-11 11:11:00
A  001 REPT DBCHG
   "TIME=11-10-30,DATE=00-11-11:ENT-VCGTRIB-STS:
   1-1-#-#-2-V1-4:: brstintvl=7,brstthr=30,
   crslbkstat=NO,degthr=-6,dexcthr=-3,hptimais=DISABLE,
   exphptrc=8900000000000000000000000000000000,
   hptimmon=DISABLE,inmbs=DISABLE,inmbst=NAV,
   outmbs=DISABLE,outmbst=NAV,ptpn=DEFAULT,
   ptrcrfmt=1,ptrcwfmt=1,sdsfmode=BURST,tmonmd=NMON,
   trc=00,tslmmon=ENABLE"
;
```

□

ENT-VRTSW notification

Output format

The ENT-VRTSW notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Command Syntax: `ENT-VRTSW`*:aid:vrtswid:spec_block;*

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter specifies the slot containing a GE1 pack to be operated on.
   Type: AID.
   Range: UnivSlotAID as defined in AID structure with the exception of the value all and usall.
2. vrtswid - Virtual Switch Identifier
   This parameter identifiers the instance of the virtual switch.
   - A Virtual Switch ID is unique within a single circuit pack. When creating a new Virtual Switch, the system automatically assigns a unique ID to it.
   - There will be one virtual switch per physical switch, implicitly all LAN ports and all WAN ports on the physical switch are part of the single virtual switch. The ID of this virtual switch is fixed to 1. A future release may support multiple virtual switches per physical switch.

   Type: integer.
   Range: 1 - Currently this is the only allowed value.
   Default: 1.

Spec block parameters

1. eplst – EPORT AID list
   This parameter specifies a list of EPORT instances connected to the virtual switch instance as specified by *vrtswid*.
   In R3 there is only one virtual switch instance to which all ports are mapped. Therefore this list is fix.
   Type: AID list.

Range: A list of EPortAIDs as specified in the AID definition section with the exception of the values all and usall in the respective components of the AID, separated by an ampersand ('&')
Example: If all four EPORTs of a GE1 are mapped to one virtual switch:
1-#-#-1-1-1&1-#-#-1-1-2&1-#-#-1-1-3&1-#-#-1-1-4

2. ethertype – VLAN tag protocol ID
   This parameter specifies the VLAN tag protocol ID necessary for interworking purposes. This parameter is used to control whether the virtual switch operates in IEEE802.1Q tagging mode (i.e. set to 0x8100) or in transparent tagging mode (i.e. set to value different to 0x8100).
   Type: hexadecimal value.
   Range: 0x0600 .. 0xFFFF.
   The following values have a specific meaning:
   - 0x8100: virtual switch operates in IEEE802.1Q tagging mode
   - any other value: virtual switch operates in transparent tagging mode.

   Default: 0x8100.
3. gvrpmode – GVRP mode
   The parameter *gvrpmode* allows to control the dynamic VLAN registration mode.
   Type: alphanumeric value set.
   Range: ENABLED, GVRP is enabled. DISABLED (default), GVRP is disabled.
4. stbrpriority – Spanning tree bridge priority
   This parameter specifies the priority of the bridge to be used by the Spanning Tree Protocol.
   Type: integer.
   Range: 0 to 65535.
   The stepping as recommended by the standard (steps of 4096 starting at 0) should be implemented by the management system. The NE will accept any value in the range described above. This has the consequence, that also the range restriction ″0 to 61440″ is not done by the NE.
   Default: 32768.
5. stfdtm – Spanning Tree forward delay timer
   The parameter *stfdtm* specifies the rSTP-related bridge forward delay timer. This parameter is relevant for both rSTP and STP.
   Type: integer.
   Range: 1 .. 255.
   Default: 15.
6. sthellotm – Spanning Tree hello timer
   The parameter *sthellotm* specifies the rSTP-related bridge hello timer. This parameter is relevant for both rSTP and STP.
   Type: integer.
   Range: 1 .. 225.
   Default: 2.

7. stmaxage – Spanning Tree maximum age timer
   The parameter *stmaxage* specifies the rSTP-related maximum PDU transmission delay timer. This parameter is relevant for both rSTP and STP.
   Type: integer.
   Range: 1 .. 255.
   Default: 20.
8. vcglst – VCG AID list
   The parameter *vcglst* specifies a list of VCG instances connected to the virtual switch instance as specified by *vrtswid*.
   In R3 there is only one virtual switch instance to which all eports are mapped. Therefore this list is fix.
   Type: AID list.
   Range: A list of VCGAIDs as specified in the AID definition section with the exception of the values all, usall and vall in the respective components of the AID, separated by an ampersand ('&').
   Example: If all four VCGs of a GE1 are mapped to one virtual switch: 1-#-#-1-1-v1&1-#-#-1-1-v2&1-#-#-1-1-v3&1-#-#-1-1-v4.

Example output

```
   LT-UNITE 02-05-15 13:31:30
A  001 REPT DBCHG
   "TIME=13-30-00,DATE=02-05-15:ENT-VRTSW:
   1-1-#-#-1:1:eplst=1-1-#-#-1-1&1-1-#-#-1-2&
   1-1-#-#-1-3&1-1-#-#-1-4,gvrpmode=ENABLED,
   stbrpriority=32768,stfdtm=15,sthellotm=2,
   stmaxage=20,ethertype=0x8100,vcglst=1-1-#-#-1-v1&1-
   1-#-#-1-v2&1-1-#-#-1-v3&1-1-#-#-1-v4"
;
```

□

INH-MSG: Inhibit message

The INH-MSG command instructs the NE to inhibit the forwarding of autonomous messages on the user session or per system (depending on parameter *sessions*). Autonomous messages are messages which are provided by the system itself without a trigger via the management interface (e.g. alarms, switch reports).

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M3

Priority: 1

Abortable: no

Input format

Command Syntax: `INH-MSG-ALL`*:tid::ctag*[::,,,,*sessions*];

The purpose of the commas in case the optional parameter *sessions* is present is that the format is compliant with non-supported position defined parameters in GR-833.

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
3. sessions – Affected sessions
   This parameter specifies for which sessions the *msgstate* is applied.
   Type: alphanumeric value set.
   Range: CURRENT: affected session is the current session of the user who executed the command.
   Default: CURRENT

Output format

If the INH-MSG request completes successfully, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The command disables autonomous message reporting as specified by *sessions.*

If the user is logged in more than once, and *sessions*=CURRENT, only the current login session is affected by this command.

If the INH-MSG command inhibits autonomous messages that have already been suspended, it will complete successfully.

For *sessions*=CURRENT, the *atag* sequence will be reset to 000 when autonomous message are resumed.

The *atag* for a memory administration user is not affected by this command, see also "RTRV-AO: Retrieve Autonomous Output" (p. 4-1608).

Example input/output

The following is an example of the INH-MSG command:

```
INH-MSG-ALL:LT-UNITE::123456;
   LT-UNITE 00-11-15 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the INH-MSG command.

Related TL1 messages

- "ALW-MSG: Allow message" (p. 4-23)
- "RTRV-ATTR-MSG: Retrieve attribute message" (p. 4-1627)

References

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□

INIT-EQPT (slot): Initialize equipment (slot)

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M4

Priority: 1

Abortable: No.

Input format

Command Syntax: `INIT-EQPT`*:tid:aid:ctag*[:::*spec_block*];

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   The AID of a slot.
   Type: AID.
   Range:
   - SlotAID
   - UnivSlotAID
   - XCSlotAID
   - CTLSlotAID.

   The keyword `usall` is not allowed for Simple_UnivSlotAID
   The keyword `xcall` is not allowed for Simple_XCSlotAID
   The keyword `ctlall` is not allowed for Simple_CTLSlotAID
   The keyword `all` is not allowed for Simple_SlotAID
   The keyword `all` is not allowed on bay/shelf level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. resettype – Reset Type
   With this parameter the type of the reset is selected. Full reset can be traffic affecting and controller reset is not traffic affecting.
   Type: alphanumeric value set.

Range:

- FULL: Full reset
- CONTR: Controller reset.

Default: FULL.

Output format

If the NE fully complies with the INIT-EQPT request, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

- *resettype*=FULL: The command resets the controller and all transmission devices of the circuit pack in the addressed slot.
- *resettype*=CONTR: The command resets only the controller of the circuit pack in the addressed slot and not the transmission devices.

The INIT-EQPT command does not generate a REPT DBCHG message. There are no unique state change notifications associated with the INIT-EQPT command. There are, however, all the state change notifications (operational state) associated with the subsequent restart of the circuit pack.

Update affected entities

These resets affect the operational state of the circuit pack. This change is reported by means of an ED-STATE-EQPT notification for the affected circuit pack. An exception is the reset for CTL pack. For this board no notification is created.

Example input/output

The following shows an example of the INIT-EQPT command where the AID identifies the universal slot 7 in bay 1, shelf 1:

```
INIT-EQPT:LT-UNITE:1-1-#-#-7:123456:::resettype=CONTR;
   LT-UNITE 00-11-16 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the INIT-EQPT command.

Related TL1 messages

"INIT-SYS: Initialize System" (p. 4-1449)

References

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□

INIT-SYS: Initialize System

The INIT-SYS command results in a full reset of all circuit packs that are present in the system. The initialization is equivalent to power cycle reset of the whole system.

The INIT-SYS command is traffic affecting.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S4

Priority: 1

Abortable: no

Input format

Command Syntax: `INIT-SYS`*:tid::ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

If the NE fully complies with the INIT-SYS request, the following normal completion response is returned to indicate the initialization has been started:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The INIT-SYS command does not generate a REPT DBCHG message. There are no unique state change notifications associated with the INIT-SYS command. There are, however, all the state change notifications associated with the subsequent restart of all CTIPs. This includes multiple state change messages. Refer to autonomous notifications because of state changes.

Example input/output

The following is an example for the INIT-SYS command:

```
INIT-SYS:LT-UNITE::123456;
   LT-UNITE 00-11-16 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to INIT-SYS command.

Related TL1 messages

"INIT-EQPT (slot): Initialize equipment (slot)" (p. 4-1446)

References

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□

OPR-DEFRAG: Perform defragmentation

Overview

This command is used to initiate the defragmentation of a link or other entity.

This command is issued by an operator to actually perform a defrag or empty port operation on a port. The command causes the receiving node to start the defrag or empty port operation as specified by the scope field. The sequence of operations that will be followed is first computed and then each action is carried out as an atomic operation.

Database change reports generated

As a result of the time-slot movements, this command shall cause db change notifications.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P3

Abortable: No.

Input format

Command syntax: `OPR-DEFRAG:`*src-Tid:[src-Aid]:ctag::scope:targetID*;

Input parameters

1. src-Tid – Target Identifier
   Target Identifier of the source node is the logical name of the Host NE. ONNS uses the same *tid* used by Host NE.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: The *srcTid* parameter is a case insensitive ASCII character string of up to 20 characters with the allowed character set as described above.
2. ctag – Correlation Tag
   This parameter is included in the command by the TL1 user and is repeated by the NE in the response to allow the TL1 user to associate the command and response messages.
   The *ctag* parameter is a character strings of up to 6 ASCII characters. The allowed ASCII character string is comprised of alphanumeric characters beginning with a letter, or decimal numerals (a decimal numeral is a string of decimal digits with an optional non-trailing “.”).

3. src-Aid
   Source node ONNS application access identifier of the ONNS controller OS command interface port.
   Range: Source node Access IDentifier parameter of the source node controller ONNS command interface entity has the allowed values shown here: snn.
4. scope
   This parameter specifies the scope of the defrag or empty port operation: intra port,inter port [intra link] or empty port.
   Type: alphanumeric value set
   Range:
   - PORT: specifies that the defrag is intra fiber, i.e. on a specific port. In this case the targetID is the same as the portAID. The corresponding neighbor node and neighbor portAID can be deduced form the targetID.
   - LINK: specifies the link defrag is inter fiber but within a link bundle. Also, the link defrag operation is performed on all the bundles between the two neighboring nodes. TargetID specifies the neighbor nodes ASTN node ID.
   - EMPTYPORT: specifies to empty a port by moving all connections via this port to other ports within the same link bundle. The targetID defines the port which should be emptied. The corresponding neighbor node and neighbor portAID can be deduced form the targetID.
5. targetID
   The specification of the targetID depends on the setting of the parameter scope: PORT specifies the AID of the port on the local node that is to be defragmented LINK specifies the ASTN node ID of the neighbor node of the connected link that is to be defragmented EMPTYPORT specifies the AID of the port on the local node that is to be emptied
   Type: Four dash separated numeric string for the portAID. Four dot seperated numeric string for the neighbor ASTN node ID.
   Range: Each numeric string: 0...255.

Output format

If the OPR-DEFRAG request checked on the input parameters against NNDM, the following normal completion response is returned:

```
   src-Tid date time
M  ctag COMPLD
;
```

The final successful defragmentation operation and also the interruption or abortion of the operation is sent out via REPT NNCHG notification

Output parameters

The output parameters *srcTid*, *date*, *time*, *ctag, completion code* and their syntax are included in the Output parameters section of the "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950) command.

Example input/output

The following example shows a successful completion of a intra port defragmentation command:

```
OPR-DEFRAG:NN001:snn:ed01::LINK, 29.13.80.192;
   NN001 2002-01-12 01:03:16
M  ed01 COMPLD
;
```

The following example shows a successful completion of an empty port defragmentation:

```
OPR-DEFRAG:NN001:snn:ed01::EMPTYPORT,1-1-2-1;
   NN001 2002-01-12 01:03:16
M  ed01 COMPLD
;
```

Error responses

The following list identifies conditions that will cause a similar error response:

`E410 (IIPI) Input, Invalid PortId.`

`E512 (IINI) Error - Input, Invalid Neighbor node ID`

Conflicting Defragmentation Request

There is already a defragmentation action in progress with the same targetID (portID or neighbor node ID). The following list identifies conditions that will cause a similar error response:

Error code: `E620 (DAIP) Defragmentation already in progress`

Port Failure

If a failure occurs like remote node crash or fiber cut while a defrag or empty port operation is requested, the request will return with a DENY message and an error code specifying the type of failure. The following list identifies conditions that will cause a similar error response:

Error code: `E617 (PLFS) Port or Line in Failed State`

Port Lockout State

Depending on the operation request the system will behave differently if a port is in LOCKOUT state:

- Defrag Operation: The request will return with a DENY message and an error code specifying the type of failure if one of the ports is in LOCKOUT state.
- Empty Port Operation: The request will return with a DENY message and an error code specifying the type of failure if the specified port is not in LOCKOUT state. Other ports of the link bundle are allowed to be in LOCKOUT state.

The following list identifies conditions that will cause a similar error response:

Error code: `E618 (PLOS) Port in Lock-Out State`

Error code: `E619 (PNLS) Port is not in Lock-Out State`

Port can not be emptied

The request will return for an empty port operation with a DENY message and an error code if:

- it is the only port in the link bundle
- all other ports of the link bundle are in LOCKOUT state
- no connections can be moved, because there is no place in the other (not locked-out) ports of the same link bundle.

The following list identifies conditions that will cause a similar error response:

- `E621 (NTPA) No Target Port Available`
- E622 (NFSA) No Free Space on remaining link bundle Available

Related TL1 message

- "RTRV-PREDEFRAG: Perform an ONNS fragmentation analysis" (p. 4-1977)

□

OPR-EXT-CONT: Operate External Control

The OPR-EXT-CONT operates a MDO port (Miscellaneous Discrete Output / external discrete control), i.e. switches on the MDO port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M3

Priority: 1

Abortable: No

Input format

Command Syntax: `OPR-EXT-CONT:`*tid:aid:ctag;*

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   This is the address of the MDO port entities on which the command operates. If misc_outall is specified the configuration of all MDO's will be retrieved.
   Type: AID
   Range: Miscellaneous_out_discreteAID
   Default: misc_outall (if the *aid* is omitted).
3. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output format

The following example shows the successful completion of the OPR-EXT-CONT command by the NE:

```
   sid date time
M  ctag COMPLD
;
```

If the OPR-EXT-CONT command does not alter the existing attributes, i.e., the control referenced by the aid is already operated, the NE will not deny the command. The system will respond with the completion message shown above.

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

If no probable cause is assigned to the MDO port the command changes the state of the MDO specified via aid to ″switched on″, i.e. the MDO port will be activated.

The update will be reported via a OPR-EXT-CONT - REPT DBCHG message. Refer to the definition of the OPR-EXT-CONT notification.

Example input/output

The following example shows the successful completion of the OPR-EXT-CONT command by the NE:

```
OPR-EXT-CONT:LT-UNITE-123:MISC_OUT3:123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the “RTRV-HDR: Retrieve header” (p. 4-1736) command error responses section. The error responses listed there also apply to the OPR-EXT-CONT command.

Validation: probable cause assigned to MDO port

A probable cause is assigned to the MDO port. This command will be not performed.

Error Code: `SDNC - Status, Data Not Consistent, asgncond not empty`

Related TL1 messages

- “RTRV-ATTR-CONT: Retrieve attribute control” (p. 4-1621)
- “SET-ATTR-CONT: Set attribute control” (p. 4-2295)
- “RLS-EXT-CONT: Release external control” (p. 4-1561).

References

GR-833-CORE, Issue 4, June 2000, OTGR Section 12.3, Network Maintenance: Network Element and Transport Surveillance Messages.

□

OPR-EXT-CONT notification

Output format

The OPR-EXT-CONT notification has the following specific syntax:

```
OPR-EXT-CONT:aid
```

Output parameters

Command parameters

1. aid – Access Identifier
   Refer to the *aid* parameter in the output parameters section of the "RTRV-ATTR-CONT: Retrieve attribute control" (p. 4-1621).

Example output

The example shows a normal OPR-EXT-CONT notification:

```
   LT-UNITE-123 00-01-01 08:00:50
A 815 REPT DBCHG
   "TIME=08-00-12,DATE=00-01-01:OPR-EXT-CONT:MISC_OUT3"
;
```

□

OPR-LPBK (here cross-connection loopback)

The OPR-LPBK-*modifier* command can be initiated by a user to establish a loopback on a tributary.

In this section only the loopback on tributaries is considered.

A cross-connection loopback consists of a cross-connection from an input tributary to an output tributary of the same tributary via the cross-connection fabric. Note that this loopback is possible on any logical tributary whether there is a cross-connection for that tributary or there is no cross-connection for that tributary (in this case the tributary is said to be ″idle″ – thus the naming cross-connection loopback might be slightly misleading – the naming cross-connection loopback should be understood in the sense that the cross-connection fabric is involved in this command and not in the sense that an existing cross-connection is looped back) After releasing the loopback the former, pre-existing cross-connections (if any) must be automatically re-established.

For setting a loopback on an existing cross-connection the command parameter *cmdmde* has to set to FRCD, else if the tributary is *idle* the *cmdmde* shall be NORM.

The *modifier* in the OPR-LPBK command indicates the rate on which the loopback command is applied to. There is no difference if the rate is specified as a SONET rate (STS1, STS3,..) or as SDH-rate (VC3, VC4,..) i.e. the OPR-LPBK-<*sonet-rate*> yields to the same physical and logical behavior as OPR-LPBK-<*sdh-rate*>. No check is made if the *modifier* matches the interface-standard of the port i.e. if the port is provisioned as SONET (resp. SDH) and the rate is a SONET (resp. SDH) rate.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): T4

Priority: 1

Abortable: No.

Input format

Command Syntax: `OPR-LPBK-`*modifier*:*tid*:*aid*:*ctag*::,,,*lpbktyp*[:*spec_block*];

Input parameters

Command parameters

1. modifier
   This parameter indicates the tributary- respectively cross-connection-rate on which the OPR-LPBK command acts on.
   For detailed description please refer to the “RTRV-CRS: Retrieve cross-connection” (p. 4-1649) command
   Type: Alphanumeric value set

Range:

- VC3
- VC4
- VC44C
- VC416C
- VC464C
- STS1
- STS3
- STS12
- STS48
- STS192.

No use of the `all` value is allowed.

2. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and the description of this parameter.
3. aid – Access Identifier
   This parameter specifies the tributary for which the loopback is requested.
   Type: STS1NumAID (when using OPn packs) or VCGNumAID (when using GEn or OPTnpacks).
   No `all` or `usall` or `vall`-value shall be possible for any part of the aid.
4. ctag – Correlation Tag
   See defintion of *ctag* in "RTRV-HDR: Retrieve header" (p. 4-1736).
5. lpbktyp – Loopback Type
   This parameter specifies the type of loopback to be operated. In case of a tributary loopback (either with or without cross-connection) this parameter will be set to CRS.
   Type: alphanumeric value string.
   Range: CRS.

Spec block parameters

1. cmdmde – Command Mode
   This parameter specifies the command execution mode. If the tributary is involved in a cross-connection the parameter shall be set to FRCD, else if the tributary is idle (i.e. non cross-connected) *cmdmde* shall be set to NORM.
   The difference is mainly that in case of an existing cross-connection (in_aid → out_aid) the counterpart (i.e. the out_aid) which formerly delivered traffic will be set to AIS by the loopback operation.
   Type: Alphanumeric value string.
   Range:
   - NORM (default)
   - FRCD.

Output format

If the OPR-LPBK command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

Loopback on tributaries can be switched via the OPR-LPBK command. The parameters *crslpbkstat* and *crslpbkrate* of the entity tributary are updated: – *crslpbkstat* is updated to YES, – *crslpbkrate* is updated to the entered value as given by the *modifier* parameter.

This update is reported by an ED-*rr* (*rr* being either VC3 or STS1) notification for normal tributaries and by an ED-VCGTRIB notification for virtual concatenation tributaries.

Behaviour for ONNS

Cross-connection loopbacks are only allowed when *portClass* = EDGE and *portControl* = MAINT.

Updated affected entities

Apart from the tributary entity no further entities are affected by the OPR-LPBK command.

Example:

OPR-LPBK-VC4:UNITE-NE:1-1-#-#-1-1-4:123456:,,,CRS;

REPT DBCHG

ED-VC3:1-1-#-#-1-1-4::crslpbkstat=YES,crslpbkrate=VC4;

When using the loopback possibility for VCG-tribs it is in the operators responsibility to ensure that the complete bundle of VCG-tribs (building the VCG) are looped. Otherwise parts of the traffic will be missing.

Example input/output

Example 1:

Suppose the following aid 1-1-#-#-1-1-4 is *in_aid* of a cross-connection.

The following command will set a loopback for that tributary.

```
OPR-LPBK-VC4:UNITE-NE:1-1-#-#-1-14:123456::,,,CRS:
cmdmde=FRCD;
   UNITE-NE 00-11-14 12:00:00
M  123456 COMPLD
;
```

Example 2:

Suppose the following aid 1-1-#-#-1-1-4 is not cross-connected.

The following command will set a loopback for that tributary.

```
OPR-LPBK-VC4:UNITE-NE:1-1-#-#-1-1-4:123456::,,,CRS;
   UNITE-NE 00-11-14 12:00:00
M  123456 COMPLD
;
```

Error responses

Validation rule: Valid rate

Loopback command processing verifies that the specified rate is equivalent to the rate of the existing cross-connection. Hereby the SONET-rates are treated identical to the SDH-rates (i.e. sts1/vc3, STS3/vc4 etc.).

Error code: `IDNC - Input Data Not Consistent, Rate is inconsistent with existing cross-connection`

Validation rule: Valid loopback type

Loopback command processing verifies that the parameter and *lpbktyp* match i.e. for a tributary loopback the modifier must be present, the aid must specify a tributary and the *lpbktyp* must be CRS.

Error code: `IDNC - Input Data Not Consistent, Inconsistent loopback type w.r.t. aid`

Validation rule: Loopback must not already exist

Loopback command processing verifies that the loopback command can not be applied to an already existing loopback.

Error code: `SAOP - Status Already Operated, loopback already exists`

Validation rule: No test access session

Loopback command processing shall deny commands requesting a loopback at a tributary which is used in a test access session either as tributary under test or as test access tributary.

Error Code: `SNVS - Status, Not in Valid State, Tributary used in test access session`

Validation rule: HO loopback not on substructured tributary

The command processing shall verify that the high-order tributary specified in the high-order loopback command are not substructured, i.e. that no LO cross-connections exist.

Error Code: `SNVS - Status, Not in Valid State, lower order cross-connections are still existing`

Validation rule: AID boundary and rate consistency

Loopback command processing verifies that the logical AID specified in the command is consistent with the modifier rate. Consistency implies the following condition:

- The boundary of the specified tributary is consistent with the specified rate.
- STS-1/VC-3 payloads can start at any position.
- The first (STS-1 equivalent) tributary of an STS-3/VC-4 rate cross-connection must be on a mod3 + 1 boundary (1, 4 , 7, …).
- The first STS-1 of an STS-12/VC-4-4c rate cross-connection must be on a mod12 + 1 boundary (1, 13, 25, …).
- The first STS-1 of an STS-48/VC-4-16c rate cross-connection must be on a mod48 + 1 boundary (1, 49, 97, …).
- The first STS-1 of an STS-192/VC-4-64c rate cross-connection must be on a mod192 + 1 boundary (1, 193, 385, …).

Error code: `IDNC - Input Data Not Consistent, Tributary boundary is inconsistent with the indicated rate`

Validation rule: Tributary provisioning and rate consistency

For fixed rate tributaries, loopback command processing verifies that

- If the port identified by logical input AID is provisioned to operate in the fixed signal rate mode, as determined by the tributary mode parameter, then the specified modifier rate is equivalent to the provisioned signal rate of the input tributary, as determined by the tributary input signal rate parameter.
- This also holds for the output tributary, which must match the input tributary in the sense of equivalence of modifier rate with the output signal rate Note that in both cases that SDH- and SONET tributary signal rates are treated identical (from the loopback perspective) i.e. there is no difference if the SDH values or the SONET values (for the inputsig- and unequiposig-parameters) are used for the tributary signal rate as long as those rates are compatible (i.e. vc3/sts1, vc4/sts3 etc.).

Error code: `IDNC - Input Data Not Consistent, Specified Tributary does not support the indicated rate`

Note: In case of adaptive rate no consistency check is required

Validation rule: *cmdmde* matches cross-connection non-/existence

Loopback command processing will verify that

- in case no cross-connection exists the *cmdmde* must be NORM
- in case a cross-connection exists the *cmdmde* must be FRCD.

In the other cases

- no cross-connection and *cmdmde*=FRCD and
- cross-connection and *cmdmde*=NORM a rejection takes place.

Error code: `IDNC - Input Data Not Consistent, cross-connection-existence not consistent with cmdmde-value`

Validation rule: No loopbacks on tributaries below ports of *portClass* INNI

Loopback command processing shall verify that the tributary does not belong to a port of *portClass* INNI.

Error Code: `SNVS - Status, Not in Valid State, Port must not be of portClass INNI`

Validation rule: No loopbacks on tributaries below ports of *portClass* EDGE

Loopback command processing shall verify that the tributary does not belong to a port of *portClass* EDGE.

Error Code: `SNVS - Status, Not in Valid State, Port must not be of portClass EDGE`

Validation rule: Tributaries occupied by ONNS

Loopback command processing shall verify that no loopback is established on tributaries which belong to a cross-connections of xconcls=NN (i.e. cmdmde=FRCD is not allowed for NN cross-connections).

Error Code: `SNVS - Status, Not in Valid State, xcon must not be of class NN`

This rule addresses loopbacks on EDGE ports.

Related TL1 messages

- "RLS-LPBK: Release loopback (here facility loopback)" (p. 4-1569)
- "RTRV-LPBK: Retrieve loopback (here facility loopback)" (p. 4-1804)

References

GR-199-CORE

□

OPR-LPBK notification (here cross-connection loopback)

There will be no OPR-LPBK notification because the changes (for the parameter *crslpbkstat* and *crslpbkrate*) caused by an OPR-LPBK command will be notified via an ED-*rr* (*rr* either VC3 or STS1) notification for normal tributaries and by an ED-VCGTRIB notification for virtual concatenation tributaries.

□

OPR-LPBK: Operate loopback (here facility loopback)

For the GE-pack only a far-side facility loopback for the EPort shall be allowed - an OPR-LPBK for the EPort to switch a near-side facility loopback shall be denied.

The OPR-LPBK command can be initiated by a user to establish a loopback on an OPn or GEn port (but not on an acgPort on LOXC packs) in the NE.

Two types of facility loopback can be distinguished:

- a near-side facility loopback which means that signal on the in-port is looped to the out-port and
- a far-side facility loopback, which means that the signal on the out-port is looped back to the in-port.

Switching a facility loopback has no restrictions to existing cross-connections loopbacks or cross-connections, i.e. facility loopbacks are assumed to precede over already existing cross-connection loopbacks. When a facility loopback is released the previously existing cross-connection loopback(s) will show up again.

Note that as safeguard for unintentional corruption of traffic the switching of a facility loopback will only be possible if the affected port's service condition is set to out of service (*servicecond* = OUTOFSERVICE) – this can be achived via the ED-*rr* command.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): T4

Priority: 1

Abortable: No

Input format

Command Syntax: `OPR-LPBK-`*modifier*:*tid*:*aid*:*ctag*::,,,*lpbktyp*;

Input parameters

Command parameters

1. modifier
   This parameter indicates the port rate on which the OPR-LPBK command acts on.
   Type: Alphanumeric value set.
   Range:
   - STM1E
   - STM1
   - STM4
   - STM16

- STM16T
- STM64
- STM256
- EC1
- OC3
- OC12
- OC48
- OC48T
- OC192
- OC768
- 1GE
- T3

No use of the `all` value is allowed.

2. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters (see [23] SRD_SecurityManagement ID95 and ID178) are allowed
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
3. aid – Access Identifier
   Access Identifier of the port for which the loopback state is returned.
   Type: SPortAID (when using OPn, EP155, OPTn packs or EC1 interfaces on the EP51 pack) or EPortAID (when using GEn) or APortAID (when using DS3 interfaces on the EP51 pack).
   Range: No *all* is allowed.
4. ctag – Correlation Tag
   his is included in the command by the TL1 user and is repeated by the network element in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters Note: Current implementation also allows ’0’ as valid CTAG, which is an extension to GR-831.
5. lpbktyp – Loopback Type
   This parameter specifies the type of loopback to be operated.
   In case of a facility loopback this parameter shall be set to
   - FACILITY for a near-side facility loopback
   - FSF for a far-side facility loopback.

   Type: Alphanumeric value string.

Range:

- FACILITY
- FSF.

Output format

If the OPR-LPBK command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

Behavior – OPn Port

Loopback on OPn ports can be switched via the OPR-LPBK command.

The attribute *lpbk* and *fsflpbkstat* of the entity port are updated by this command:

- *lpbk* should be set to YES in case the *lpbktyp*=FACILITY
- *fsflpbkstat* should be set to YES in case the *lpbktyp*=FSF.

This update is reported by an ED-*rr* notification for an OPn port (*rr* specifying the affected port, i.e. OC<M>/ STM<N>).

Behavior – OPTn Port

Loopback on OPTn ports can be switched via the OPR-LPBK command.

The attribute *lpbk* and *fsflpbkstat* of the entity port shall be updated by this command:

- *lpbk* should be set to YES in case the *lpbktyp*=FACILITY
- *fsflpbkstat* should be set to YES in case the *lpbktyp*=FSF.

This update is reported by an ED-*rr* notification for an OPTn port (*rr* specifying the affected port, i.e. OC<M>/ STM<N>)..

Behaviour - EP155 Port

Loopback on EPn ports can be switched via the OPR-LPBK command.

The attribute *lpbk* and *fsflpbkstat* of the entity port shall be updated by this command:

- *lpbk* should be set to YES in case the lpbktyp=FACILITY
- *fsflpbkstat* should be set to YES in case the lpbktyp=FSF.

This update shall be reported by an ED-rr notification for an EP155 port (rr specifying the affected port STM1E).

In case of a EP155 protection group the command is only applicable for the ports of the worker unit. Reason: Ports of the protection card are removed by creation of the protection group.

Behavior – Asynchronous Port

Loopback on Asynchronous ports can be switched via the OPR-LPBK command.

The attribute *lpbk* and *fsflpbkstat* of the entity port shall be updated by this command:

- *lpbk* should be set to YES in case the *lpbktyp*=FACILITY
- *fsflpbkstat* should be set to YES in case the *lpbktyp*=FSF.

This update shall be reported by an ED-rr notification for an asynchronous port (rr specifying the affected port).

Behavior - EC1 Port

Loopback on ports can be switched via the OPR-LPBK command.

The attribute *lpbk* and *fsflpbkstat* of the entity port are updated by this command:

- *lpbk* should be set to YES in case the *lpbktyp*=FACILITY
- *fsflpbkstat* should be set to YES in case the *lpbktyp*=FSF.

This update shall be reported by an ED-EC1 notification for the port.

Behavior – GE1 Port

Loopback on GE1 ports can be switched via the OPR-LPBK command.

The attribute *lpbk* and *fsflpbkstat* of the entity port are updated by this command:

- *lpbk* should be set to YES in case the *lpbktyp*=FACILITY
- *fsflpbkstat* should be set to YES in case the *lpbktyp*=FSF.

This update is reported by an ED-EPORT notification for a GEn port (only *fsflpbkstat*).

Behaviour for ONNS

Facility loopbacks are not allowed when portClass = EDGE or INNI.

Behaviour FS - NS, NS - FS

Switching directly from an existing near-side loopback (far-side loopback) to a far-side loopback (near-side loopback) shall not be possible (i.e. shall be denied). Instead the existing loopback has to be released prior to establish another one.

Example 1

Provisioning a near-side facility loopback:

OPR-LPBK-STM16:UNITE-NE:1-1-#-#-1-1:123456:,,,FACILITY;

REPT DBCHG

ED-STM16:1-1-#-#-1-1::lpbk=YES;

Example 2

Provioning a far-side facility loopback:

OPR-LPBK-OC192:UNITE-NE:1-1-#-#-4-1:123456:,,,FSF;

REPT DBCHG

ED-OC192:1-1-#-#-4-1::fsflpbkstat=YES;

Updated affected entities

Apart from the port entity no further entities are affected by the OPR-LPBK command. Updates of the port entities are reported via ED-*rr* (OPn port) or ED-EPORT (GEn port) notifications.

Example input/output

Example:

Suppose for the port 1 of the pack in slot 01 a far-side facility loopback shall be set:

```
OPR-LPBK-STM16:UNITE-NE:1-1-#-#-1-1:123456::,,,FSF;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
;
```

Error responses

Validation rule: Port is out-of-service

Loopback command processing verifies that the affected port is in out-of-service state, i.e. *servicecond*=OUTOFSERVICE.

Error code: `SNVS - Status, Not in Valid State, Port is not out-of-service.`

Validation rule: *modifier* consistent with given port-rate

Loopback command processing verifies that the *modifier* parameter is consistent with the rate of the port (given by the *aid* parameter). E.g. for an OP2G5 only the *modifier* values STM16 or OC48 (depending on the port's interface standard) are allowed, for an OP10 only *modifier* values STM64 or OC192 (depending on the port's interface standard) are allowed etc.

Error code: `IDNC - Input Data Not Consistent, modifier is inconsistent with existing port rate.`

Validation rule: *modifier* consistent with given port's interface standard

Loopback command processing verifies that the *modifier* parameter is consistent with the interface standard of the port (this port given by the aid parameter). E.g. for an

SDH port only the *modifier* values for STM16 or STM64 or STM256 are valid, for a SONET port only the *modifier* values OC48 or OC192 or OC768 are valid.

Error code: `ICNV - Input Command Not Valid, Interface Standard does not match.`

Validation rule: Loopback must not already exist

Loopback command processing verifies that the loopback command can not be applied to an already existing loopback. The request to establish a near-side (far-side) loopback will be rejected if a near-side (far-side) loopback for the effected port already exists.

Error code: `SAOP - Status Already Operated, loopback already exists`

Validation rule: For GE (EPort) only far-side loopback allowed

Loopback command processing shall verify that for an EPort only a far-side facility loopback (lpbktyp=FSF) can be switched.

Error code: `IDNV - Input Data Not Valid, Invalid loopback for EPort`

Validation rule: No change of loopback allowed

Switching directly from an existing near-side loopback (far-side loopback) to a far-side loopback (near-side loopback) is not possible (i.e. is denied).

Error code: `SNVS - Status, Not in Valid State, Trial to change loopback type`

Validation rule: No loopbacks on ports of *portClass* INNI

Loopback command processing shall verify that the port has not *portClass* INNI.

Error Code: `SNVS - Status, Not in Valid State, Port must not be of portClass INNI`

Validation rule: No loopbacks for PTF on LOXC allowed

Loopback command processing shall deny loopback requests for high-order path-termination functions residing on the LOXC pack.

Error Code: `IDNV - Input, Data Not Valid, Invalid loopback for PTF on LOXC`

Related TL1 messages

- "RLS-LPBK: Release loopback (here facility loopback)" (p. 4-1569)
- "RTRV-LPBK: Retrieve loopback (here facility loopback)" (p. 4-1804)

References

GR-199-CORE

□

OPR-LPBK notification (here facility loopback)

There will be no OPR-LPBK notification because the changes (for the parameter *lpbk* and *fsflpbkstat*) caused by an OPR-LPBK command will be notified via an ED-*rr* notification for an OPn / EPn / OPTn port (*rr* specifying the affected port i.e. OC<M>/STM<N>, OC<M>T/STM<N>T or via an ED-EPORT notification for a GEn port (*fsflpbkstat* only).

□

OPR-PROTNSW: Operate protection switch

The OPR-PROTNSW command allows to switch one or more existing protection group instances of any protection group type. Different identification methods are supported for the different protection types.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M4

Priority: 1

Abortable: No

Input format

1+1 equipment group

Command Syntax: `OPR-PROTNSW`:*tid*:*aid*:*ctag*::*protype*:*spec_block*;

Multiplex section/line protection group

Command Syntax: `OPR-PROTNSW`:*tid*:*aid*:*ctag*::*protype*:*spec_block;*

2-/4-fibre MS-SPRing/BLSR protection group

Command Syntax: `OPR-PROTNSW`:*tid*:*[aid]*:*ctag*::*protype,[rid]*:*spec_block*;

Path protection group

Command Syntax: `OPR-PROTNSW`:*tid*:*[aid]*:*ctag*::*protype, ,[ppgname][,aid1]*:*spec_block*;

The parameter *ppgname* is kept for compatibility reasons only. Because of limitations of the path protection group name aliasing, the use of *ppgname* is not recommended.

Important! The use of *ppgname* as input parameter with alias function is not yet supported. Address path-protected cross-connections individually via *Navis*® Optical EMS/CIT GUI using their AIDs.

Important! If a OPR-PROTNSW command is executed on a MSP 1+1 optimized while the actual protection state does not allow the specified protection switch, then the command is denied with the wrong error code: `SROF - Status, Requested Operation Failed. .`

The expected error response is: `SNVS - Status, Not in Valid State, switch command not allowed for actual protection state`

Input parameters

Command parameters (1+1 equipment protection group)

1. tid – Target Identifier
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   Description: The parameter specifies the aid of 1+1 equipment protection group.
   Type: AID
   Range: bay-shelf-eall (range over SwitchAndTmgProtGrpAID) or SwitchAndTmgProtGrpAID (for one protection group instance) or CtlProtGroupAID (for controller protection group instance) or EP155ProtGroupAID (for EP155 protection group instance).
   Default: No default
3. ctag – Correlation Tag
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
4. protype – Protection Type
   The parameter specifies the type of the 1+1 equipment protection group for retrieving the information.
   Type: alphanumeric value set.
   Range:
   - ALL for all equipment protection groups/ restrictions by the used AID;
   - EQPTSWFBR for switching protection group instance;
   - EQPTCTL for controller protection group instance;
   - EQPTEP155 for EP155 protection group instance.

Command parameters (multiplex section/line protection group)

1. tid – Target Identifier
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   This parameter specifies the aid of a 1+1 multiplex section/line protection group or the aid of a 1:1 multiplex section/line protection group (only R3.0 and later) or an port aid being a member of the group.
   Type: AID
   Range: OnePlusOne_ProtGrpAID (not ranged) or NByOne_ProtGrpAID (not ranged) or SPortAID (not ranged).

3. ctag – Correlation Tag
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
4. protype – Protection Type
   This parameter specifies the architecture (type) of the protection group. The value for the 1+1 line/MS protection group is 1+1. The value for the 1:1 line/MS protection group is 1xNOPT (only R3.0 and later)
   Type: value set
   Range: 1+1 or 1xNOPT

Command parameters (2-/4-fibre MS-SPRing/BLSR protection group)

1. tid – Target Identifier
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   This parameter specifies the aid of a MS-SPRing/BLSR protection group or an port aid being a member of the group.
   Option: If *rid* is specified, then *aid* can be omitted.
   Type: AID
   Range: TwoFibre_ProtGrpAID (not ranged) or FourFibre_ProtGrpAID (not ranged) or SPortAID (not ranged)
3. ctag – Correlation Tag
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
4. protype – Protection Type
   This parameter specifies the protection group type for which the information is retrieved.
   Type: alphanumeric value set
   Range: 2F or 4F
5. rid – Ring Identification
   This parameter specifies the ring identification name. Storage and retrieval of the *rid* is case sensitive, but actual use of the rid to determine the corresponding protection group is case insensitive. The parameter is used as an alias to identify exactly one MS-SPRing/BLSR protection group of any type. Therefore the value shall be unique for all protection groups of type 2F or 4F within the NE.
   If *aid* is specified, then *rid* can be omitted.
   Type: text string of chars allowed for TID strings.
   Range: 1 to 15 characters.
   Default: NONE.

Command parameters (Path protection group)

1. tid – Target Identifier
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   This parameter specifies a path protection group aid or an input tributary aid being a member of the group in combination with *ppgname.*
   The parameter specifies an input tributary *aid* when used in combination with parameter *aid1*.
   Option: If *ppgname* is specified, then *aid* can be omitted or used as an input tributary aid. The parameter *ppgname* is kept for compatibility reasons only. Because of limitations of the path protection group name aliasing, the use of ppgname is not recommended. For low order path protections, the aid is mandatory since the *ppgname* is not supported for those protection groups. For such protection groups, always a path protection group AID has to be specified.
   Option: If parameters aid specifies a HO tributary on a port of port class EDGE and this tributary is combined with another HO tributary within an OUC, then the command shall operate on all protection groups of type PATHDRI identified by these two HO tributaries, if existing. If aid specifies a HO tributary on a port of port class INNI, the command shall be rejected.
   Option: When parameter aid is used in combination with parameter *aid1*, then the command shall operate on all protection groups of type PATHDRI having the AIDs given in parameters *aid* and *aid1* as input tributaries. If *aid* or *aid1* specifies a tributary on a port of port class INNI, the command shall be rejected.
   Type: AID
   Range: STS1NumAID or VCGNumAID or GenLOTribAID.
   The use of wild cards shall not be restricted for STS1NumAID and VCGNumAID. No wildcards shall be allowed in a GenLOTribAID.
3. protype – Protection Type
   This parameter specifies the protection group type for which the information is retrieved.
   Type: alphanumeric value set
   Range: PATHDRI
4. ppgname – Path protection group Name
   The parameter shall specify the path protection group name. Storage and retrieval of the ppgname shall be case sensitive, but actual use of the ppgname to determine the corresponding protection group is case insensitive.
   Option for high order path protection groups: For high order path protections, if aid is specified, then *ppgname* can be omitted. For low order path protections, the *ppgname* shall be omitted as not being supported at all. If an input value is specified for ppgname and none is specified for aid, then RTRV-PROTN-GRP operates on all protection groups of type PATHDRI that have the specified path protection group name. If input values are specified for *aid* and *ppgname* then RTRV-PROTN-GRP operates on all protection groups of type PATHDRI that have

the specified *aid*, *ppgname* pair. The command will complete successfully if there is no protection group described by *aid*, *ppgname*, but no data will be returned. The parameter *ppgname* is kept for compatibility reasons only. Because of limitations of the path protection group name aliasing, the use of *ppgname* is not recommended.
Type: text string
Range: 1 to 24 characters
In particular follow the reference to check options and mandatory omissions associated with this parameter.

5. aid1 - Access identifier 1
   Together with parameter *aid* this parameter shall specify a pair of tributaries in order to execute switches to emulated selector bridges in one command.
   Option: If input values are specified for *aid* and *aid1* then OPR-PROTNSW operates on all protection groups of type PATHDRI that have these specified tributaries as inputs. If an input value is specified for *aid1*, no value must be specified for *ppgname*. If *aid1* specifies a HO tributary in a port of port class INNI, the command shall be rejected.
   Type: AID
   Range: STS1NumAID. The use of wildcards shall not be allowed.

Command parameters (Constituent Path Protection Group)

1. tid – Target Identifier
   This is the currently active name of the NE to which the command is addressed. The *tid* is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
2. aid – Access Identifier
   This parameter specifies a path protection group aid or an input tributary aid being a member of the group in combination with *ppgname.*
   Option: If *ppgname* is specified, then aid can be used as an input tributary aid. The parameter *ppgname* is kept for compatibility reasons only. Because of limitations of the path protection group name aliasing, the use of *ppgname* is not recommended.
   Type: AID
   Range: Path_ProtGrpAID
3. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the network element in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters Note: Current implementation also allows ’0’ as valid CTAG, which is an extension to GR-831.

4. protype – Protection Type
   The parameter shall specify the protection group type to be identified.
   Type: alphanumeric value set
   Range: CONSTITUENTPATH
5. ppgname – Path protection group Name
   The parameter shall specify the path protection group name. Storage and retrieval of the ppgname shall be case sensitive, but actual use of the ppgname to determine the corresponding protection group is case insensitive.
   Option for high order path protection groups: For high order path protections, if aid is specified, then *ppgname* can be omitted. For low order path protections, the *ppgname* shall be omitted as not being supported at all. If an input value is specified for ppgname and none is specified for aid, then RTRV-PROTN-GRP operates on all protection groups of type PATHDRI that have the specified path protection group name. If input values are specified for *aid* and *ppgname* then RTRV-PROTN-GRP operates on all protection groups of type PATHDRI that have the specified *aid*, *ppgname* pair. The command will complete successfully if there is no protection group described by *aid*, *ppgname*, but no data will be returned. The parameter *ppgname* is kept for compatibility reasons only. Because of limitations of the path protection group name aliasing, the use of *ppgname* is not recommended.
   Type: text string
   Range: 1 to 24 characters

Spec block parameters (1+1 equipment protection group)

See detailed behavior description w.r.t. allowed switch commands; i.e allowed value combinations for parameters *dest, sc*.

1. dest – Destination
   This parameter specifies the destination of the switch command; i.e. which side shall be active in terms of the member role within the protection group after the switch has been executed.

   The following values are supported:

   - WKG: Worker
   - PROTN: Protection

   Type: alphanumeric value set
   Range: WKG, PROTN
2. sc – Switch Command
   This parameter specifies the switch command to be executed by the protection state machine.

The following values are supported:

- FRCD: Forced Switch
- MAN: Manual Switch.

Type: alphanumeric value set
Range: MAN, if protype is EQPTCTL; FRCD, MAN (for all other equipment protection group types).

Spec block parameters (multiplex section/line protection group)

See detailed behavior description w.r.t. allowed switch commands; i.e allowed value combinations for parameters *dest, sc*.

1. dest – Destination
   This parameter specifies the destination of the switch command; i.e. to which side the switch command shall applied to.
   The following values are supported:
   - WKG: Worker
   - PROTN: Protection

   The parameter will not be taken into consideration, if a LOCKOUT switch command is performed. Details see behaviour description.
   Type: alphanumeric value set.
   Range: WKG, PROTN.
2. sc – Switch Command
   This parameter specifies the switch command to be executed by the protection state machine.
   The following values are supported:
   - LOCKOUT: Lockout
   - FRCD: Forced Switch
   - MAN: Manual Switch

   Type: alphanumeric value set
   Range: LOCKOUT, FRCD, MAN

Spec block parameters (2-fibre MS-SPRing/BLSR protection group)

See detailed behavior description w.r.t. allowed switch commands; i.e allowed value combinations for parameters *dest, destside, sc*, swtype.

1. dest – Destination
   This parameter specifies the destination of the switch command. The following values are supported: PROTN, Protection.
   Type: alphanumeric value set.
   Range: PROTN.
2. destside – Destination Side

This parameter specifies the destination side to which the switch command shall be applied; i.e.

- it is EAST for the east ring side
- it is WEST for the west ring side.

Type: alphanumeric value set.
Range: EAST, WEST.

3. sc – Switch Command
   This parameter specifies the switch command to be executed by the protection state machine.

   The following values are supported:

   - LOCKOUT: Lockout
   - FRCD: Forced Switch
   - MAN: Manual Switch.

   Type: alphanumeric value set.
   Range: LOCKOUT, FRCD, MAN.
4. swtype – Switch Type
   This parameter specifies what type of protection switching is used for the MS-SPRing/BLSR protection group. The value RING is used for loopback switching. The value SPAN can be used in case of span switching.
   Type: alphanumeric value set.
   Range: RING, SPAN.

Spec block parameters (4-fibre MS-SPRing/BLSR protection group)

See detailed behavior description w.r.t. allowed switch commands; i.e allowed value combinations for parameters *dest, destside, sc*, swtype.

1. dest – Destination
   This parameter specifies the destination of the switch command. The following values are supported: PROTN, Protection.
   Type: alphanumeric value set
   Range: PROTN
2. destside – Destination Side

   This parameter specifies the destination side to which the switch command shall be applied; i.e.

   - it is EAST for the east ring side
   - it is WEST for the west ring side.

   Type: alphanumeric value set.
   Range: EAST, WEST.
3. sc – Switch Command
   This parameter specifies the switch command to be executed by the protection state machine.

The following values are supported:

- LOCKOUT: Lockout
- FRCD: Forced Switch
- MAN: Manual Switch

Type: alphanumeric value set.
Range: LOCKOUT, FRCD, MAN.

4. swtype – Switch Type
   This parameter specifies what type of protection switching is used for the MS-SPRing/BLSR protection group. The value RING shall be used for loopback switching (i.e. service route is looped back onto the protection route in the direction opposite the failure). The value SPAN shall be used in case of span switching (i.e. all traffic being carried on the worker span between an adjacent pair of nodes is switched to the protection span, between the same pair of nodes and on the same side of the ring).
   Type: alphanumeric value set.
   Range: RING, SPAN.

Spec block parameters (path protection group)

See detailed behavior description w.r.t. allowed switch commands; i.e allowed value combinations for parameters *dest, sc*.

1. dest – Destination
   This parameter specifies the destination of the switch command; i.e. to which side the switch command is applied to.
   The following values are supported:
   - WKG: Worker
   - PROTN: Protection.

   Type: alphanumeric value set.
   Range: WKG, PROTN
2. sc – Switch Command
   This parameter specifies the switch command to be executed by the protection state machine.
   The following values are supported:
   - LOCKOUT:Lockout
   - FRCD: Forced Switch
   - MAN: Manual Switch.

   Type: alphanumeric value set.
   Range: LOCKOUT, FRCD, MAN.

Spec block parameters (constituent path protection group)

See detailed behavior description w.r.t. allowed switch commands; i.e allowed value combinations for parameters *dest, sc*.

1. dest – Destination
   This parameter specifies the destination of the switch command; i.e. to which side the switch command is applied to.
   The following values are supported:
   - WKG: Worker
   - PROTN: Protection.

   Type: alphanumeric value set.
   Range: WKG, PROTN
2. sc – Switch Command
   This parameter specifies the switch command to be executed by the protection state machine.
   The following values are supported:
   - LOCKOUT:Lockout
   - FRCD: Forced Switch
   - MAN: Manual Switch.

   Type: alphanumeric value set.
   Range: LOCKOUT, FRCD, MAN.

Output format

After receiving the OPR-PROTNSW command, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

Detailed behavior description

The command switches the identified protection group. The switch command is processed according to the state machine behavior for the different protection group types. As consequence, the values of the following attributes of the state machine may be updated:

EQPTSWFBR: *actunit*, *swreq*

EQPTCTL: *actunit*, *swreq*

EQPTEP155: *actunit*, *swreq*

EQPTEP51: *actunit*, *swreq*

EQPTLOXC: *actunit*, *swreq*

1+1/1:1: *actunit*, *swreq*

2F: *eswreq*, *wswreq*

4F: *eactunit*, *eswreq, wactunit*, *wswreq,*

PATHDRI: *actunit*, *actunitaid*, *swreq*

The update of the attributes is reported by means of a protection switch notification for the corresponding protection group type.

Behaviour of path-protected pipe cross-connections

If the protection type specified in the command is PATHDRI, then the command shall be applied to all constituent members of the path protected pipe cross-connection. The command shall not fail, if the protection switch state of one or more constituent members does not allow the command execution. In this case, the command shall be successfully completed. The system shall send protection switch notifications only for those constituent members, where the command has been successfully executed.

Identification of path protection groups

For PATHDRI, the protection switch applies to all constituents of the identified tributary. For this case, the following table summarizes the use of path protection group names as related to OPR-PROTNSW.

aid	ppgname	dest (note 2)	comment
not used	ppgname	WKG or PROTN	operation applies to all tributaries that are group members of the ppgname (note 1)
grp member (input) logical tributary AID	ppgname	WKG or PROTN	operation applies to all tributaries that are group members of the aid, ppgname subset (note 1)
path prot grp id (output logical tributary AID)	not used	WKG or PROTN	normal, non-aliasing target identification (note 1, note 2)

Note 1: group members are defined to be the working and protection input logical tributaries of the path protection group.

Note 2: the output logical tributary aid of an adjunct path-protected cross-connection is not a path prot grp id, only the output of a path-protected cross-connection is.

Allowed/Supported switch commands for 1+1 Equipment Protection

The following table shows the allowed/supported value combinations for the parameters *sc, dest* w.r.t. OPR-PROTNSW for 1+1 equipment protection group.

sc	dest
FRCD	WKG
FRCD	PROTN
MAN	WKG
MAN	PROTN

Note 1: please keep in mind, that for the controller protection group instance *sc*=MAN is only applicable.

Behaviour description for multiplex section/line protection

The destination parameter dest shall not been taken in consideration, if a LOCKOUT command is performed.

This means for the different MSP types:

- 1:1/1+1 : allways the protection side is locked out and the working side carries the traffic. (By this (PROTN) was specified in the tables)
- 1+1 optimized: The actual protection state is frozen. The actual inactive side is locked out. (To make it also consistent to the other MSPs also (PROTN) was specified in the table).

Allowed/Supported switch commands for 1:1 MSP Protection SDH

The following table shall show the allowed/supported value combinations for the parameters sc, dest, destside, swtype dest w.r.t. OPR-PROTNSW for 1:1 Multiplex Section/Line protection group for SDH mode:

sc	dest
FRCD	WKG
FRCD	PROTN
MAN	PROTN
LOCKOUT	(PROTN)

Allowed/Supported switch commands for 1+1 MSP Protection

The following table shall show the allowed/supported value combinations for the parameters sc, dest w.r.t. OPR-PROTNSW for 1+1 Multiplex Section/Line protection group:

sc	dest
FRCD	WKG
FRCD	PROTN
MAN	WKG
MAN	PROTN
LOCKOUT	(PROTN)

Allowed/Supported switch commands for 1+1 Optimized MSP

The following table shall show the allowed/supported value combinations for the parameters sc, dest w.r.t. OPR-PROTNSW for 1+1 optimized Multiplex Section protection group:

sc	dest
FRCD	WKG
FRCD	PROTN
LOCKOUT	(PROTN)

Allowed/Supported switch commands for 2-fibre MS-SPRing/BLSR

The following table shows the allowed/supported value combinations for the parameters *sc, dest, destside, swtype* w.r.t. OPR-PROTNSW for 2-fibre MS-SPRing/BLSR protection groups.

Case	sc	dest	destside	swtype
LP-S	LOCKOUT	PROTN	EAST or WEST	SPAN
FS-R	FRCD	not used/ omitted	EAST or WEST	RING
MS-R	MAN	not used/ omitted	EAST or WEST	RING

Allowed/Supported switch commands for 4-fibre MS-SPRing/BLSR

The following table shall show the allowed/supported value combinations for the parameters sc, dest, destside, swtype w.r.t. OPR-PROTNSW for 4-fibre MS-SPRing/BLSR protection groups.

Case	sc	dest	destside	swtype
LP-S	LOCKOUT	PROTN	EAST or WEST	SPAN
FS-R	FRCD	not used/ omitted	EAST or WEST	RING
FS-S	FRCD	not used/ omitted	EAST or WEST	SPAN
MS-R	MAN	not used/ omitted	EAST or WEST	RING
MS-S	MAN	not used/ omitted	EAST or WEST	SPAN

Allowed/Supported switch commands for path protection group

The following table shows the allowed/supported value combinations for the parameters *sc, dest* w.r.t. OPR-PROTNSW for path protection groups.

Dependency of allowed/supported switch request were simplified in order to:

- comply with new GR-1400 (01/99)
- harmonize with 1+1 Multiplex section/Line protection group.

sc	dest
LOCKOUT	PROTN
FRCD	WKG
FRCD	PROTN
MAN	WKG
MAN	PROTN

Example input/output

1+1 Equipment protection group

The following example shows an successful 'manual switch to protection' command for a 1+1 equipment protection group:

```
OPR-PROTNSW:LT-UNITE:1-1-estgrp:123456::EQPTSWFBR:
```

```
sc=MAN,dest=PROTN;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
;
```

Multiplex section/line protection group 1+1

The following example shows an successful 'forced switch to worker' command for a 1+1 multiplex section/line protection group:

```
OPR-PROTNSW:LT-UNITE:1-1-o001:123456::1+1:sc=FRCD,
dest=WKG;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
;
```

Multiplex section/line protection group 1:1 (SDH)

The following example shows an successful 'manual switch to protection' command for a 1:1 multiplex section/line protection group:

```
OPR-PROTNSW:LT-UNITE:1-1-o001:123456::1xNOPT:sc=MAN,
dest=PROTN;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
;
```

Multiplex section/line protection group 1:1 optimized

The following example shows an successful lockout command for a 1+1 optimized multiplex section/line protection group: Please keep in mind, that the *dest* parameter is not taken in consideration:

```
OPR-PROTNSW:LT-UNITE:1-1-o001:123456::1+1:sc=LOCKOUT,
dest=PROTN;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
;
```

2 fibre MS-SPRing/BLSR protection group

The following example shows an successful 'manual ring switch' command for the east side of a 2F MS-SPRing/BLSR protection group:

```
OPR-PROTNSW:LT-UNITE:1-1-t001:123456::2F:sc=MAN,
swtype=RING,destside=EAST;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
;
```

4 fibre MS-SPRing/BLSR protection group

The following example shows an successful 'manual span switch' command for the west side of a 4F MS-SPRing/BLSR protection group:

```
OPR-PROTNSW:LT-UNITE:1-1-f001:123456::4F:sc=MAN,
swtype=SPAN,destside=WEST;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
;
```

Path protection group

The following example shows an successful 'lockout of protection' command for a path protection group:

```
OPR-PROTNSW:LT-UNITE:1-1-#-#-10-1-25:123456::PATHDRI:
sc=LOCKOUT,dest=PROTN;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
;
```

The following example shows a successful 'lockout of protection' command to both path protection groups forming an emulated selector bridge on input tributaries 1-1-#-#-8-1-25 and 1-1-#-#-6-1-25:

```
OPR-PROTNSW:LT-UNITE:1-1-#-#-8-1-25:123456::PATHDRI,,,
1-1-#-#-6-1-25:sc=LOCKOUT,dest=PROTN;
   UNITE-NE 98-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses (general)

Validation rule: complete switch command

The switch command (combination of *sc*, *dest*, *destside*, *sctype*) shall be complete; i.e. all needed parameters shall be present.

Error code: `IDNV - Input, Data Not Valid, incomplete switch command`

Validation rule: supported switch command

The switch command (combination of *sc*, *dest*, *destside*, *sctype*) shall be supported by the specified protection group type.

Error code: `IDNV - Input, Data Not Valid, invalid switch command`

Validation rule: allowed switch command in that state

The specified switch command shall be allowed in the actual protection state.

Error code: `SNVS - Status, Not in Valid State, switch command not allowed for actual protection state.`

Validation rule: consistent aid and protype

The specified *aid* shall be consistent with the specified *protype*.

Error code: `IIAC - Input, Invalid ACcess identifier, incorrect syntax`

Error responses (1+1 Equipment protection group)

Validation rule: clock not in warming-up status (Switching Protection Group)

The clock of the destination as requested in the manual switch command shall not be in the 'warming-up' state.

Error code: `SNVS - Status, Not in Valid State, clock of destination XC is in warming-up state, please wait some minutes`

Validation rule: No forced switch to empty XC slot (Switching Protection Group)

The system shall not allow to execute a forced switch on a Switching Protection Group to an empty XC slot.

Error Code: `ENEQ - Equipage, Not EQuipped, XC destination slot empty`

Validation rule: No forced switch to unusable XC slot (Switching Protection Group)

The system shall not allow to execute a forced switch on a Switching Protection Group to a XC slot which has an open latch or a power failure.

Error Code: `SNVS - Status, Not in Valid State, XC destination not usable`

Validation rule: No manual protection switch if the switchover leads to traffic impairments

The system shall not allow to execute a manual switch on a Switching Protection Group with a combination of XC circuit pack types which leads to traffic impairments in the case of protection switches.

Error Code: `SNVS - Status, Not in Valid State, Protection switch with current combination of XC circuit pack types is traffic affecting`

Validation rule: No forced switch to empty LOXC slot (LOXC Protection Group)

The system shall not allow to execute a forced switch on a LOXC Protection Group to an empty LOXC slot.

Error Code: `ENEQ - Equipage, Not EQuipped, LOXC destination slot empty`

Validation rule: No forced switch to unusable LOXC slot (LOXC Protection Group)

The system shall not allow to execute a forced switch on a LOXC Protection Group to a LOXC slot which has an open latch or a power failure.

Error Code: `SNVS - Status, Not in Valid State, LOXC destination not usable`

Error responses (MS/Line protection group)

Validation rule: succeeding switch command

The switch command is executed by the protection state machine running on the XC pack.

Error code: `SPFA - Status, Protection unit FAiled`

Validation rule: MSP type 1:1 does not allow manual switch requests to worker

The system shall reject an OPR command to select the worker port as active port (actunit=WKR) if the current protection architecture is 1:1 (protype = 1x1). This applies only to manual switch requests.

Error code: `SNVS - Status, Not in Valid State, Manual Switch to Worker for Protection Type 1x1 not allowed`

Validation rule: MSP type 1+1_optimized does not allow manual switch commands

The system shall reject an OPR command for manual switch requests if the operation is 'optimized'.

Error code: `SNVS - Status, Not in Valid State, Manual Switch for Protection Type 1+1_Optimized not allowed`

Error responses (2-/4-fibre MS-SPRing/BLSR protection group)

Validation rule: consistent *aid* and *rid*

If both an aid and an rid are specified as input parameters and they are inconsistent, then the following error response is returned

Error code: `IDNV - Input, Data Not Valid, inconsistent aid and rid`

Validation rule: succeeding switch command

The switch command shall be executed by the protection state machine running on the XC pack.

Error code: `SPFA - Status, Protection unit FAiled`

Validation rule: APS switch time constraint

The switch command shall be executed by the protection state machine using the APS within time constraints

Error code: `SPFA - Status, Protection unit FAiled, APS did not succeed.`

Error responses (Path protection group)

Validation rule: Protection Group must exist

If the parameter *aid*, or the combination of the parameters *aid* and *ppgname* does not specify a path protection group, then the following error response is returned:

Error code: `IENE - Input, Entity Not Exists`

Validation rule: Boundary consistency for constituent members

When the protection type specified in the command is CONSTITUENTPATH and the constituent member of the path-protected pipe cross-connection is a concatenated signal, then the command shall only be executed if the specified tributary AID is the first tributary of the concatenated signal.

Error code: `IENE - Input, Entity Not Exists, constituent member does not exist`

Validation rule: Protection Group must exist

If the combination of the parameters *aid* and *aid1* does not specify a path protection group, then the following error response is returned:

Error code: `IENE - Input, Entity Not Exists`

Validation rule: succeeding switch command

The switch command shall be executed by the protection state machine running on the XC pack.

Error code: `SPFA - Status, Protection unit FAiled`

Validation rule: *ppgname* and low order path protections

If a *ppgname* is given as input parameter while the *aid* references a low order tributary, then the following error response is returned:

Error code: `IDNV - Input, Data Not Valid, ppgname not supported for this transmission rate`

Validation rule: *ppgname* and *aid1*

If an aid1 is given as input parameter and additionally a value is given for parameter *ppgname*, then the following error response is returned:

Error code: `IDNV - Input, Data Not Valid, ppgname not allowed if aid1 is given`

Validation rule: Access via tributary on INNI port

If in input parameter *aid* or *aid1* for access via input or output a tributary is given located on a port of port class INNI, then the following error response is returned:

Error code: `IDNV - Input, Data Not Valid, No Access via AID located on INNI port`

Related TL1 messages

- "RTRV-PROTN-GRP: Retrieve protection group" (p. 4-1997)
- "ED-PROTN-GRP: Edit protection group" (p. 4-551)

- "ENT-PROTN-GRP: Enter protection group" (p. 4-1222)
- "ENT-CRS: Enter cross-connection" (p. 4-1026)
- "RLS-PROTNSW: Release protection switch" (p. 4-1574).

□

OPR-SYNCNSW: Operate synchronization switch

The OPR-SYNCNSW command can be initiated by user to request the NE to operate manual or forced synchronization reference protection switch or external timing output protection switch (for SDH only), to lockout synchronization reference or external output timing (for SDH only) switching or to request a change from the provisioned synchronization mode to forced holdover state.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M4

Priority: 1

Abortable: No

Input format

Command Syntax: `OPR-SYNCNSW-`*modifier:tid*::*ctag*::*sc[,dest]*;

Input parameters

Command parameters

1. modifier – modifier
   This parameter indicates the management system on which the switch request acts. The *modifier* REF specifies the assigned timing reference switch. The *modifier* MOD specifies the clock mode switch of the system clock. The *modifier* OUTREF specifies the external timing output switch (for SDH only).
   Type: Alphanumeric value set
   Range:
   - REF
   - MOD
   - OUTREF

   Default: Not applicable.
2. tid – target identifier
   See definition of this parameter in "RTRV-HDR: Retrieve header" (p. 4-1736).
3. ctag – correlation tag
   See definition of this parameter in "RTRV-HDR: Retrieve header" (p. 4-1736).
4. sc – switch command
   This parameter defines the type of switch action that is initiated on the timing reference or mode.

The following values are valid depending on parameter *modifier*.

- *modifier* REF: LOCKOUT – The reference which is addressed by the *dest* parameter, will be locked out by the user and cannot be used as a timing reference signal until the lockout is cleared. FRCD – A forced switch is initiated. It forces selection of the specified reference determined by the *dest* parameter. MAN – A manual switch is initiated to the specified reference determined by the *dest* parameter. CLRWTR – The wait to restore period of the reference which is addressed by the *dest* parameter will be terminated. The signal status will return to normal.
- *modifier* MOD: FRCD – A forced switch is initiated. It forces system timing from the locked mode to the holdover mode (Clock Backup Request).
- *modifier* OUTREF (for SDH only): LOCKOUT – The reference which is addressed by the *dest* parameter, will be locked out by the user and cannot be used for external timing output until the lockout is cleared. FRCD – A forced switch for external timing output is initiated. It forces selection of the specified reference determined by the *dest* parameter. MAN – A manual switch for the external timing output is initiated to the specified reference determined by the *dest* parameter.

LOCKOUT has the highest priority, followed by FRCD, then MAN.
Type: Alphanumeric value set.

Range:

- LOCKOUT
- FRCD
- MAN
- CLRWTR.

Default: Not applicable.

5. dest – destination
   This parameter specifies the assigned timing reference identifier destination. This is the list of timing references available to the system clock or to the timing link switch of the external output timing. This parameter is valid and required for the REF and OUTREF modifiers.
   Type: AID
   Range:
   - *modifier* REF: External_timing_ref_AID, Line_timing_ref_AID
   - *modifier* OUTREF (for SDH only): Line_timing_ref_AID

   Default: Not applicable.

Output format

After receiving the OPR-SYNCNSW command, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
```

;

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output Parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The OPR-SYNCNSW command generates no REPT DBCHG Report Database Change notification. The OPR-SYNCNSW command returns a REPT EVT Report Event notification in consequence of a protection switch notification.

Clock backup request

Forced Holdover: The forced switch of system clock to holdover external request causes the system clock to be switched to holdover regardless of the state of the timing references. The following parameter is affected by the clock mode switch request Forced Holdover: – clkmod_stat = FORCED-HOLDOVER.

System timing reference or output timing switch request

Forced Switch: The forced switch to timing reference external switch request causes the system to be switched to the selected timing reference regardless of the state of that timing reference. While in the Forced Switch state the system may not switch the active timing reference, neither automatically nor by means of the Forced Switch or Manual Switch command.

Manual Switch: The manual switch to timing reference external request causes the system to be switched to the selected timing reference. The system leaves the Manual Switch state by means of the Clear, Lockout or Forced Switch commands. While in the Manual Switch state the system may switch the active timing reference automatically if required for protection switching, the system leaves the Manual Switch state due to automatic switching.

Lockout: The Lockout of reference external request is provided to allow manual disabling of individual references. While in the Lockout state the system may not switch the active timing reference to the reference, which is locked out.

The following parameters are affected by the system timing reference switch request:

- active_ref = [External_timing_ref_AID, Line_timing_ref_AID]
- refsw_stat = [FORCED, MANUAL]
- ref_lock = LOCKOUT
- ref_stat = NORMAL.

The following parameters are affected by the external output timing switch request:

- active_oref_stat = Line_timing_ref_AID
- orefswr_stat = [FORCED, MANUAL]
- sclkref_lockstat = LOCKOUT.

Example input/output

The following is an example of the OPR-SYNCNSW command for System Timing with *modifier* MOD:

```
OPR-SYNCNSW-MOD:LT-UNITE::123456::FRCD;
   LT-UNITE 00-11-09 12:00:00
M  123456 COMPLD
;
```

The following is an example of the OPR-SYNCNSW command for System Timing with *modifier* REF:

```
OPR-SYNCNSW-REF:LT-UNITE::123456::MAN,EXTREF1;
   LT-UNITE 00-11-09 12:00:00
M  123456 COMPLD
;
```

The following is an example of the OPR-SYNCNSW command for Output Timing with *modifier* OUTREF:

```
OPR-SYNCNSW-OUTREF:LT-UNITE::123456::LOCKOUT,LINE3;
   LT-UNITE 00-11-09 12:00:00
M  123456 COMPLD
;
```

Error responses

See definition in "RTRV-HDR: Retrieve header" (p. 4-1736) command error responses section for general validation rules.

Validation rule: Parameter sc or dest is missing

If the system receives a OPR-SYNCNSW command with modifiers REF or OUTREF and one of the parameters *sc* or *dest* are missing, the system responds with:

Error code: `SNVS - Status, Not in Valid State, parameter required`

Validation rule: Invalid switch command

If the system receives a command with a *sc* value that is not supported, the system responds with:

Error code: `IDNV - Input, Data Not Valid, invalid sc`

Validation rule: Reference switching during lockout or disabled state

If the system receives a switch command to reference which is locked out or disabled, the system responds with:

Error code: `SNVS - Status, Not in Valid State, reference unavailable`

Validation rule: Clear wait to restore timer not applicable

If the system receives a clear request for a wait to restore timer while the reference is not in wait to restore state, the system responds with:

Error code: `SNVS - Status, Not in Valid State, clear request impossible`

Validation rule: Parameter not supported for modifier

If the system receives a OPR-SYNCNSW command with *modifier* MOD together with not supported parameter *dest*, the system responds with:

Error code: `IDNV - Input, Data Not Valid, parameter not required`

Validation rule: Clock backup switch request when clock mode is free running

If the system receives a OPR-SYNCNSW command with *modifier* MOD while the provisioned synchronization mode is free running, the system responds with:

Error code: `SSRD - Status, Switch Request Denied, clock mode inconsistent`

Validation rule: No change of the request state, request not practicable

If the system receives a switch command that results in no change to the switch request state or the active unit state, the system responds with:

Error code: `SNVS - Status, Not in Valid State, request not practicable`

Validation rule: Forced or manual switch request while reference is in forced state

If the system receives a manual or forced switch request to a reference which is already in forced state, the system responds with:

Error code: `SNVS - Status, Not in Valid State, request not practicable`

Related TL1 messages

- "RLS-SYNCNSW: Release synchronization switch" (p. 4-1586)
- "SET-SYNCN: Set synchronization" (p. 4-2318)
- "RTRV-SYNCN: Retrieve synchronization" (p. 4-2157)

References

GR-833-CORE

□

OPR-VCGTRIB: Operate virtual concatenation group tributary

The OPR-VCGTRIB command allows to preempt a running wait-to-restore at a VCG tributary being memeber of a LCAS protection scheme. The wait-to-restore status is part of the LCAS protection scheme.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M3

Priority: 1

Abortable: No

Input format

Command Syntax: `OPR-VCGTRIB-modifier:`*tid:aid:ctag::sc;*

Input parameters

Command parameters

1. modifier
   This parameter soecifies the type of the tributary.
   Type: alphanumeric value set.
   Range: STS, VC
2. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
3. aid – Access Identifier
   The access identifier shall specify the VCG tributary whose attributes are to be modified.
   Type: AID
   Range: VCGNumAID as defined in AID structure, i.e. the value all is allowed for Simple_VCGNumAID. For Simple_VCGAID there shall be no *vall* value and for Simple_UnivSlotAID there shall be no *usall* value.
4. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
5. sc – switch command
   The parameter *sc* specifies the switch action applied to the VCG tributary.
   Type: alphanumeric value set.
   Range: CLRWRT.

Output format

If the NE fully complies with the OPR-VCGTRIB request, the following normal completion response shall be returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time* and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behaviour description

The command shall preempt the wait-to-restore timer of the VCG tributary, addressed. State changes caused by this preemption are reported according an autonomous ED-VCGTRIB notification for this VCGTRIB for the parameter *inmbst*.

Example input/output

```
OPR-VCGTRIB-VC:LT-UNITE:1-1-#-#-1-v1-2:123456::CLRWTR;
   LT-UNITE 00-11-11 11:11:00
M  123456 COMPLD
;
```

Error responses

Refer to the RTRV-HDR command Error responses section. The error responses listed there apply to the OPR-VCGTRIB command.

Validation rule: Check modifier against circuit pack type

If the command is applied with modifier = VC or STS to a VCG Tributary on a Transparent pack, then the command shall be denied.

Error Code: `IENE - Input, Entity Not Exists`

Validation Rule: wait-to-restore is not pending

Check that addressed tributary is in state wait-to-restore if parameter *sc*=CLRWTR is applied.

Error code: `SNVS - Status, Not in Valid State, Tributary is not in state wait-to-restore.`

Related TL1 messages

- "RTRV-VCGTRIB: Retrieve virtual concatenation group tributary" (p. 4-2274)
- "ED-VCGTRIB: Edit virtual concatenation group tributary" (p. 4-995)

□

Protection switch notification

Output format

General

The following syntax is used for: 1+1 equipment, 1+1 multiplex section/line, 1:1 multiplex section/line, 2-/4-fibre MS-SPRing/BLSR, path protection group.

1+1 equipment protection includes LOXC equipment protection groups.

Command Syntax: `REPT EVT` *modifier aid*:*condtype*,*condeff*,*ocrdat*,*ocrtm*:*conddescr;*

1+1 equipment protection group

The REPT EVT Notification shall be generated if the swreq (switch request state) attribute is changed due to an automatic switch or a switch command. In addition, a REPT SW Notification shall be generated if the actunit (active unite state) attribute is changed due to an automatic switch or a switch command.

If both, actunit and swreq are changed due to an automatic switch or a switch command, then one REPT SW Notification and one REPT EVT Notification shall be generated.

Output parameters

Command parameters (1+1 equipment protection group, REPT EVT)

1. modifier – Modifier
   This parameter specifies the value 'COM' as an event that applies to the whole NE.
   Type: alphanumeric value set.
   Range: COM.
2. aid – Access Identifier
   The parameter specifies the aid of 1+1 equipment protection group.
   Type: AID
   Range: bay-shelf-eall (range over SwitchAndTmgProtGrpAID) or SwitchAndTmgProtGrpAID (for one protection group instance) or CtlProtGroupAID (for controller protection group instance) or EP155ProtGroupAID (for EP155 protection group instance) EP51ProtGroupAID (for EP51 protection group instance).
3. condtype – Condition Type
   This parameter specifies/identifies the type of event indication being reported. The value GP (General Purpose) is used for all 1+1 equipment protection switch events.
   Type: alphanumeric value set.
   Range: GP.

4. condeff – Condition Effect
   This parameter indicates the effect of the reported event on the NE. The value TC – (Transient Condition) is used for all protection switch events.
   Type: alphanumeric value set.
   Range: TC.
5. ocrdat – Occurrence Date
   This parameter indicates the date of the switch event being reported.
   Type: value set of format MM-DD.
   Range: M, D are digits. Leading zeros are not suppressed. MM represents month, DD the day.
6. ocrtm – Occurrence Time
   This parameter indicates the time of the switch event being reported.
   Type: value set of format HH-MM-SS.
   Range: H, M, S are digits. Leading zeros are not suppressed. HH represents hours, MM minutes, SS seconds.
7. conddescr – Condition Description
   This parameter provides additional information w.r.t. the protection event.
   The string value depends on the actual switch request state as follows
   - *swreq*: *condescr*
   - EQPTFAILED: \"Protection switch, EQPT, Equipment failed"\
   - FS: \"Protection switch, EQPT, Forced switch"\
   - MS: \"Protection switch, EQPT, Manual switch"\
   - NR: \"Protection switch, EQPT, No request"\

   Type: inner string.
   Range: See above. Note: For protection type EQPTCTL swreq=FS or condescr =\″Protection switch, EQPT, Forced switch\″ is not applicable.
   Initial PROTNSW:
   The system evaluates the current fault information at the protection group creation time. Based on that, the system calculates and reports the switch request state. The value will be either 'NR' or 'EQPTFAILED' .

Command parameters (multiplex section/line protection group, REPT EVT)

1. modifier – Modifier
   The parameter shall be derived from the interface rate of the ports within the protection group. It shall indicate the same value as for the two ports.
   Type: alphanumeric value set
   Range: OC3, OC12, OC48, OC192, OC768, STM1, STM4, STM16, STM64, STM256
   Default: The default value is the interface rate of the worker port.
2. aid – Access Identifier
   This parameter specifies the port AID being a member of the protection group.

It is derived from the active unit state as follows:

a. current value of *actunit*, *aid* value

b. WKG, worker port aid

c. PROTN, protection port aid

Type: AID
Range: SPortAID
Initial PROTNSW:
The worker port AID is used in the initial protection switch notification.

3. condtype – Condition Type
   This parameter identifies the type of event indication being reported. The value GP (General Purpose) is used independent for the operation mode if the active unit state has not changed.
   If active unit state has changed and operation mode is revertive, the following values is used: The value WKSWPR-2 is used if service is switched to the protection section/line. The value WKSWBK is used if service is switched to the worker section/line.
   If active unit has changed and operation mode is non-revertive, the value PS is used.
   Type: alphanumeric value set.
   Range: GP, WKSWPR-2, WKSWBK, PS
   Initial PROTNSW:
   The value 'GP' is used in the initial protection switch notification.
4. condeff – Condition Effect
   This parameter indicates the effect of the reported security event on the NE. The value TC - (Transient Condition) shall be used for all protection switch events.
   Type: alphanumeric value set
   Range: TC
5. ocrdat – Occurrence Date
   This parameter indicates the date of the security event being reported.
   Type: value set of format MM-DD
   Range: M, D are digits. Leading zeros are not suppressed. MM represents month, DD the day.
6. ocrtm – Occurrence Time
   Description The parameter shall indicate the time of the security event being reported.
   Type: value set of format HH-MM-SS
   Range: H, M, S are digits. Leading zeros are not suppressed. HH represents hours, MM minutes, SS seconds.
7. conddescr – Condition Description

This parameter provides additional information w.r.t. the protection event. The string value depends on the actual switch request state as follows:

- *swreq*: *conddescr*
- LO: \"Protection switch, {rr} port, Lockout switch,, 1+1/1:1\"
- FS: \"Protection switch, {rr} port, Forced switch,, 1+1/1:1\"
- FOP: \"Protection switch, {rr} port, FOP,, 1+1/1:1\"
- SF: \"Protection switch, {rr} port, SF,, 1+1/1:1\"
- SD: \"Protection switch, {rr} port, SD,, 1+1/1:1\"
- MS: \"Protection switch, {rr} port, Manual switch,, 1+1/1:1\"
- WTR: \"Protection switch, {rr} port, WTR,, 1+1/1:1\"
- DNR: \"Protection switch, {rr} port, DNR,, 1+1/1:1\"
- NR: \"Protection switch, {rr} port, No request,, 1+1/1:1\"

The value for variable *rr* is derived from the port rate within the protection group. See value range definition for the attribute *pgrate* in the "RTRV-PROTN-GRP: Retrieve protection group" (p. 4-1997) output section w.r.t. supported port rates for the different protection types.
Type: inner string.
Range: See description above.
Initial PROTNSW:
The value 'NR' is used for *swreq* in the initial protection switch notification.

Command parameters (2-fibre MS-SPRing/BLSR protection group, REPT EVT)

Protection switch events are reported separately for each side within the protection group. The *aid* parameter can be used in order to identify the side for which the switch event is reported.

1. modifier – Modifier
   The parameter shall be derived from the interface rate of the ports within the protection group. It shall indicate the same value as for the two ports.
   Type: alphanumeric value set
   Range: OC48, OC192, OC768, STM16, STM64, STM256
   Default: The default value is the interface rate of the worker port.
2. aid – Access Identifier
   This parameter specifies for which ring side the corresponding switch request is active; it shall either specify the east port AID or the west port AID within the protection group.
   Type: AID.
   Range: SPortAID.

3. condtype – Condition Type
   This parameter identifies the type of event indication being reported. The value WKSWPR-2 is used if service is switched to the protection route. The value WKSWBK is used if service is switched to the worker route. The value GP (General Purpose) is used if the active route has not changed.
   Type: alphanumeric value set.
   Range: GP, WKSWPR-2, WKSWBK
   Initial PROTNSW: The value *WKSWBK* is used in the initial protection switch notification.
4. condeff – Condition Effect
   This parameter indicates the effect of the reported event on the network element. The value TC - (Transient Condition) shall be used for all protection switch events.
   Type: alphanumeric value set
   Range: TC
5. ocrdat – Occurrence Date
   The parameter shall indicate the date of the switch event being reported.
   Type: value set of format MM-DD
   Range: M, D are digits. Leading zeros are not suppressed. MM represents month, DD the day.
6. ocrtm – Occurrence Time
   The parameter shall indicate the time of the switch event being reported.
   Type: value set of format HH-MM-SS
   Range: H, M, S are digits. Leading zeros are not suppressed. HH represents hours, MM minutes, SS seconds.
7. conddescr – Condition Description
   This parameter provides additional information w.r.t. the protection event. The string value depends on the actual swreq as follows:
   - *swreq*: *condescr*
   - LPS: \"Protection switch, {rr} port, Lockout switch, LPS, 2F"\
   - FSR: \"Protection switch, {rr} port, Forced switch, FSR, 2F"\
   - SFR: \"Protection switch, {rr} port, Signal fail, SFR, 2F"\
   - SDR: \"Protection switch, {rr} port, Signal degrade, SDR, 2F"\
   - MSR: \"Protection switch, {rr} port, Manual switch, MSR, 2F"\
   - WTR: \"Protection switch, {rr} port, Wait to restore, WTR, 2F"\
   - RRS: \"Protection switch, {rr} port, Reverse request, RRS, 2F"\

- RRR: \"Protection switch, {rr} port, Reverse request, RRR, 2F"\
- NR: \"Protection switch, {rr} port, No request, NR, 2F"\

The value for variable *rr* is derived from the port rate within the protection group. See value range definition for the attribute *pgrate* in the "RTRV-PROTN-GRP: Retrieve protection group" (p. 4-1997) output section w.r.t. supported port rates for the different protection types.
Type: inner string
Range: See description above.
Initial PROTNSW: The value 'NR' is used for *swreq* in the initial protection switch notification.

Command parameters (4-fibre MS-SPRing/BLSR protection group, REPT EVT)

Protection switch events are reported separately for each side within the protection group. The aid parameter can be used in order to identify the side for which the switch event is reported.

1. modifier – Modifier
   The parameter shall be derived from the interface rate of the ports within the protection group. It shall indicate the same value as for the two ports.
   Type: alphanumeric value set
   Range: OC48, STM16, OC192, STM64
   Default: The default value is the interface rate of the worker port.
2. aid – Access Identifier
   This parameter specifies the port AID being a member of the protection group.
   It is derived from the active unit state for each side (east or west) as follows:
   a. current value of *actunit*, *aid* value
   b. WKG, worker port aid
   c. PROTN, protection port aid

      The attributes switch request state and active unite state may be updated in the context of a switch event. Actual means the value of the parameter after the switch has occurred.

   Type: AID.
   Range: SPortAID.
   Initial PROTNSW: The worker port AID is used in the initial protection switch notification.
   Asymmetric Ring Support: In all protection switch notifications for an asymmetric span, where a worker port AID is required, but the worker port is not available, the AID of the protection port of the same side of the protection group shall be used.
3. condtype – Condition Type
   This parameter identifies the type of event indication being reported. The value WKSWPR-ep is used if service is switched to east protection span.
   The value WKSWBK-wp is used if service is switched to west protection span.
   The value WKSWBK shall be used if service is switched to working. The value

GP (General Purpose) shall be used if the active route/span has not changed.
Type: alphanumeric value set.
Range: GP, WKSWPR-ep, WKSWPR-wp, WKSWBK
Initial PROTNSW: The value *WKSWBK* is used in the initial protection switch notification.

4. condeff – Condition Effect
   he parameter shall indicate the effect of the reported event on the network element. The value TC - (Transient Condition) shall be used for all protection switch events.
   Type: alphanumeric value set
   Range: TC
5. ocrdat – Occurrence Date
   The parameter shall indicate the date of the switch event being reported.
   Type: value set of format MM-DD
   Range: M, D are digits. Leading zeros are not suppressed. MM represents month, DD the day.
6. ocrtm – Occurrence Time
   The parameter shall indicate the time of the switch event being reported.
   Type: value set of format HH-MM-SS
   Range: H, M, S are digits. Leading zeros are not suppressed. HH represents hours, MM minutes, SS seconds.
7. conddescr – Condition Description
   This parameter provides additional information w.r.t. the protection event. The string value depends on the actual swreq as follows:
   - *swreq*: *condescr*
   - LPS: \"Protection switch, {rr} port, Lockout switch, LPS, 4F"\
   - FSS: \"Protection switch, {rr} port, Forced switch, FSS, 4F\"
   - FSR: \"Protection switch, {rr} port, Forced switch, FSR, 4F"\
   - SFS: \"Protection switch, {rr} port, Signal fail, SFS, 4F\"
   - SFR: \"Protection switch, {rr} port, Signal fail, SFR, 4F"\
   - SDS: \"Protection switch, {rr} port, Signal degrade SDS, 4F\"
   - SDR: \"Protection switch, {rr} port, Signal degrade, SDR, 4F"\
   - MSS: \"Protection switch, {rr} port, Manual switch, MSS, 4F\"
   - MSR: \"Protection switch, {rr} port, Manual switch, MSR, 4F"\
   - WTR: \"Protection switch, {rr} port, Wait to restore, WTR, 4F"\
   - RRS: \"Protection switch, {rr} port, Reverse request, RRS, 4F"\

- RRR: \"Protection switch, {rr} port, Reverse request, RRR, 4F"\
- NR: \"Protection switch, {rr} port, No request, NR, 4F"\

The value for variable *rr* is derived from the port rate within the protection group. See value range definition for the attribute *pgrate* in the "RTRV-PROTN-GRP: Retrieve protection group" (p. 4-1997) output section w.r.t. supported port rates for the different protection types.
Type: inner string.
Range: See Description.
Initial PROTNSW: The value 'NR' is used for *swreq* in the initial protection switch notification.

Command parameters (Path protection group, REPT EVT)

1. modifier – Modifier
   The parameter shall be derived from the interface rate of the ports within the protection group. It shall indicate the same value as for the two ports.
   Type: alphanumeric value set
   Range: STS1, STS3C, STS12C, STS48C, STS192C, VC3, VC4, VC44C, VC416C, VC464C
   Default: The default value shall be derived from the tributary input signal rate list in case of fixed mode.
2. aid – Access Identifier
   This parameter specifies for the output tributary AID of the constituent path selector AID being a member of the path protection group.
   Note: If path protection group consists only of one constituent path selector, the output tributary AID is equal to the path protection group AID.
   Type: AID.
   Range: STS1NumAID or VCGNumAID or GenLOTribAID.
   The use of wild cards shall not be allowed for any part of the AID.
3. condtype – Condition Type
   This parameter specifies the type of event indication being reported. The value GP (General Purpose) is used if the active unit state has not changed.
   If active unit state has changed, the following values are used: The value WKSWPR-2 is used if service is switched to the protection tributary. The value WKSWBK is used if service is switched to the worker tributary.
   Type: alphanumeric value set.
   Range: GP, WKSWPR-2, WKSWBK.
   Initial PROTNSW: The value 'GP' is used in the initial protection switch notification.
4. condeff – Condition Effect
   The parameter shall indicate the effect of the reported event on the network element. The value TC - (Transient Condition) shall be used for all protection switch events.
   Type: alphanumeric value set
   Range: TC

5. ocrdat – Occurrence Date
   The parameter shall indicate the date of the switch event being reported.
   Type: value set of format MM-DD
   Range: M, D are digits. Leading zeros are not suppressed. MM represents month, DD the day.
6. ocrtm – Occurrence Time
   The parameter shall indicate the time of the switch event being reported.
   Type: value set of format HH-MM-SS
   Range: H, M, S are digits. Leading zeros are not suppressed. HH represents hours, MM minutes, SS seconds.
7. conddescr – Condition Description
   This parameter provides additional information w.r.t. the protection event. The string value depends on the actual switch request state as follows:
   - *swreq*: *conddescr*
   - LO: \"Protection switch, {rr} CS, Lockout switch"\
   - FS: \"Protection switch, {rr} CS, Forced switch"\
   - SF: \"Protection switch, {rr} CS, SF"\
   - SD: \"Protection switch, {rr} CS, SD"\
   - MS: \"Protection switch, {rr} CS, Manual switch"\
   - WTR: \"Protection switch, {rr} CS, WTR"\
   - NR: \"Protection switch, {rr} CS, No request"\

   The value for variable *rr* is derived from the constituent signal type; i.e. it has the following values: LOVT1, STS1, STS3C, STS12C, STS48C, STS192C, LOVC12, LOVC3, VC3, VC4, VC44C, VC416C, VC464C.
   Type: inner string.
   Range: See description above.
   Initial PROTNSW: The value 'NR' is used for *swreq* in the initial protection switch notification.

Example output

1+1 Equipment protection group

he following example reports a manual switch to protection circuit pack for 1+1 equipment protection group. Because the manual switch chnges the active unite state and the switch request state, a REPT SW Notification is generated in addition to the REPT EVT Notification:

```
   LT-UNITE 99-01-10 08:12:00
A  001 REPT SW
   "1-1-#-#-xcp-cp,1-1-#-#-xcw-cp"
;
   LT-UNITE 98-01-10 08:12:00
A  002 REPT EVT COM
```

```
   "1-1-estgrp:GP,TC,01-10,08-12-00:\"Protection Switch, EQPT, Manual
     switch\""
;
```

Multiplex section/line protection group (1+1 and 1:1)

The following example reports a lockout switch for a 1+1 multiplex section/line protection group:

```
   LT-UNITE 98-01-10 08:12:00
A  015 REPT EVT OC3
   "1-1-#-#-10-2:WKSWBK,TC,01-10,08-12-00:\"Protection Switch, OC3 port,
      Lockout switch,, 1+1/1x1\""
;
```

2 fibre MS-SPRing/BLSR protection group

The following example reports a manual ring switch of the east side for a 2F MS-SPRing/BLSR protection group:

```
   LT-UNITE 98-01-10 08:12:00
A  015 REPT EVT OC48
   "1-1-#-#-10-2:WKSWPR-2,TC,01-10,08-12-00:\"Protection Switch, OC48
     port, Manual switch, MSR, 2F\""
;
```

4 fibre MS-SPRing/BLSR protection group

The following example reports a manual span switch of the east side for a 4F MS-SPRing/BLSR protection group:

```
   LT-UNITE 98-01-10 08:12:00
A  015 REPT EVT OC192
   "1-1-#-#-10-1:WKSWPR-2,TC,01-10,08-12-00:\"Protection Switch, OC192
     port, Manual switch, MSS, 4F\""
;
```

Path protection group

The following example reports a autonomous switch to protection for a 1+1 path protection group:

```
   LT-UNITE 98-01-10 08:12:00
A  015 REPT EVT STS1
   "1-1-#-#-10-1-25:WKSWPR-2,TC,01-10,08-12-00:
   \"Protection Switch, STS1 CS, SF\""
;
```

□

REPT ALM: Report alarm

REPT ALM messages are generated autonomously by the NE to report an alarm that requires immediate attention by the craft at the OS. Each alarm message has an alarm severity associated with it.

Output format

The general output format of the REPT ALM message is defined as follows:

```
sid date time
almcde atag REPT ALM modifier
  "aid:ntfcncde,condtype,srveff,ocrdat,ocrtm:conddescr"
   (1 or more lines of the above)
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the output parameter section for the RTRV-HDR command.

Output parameters

Command parameters

1. almcde – Alarm Code
   The alarm code indicates the severity of the reported alarm or if the alarm is cleared.
   Type: value set
   Range:
   - *C: Critical alarm
   - **: Major alarm
   - *: Minor alarm
   - A: Automatic message (nonalarm). This is used only to report a cleared alarm.
2. atag – Automatic Tag
   This parameter is used for message sequencing. The number is incremented by one for each autonomous message sent by the NE.
   Type: integer (3 digits).
   Range: 000 – 999 Leading zeros are not suppressed.
3. modifier – Message Modifier
   This parameter defines the AID type to which the alarm belongs.
   Type: alphanumeric value set.
   Range:
   - COM: Common. An alarm/event that applies to the whole NE system; for example, a processing error.
   - EQPT: An equipment-related alarm/event.
   - SYST: An alarm/event related to system timing.

- OUTT: An alarm/event related to output timing.
- STM1E: A facility-related alarm/event for synchronous transport mode 1 (electrical).
- STM1: A facility-related alarm/event for synchronous transport mode 1.
- STM4: A facility-related alarm/event for synchronous transport mode 4.
- STM16: A facility-related alarm/event for synchronous transport mode 16.
- STM16T: A facility-related alarm/event for fully transparent synchronous transport mode 16.
- STM64: A facility-related alarm/event for synchronous transport mode 64.
- STM256: A facility-related alarm/event for synchronous transport mode 256.
- ODU1: A facility-related alarm/event for optical data units of level 1
- OC3: A facility-related alarm/event at the optical carrier signal level 3.
- OC12: A facility-related alarm/event at the optical carrier signal level 12.
- OC48: A facility-related alarm/event at the optical carrier signal level 48.
- OC48T: A facility-related alarm/event at the fully transparent optical carrier signal level 48.
- OC192: A facility-related alarm/event at the optical carrier signal level 192
- OC768: A facility-related alarm/event at the optical carrier signal level 768
- T3: A facility-related alarm/event at the DS3 level
- 1GE: A facility-related alarm/event for 1 Gigabit Ethernet.
- VC3: A facility-related alarm/event for virtual container 3.
- VCG: A facility-related alarm/event for virtual concatenation group tributary.
- VC4: A facility-related alarm/event for virtual container 4
- VC44C: A facility-related alarm/event for a signal concatenated at 4 times the VC4 rate.
- VC416C: A facility-related alarm/event for a signal concatenated at 16 times the VC4 rate.
- VC464C: A facility-related alarm/event for a signal concatenated at 64 times the VC4 rate.
- STS1: A facility-related alarm/event at synchronous transport signal level 1.
- STS3C: A facility-related alarm/event at synchronous transport signal level 3.
- STS12C: A facility-related alarm/event at synchronous transport signal level 12.
- STS48C: A facility-related alarm/event at synchronous transport signal level 48.
- STS192C: A facility-related alarm/event at synchronous transport signal level 192.
- HOVC4 : A facility-related alarm/event for virtual container 4 higher-order path termination.

- HOSTS1: A facility-related alarm/event at synchronous transport signal level 1 higher-order path termination.
- LOVC3: A facility-related alarm/event for virtual container 3 (lower-order path).
- LOVC12: A facility-related alarm/event for virtual container 12
- LOVT1: A facility-related alarm/event at transport level VT1.5.
- LINK: A signaling communication link related alarm/event for ONNS

4. aid – Access Identifier
   This is the address of the entity for which an alarm condition is being reported.
   Type: AID.
   Range: All defined AIDs are allowed. It should be a valid AID for the specified *modifier*. Refer to the definition of AIDs.
5. ntfcncde – Notification Code
   This is the alarm severity of the reported Alarm or the clear information of a cleared Alarm.
   Type: alphanumeric value set.
   Range:
   - CR - Critical (ITU / Telcordia)
   - MJ - Major (ITU / Telcordia)
   - MN - Minor (ITU / Telcordia)
   - CL - Cleared.
6. condtype – Condition Type
   This parameter identifies the probable cause (type of alarm indication) being reported.
   Type: alphanumeric value set.
   Range: All defined probable causes. For the values of *condtypr*, refer to "Alarm, event, ASAP tables" (p. 7-17).
7. srveff – Service Effect
   This parameter identifies the service affect of alarms being reported. It presents the "best guess" from a local system point of view.
   Type: alphanumeric value set.
   Range:
   - SA: Service-Affecting alarm condition
   - NSA: Non-Service-Affecting alarm condition.
8. ocrdat – Occurrence Date
   This parameter indicates the raising / clearing date of the alarm.
   Type: value set of the format MM-DD.
   Range: MM represents the month, DD represents the day, leading zeros are not suppressed.

9. ocrtm – Occurrence Time
   This parameter indicates the raising / clearing time of the alarm. The accuracy should be +/- 1 second.
   Type: value set of the format HH-MM-SS.
   Range: HH represents the hours, MM represents the minutes, SS represents the seconds, leading zeros are not suppressed.
10. conddescr – Description of the Condition
    This is a textual Description of the Condition.
    Type: inner string of the format:
    \"<category>, <entity>, <description>, <additional text>\" or
    \"<category>, <entity>, <description>, <additional text>-cleared\" (this form is used in REPT ALM/EVT for cleared alarms)
    Range:
    - category: is the category
    - entity: is the entity for which the alarm is reported
    - description: is the Alarm description, the string is up to 32 characters
    - additional text: additional text.

    If there is no additional text, then the trailing comma may be omitted. For the values of *conddescr*, refer to "Alarm, event, ASAP tables" (p. 7-17).

Detailed behavior description

If an alarm has an severity of critical, major, or minor, then its occurrence will be reported in a REPT ALM message. An exception to this rule is an environmental alarm which is reported by a REPT ALM ENV autonomous message.

An alarm reported to the OS via the REPT ALM message has a corresponding REPT ALM clearance message that is generated when the alarm clears.

Example input/output

The following example shows an autonomous message REPT ALM for an LOS Alarm:

```
   LT-UNITE-123 00-01-01 08:00:00
*C 126 REPT ALM OC48
  "1-1-#-#-3-1:CR,LOS,SA,01-01,07-29-13:\"Communication-Transport, OC48
     port, Loss Of Signal\""
;
```

The following example shows an autonomous message REPT ALM for an LOS Alarm clear:

```
   LT-UNITE-123 00-01-01 08:00:00
A  127 REPT ALM OC48
  "1-1-#-#-3-1:CL,LOS,SA,01-01,07-29-13:\"Communication-Transport, OC48
     port, Loss Of Signal-cleared\""
```

;

Related TL1 messages

- "ALW-MSG: Allow message" (p. 4-23)
- "ED-ASAP-PROF: Edit alarm severity assignment profile" (p. 4-206)
- "INH-MSG: Inhibit message" (p. 4-1444)
- "REPT-ALM-ENV: Report Alarm Environment" (p. 4-1514)
- "REPT EVT: Report event" (p. 4-1520)
- "RTRV-ALM: Retrieve alarm" (p. 4-1599)
- "RTRV-ALM-ENV: Retrieve alarm environment" (p. 4-1605)
- "RTRV-COND: Retrieve condition" (p. 4-1641)

References

GR-833-CORE, Issue 4, June 2000, OTGR Section 12.3, Network Maintenance: NE and Transport Surveillance Messages

□

REPT-ALM-ENV: Report Alarm Environment

The REPT ALM ENV autonomous messages report when environmental alarm of severity CR (critical), MJ (major), or MN (minor) either sets or clears.

Output format

The general output format of the REPT ALM ENV message is defined as follows:

```
   sid date time
almcde atag REPT ALM ENV
  "aid:ntfcncde,almtype,ocrdat,ocrtm[,almmsg]"
   (1 or more lines of the above)
;
```

Output parameters

Command parameters

1. almcde – Alarm Code
   The alarm code indicates the severity of the reported alarm or if the alarm is cleared.
   Type: value set
   Range:
   - *C: Critical alarm
   - **: Major alarm
   - *: Minor alarm
   - A: Automatic message (nonalarm). This is used only to report a cleared alarm.
2. atag – Automatic Tag
   This parameter is used for message sequencing. The number is incremented by one for each autonomous message sent by the NE.
   Type: integer (3 digits).
   Range: 000 – 999 Leading zeros are not suppressed.
3. aid – Access Identifier
   This is the address of the entity for which an alarm condition is being reported.
   Type: AID.
   Range: Miscellaneous_in_discreteAID. The AID misc_inall must not appear.
4. almtype – Alarm Type
   This parameter identifies the type of alarm indication being reported.
   Type: alphanumeric value set.
   Range: MISC (default), an event that applies to the miscellaneous discrete outputs inputs.

5. ocrdat – Occurrence Date
   This parameter indicates the raising / clearing date of the alarm.
   Type: value set of the format MM-DD.
   Range: MM represents the month, DD represents the day, leading zeros are not suppressed.
6. ocrtm – Occurrence Time
   This parameter indicates the raising / clearing time of the alarm. The accuracy should be +/- 1 second.
   Type: value set of the format HH-MM-SS.
   Range: HH represents the hours, MM represents the minutes, SS represents the seconds, leading zeros are not suppressed.
7. almmsg – Alarm Message
   A string describing the alarm of the environmental point.
   Note: This string is configurable by the SET-ATTR-ENV command.
   Type: text string.
   Range: upper and lower case, up to 32 characters.
   Default: Miscellaneous Discrete.

Detailed behavior description

REPT ALM ENV messages will be reported if on environmental points (MDI's) an alarm of severity CR (critical), MJ (major), or MN (minor) will be raised.

An alarm reported to the OS via the REPT ALM ENV message has a corresponding REPT ALM ENV clearance message that is generated when the alarm condition clears.

An environmental alarm of severity NA (warning (ITU) / not alarmed (telcordia) will be reported by REPT EVT.

Example input/output

The following example shows a REPT ALM ENV message if an environmental alarm appears:

```
   LT-UNITE-123 00-01-01 08:00:00
*C 126 REPT ALM ENV
  "MISC_IN7:CR,MISC,01-01,07-29-13,\"open door\""
;
```

The following example shows a REPT ALM ENV message if an environmental alarm disappears:

```
   LT-UNITE-123 00-01-01 08:00:00
A  127 REPT ALM ENV
  "MISC_IN7:CL,MISC,01-01,07-29-13,\"open door\""
;
```

Related TL1 messages

- "ALW-MSG: Allow message" (p. 4-23)
- "ED-ASAP-PROF: Edit alarm severity assignment profile" (p. 4-206)
- "INH-MSG: Inhibit message" (p. 4-1444)
- "REPT ALM: Report alarm" (p. 4-1509)
- "REPT EVT: Report event" (p. 4-1520)
- "REPT SW: Report switch" (p. 4-1559)
- "RTRV-ALM: Retrieve alarm" (p. 4-1599)
- "RTRV-ALM-ENV: Retrieve alarm environment" (p. 4-1605)
- "RTRV-COND: Retrieve condition" (p. 4-1641)
- "SET-ATTR-ENV: Set attribute environment" (p. 4-2299)

References

GR-833-CORE, Issue 4, June 2000, OTGR Section 12.3, Network Maintenance: Network Element and Transport Surveillance Messages.

□

REPT DBCHG: Report data base change

The REPT DBCHG message reports any change in the system database.

Output format

The REPT DBCHG message uses the following format:

```
   sid date time
A  atag REPT DBCHG
   "TIME=chgtm,DATE=chgdat:ccb:[aid]:[com_block]:[spec_block]"
     ...
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

1. atag – Automatic Tag
   The *atag* is used for message sequencing. The *atag* is available per user session. The number is incremented by one for each autonomous message, and the messages are transmitted to the user in that same order.
   Type: decimal number.
   Range: 0 to 999.
   Default: 0
2. chgtm – Change Time
   Time when the change is occurred.
   Type: value set.
   Range: HH-MM-SS.
3. chgdat – Change Date
   Date when the change occurred
   Type: value set
   Range: YY-MM-DD
4. ccb – Command Code Block
   This field will be set to the TL1 command that causes that database change. The *com_block* and *spec_block* fields will be set according to the parameters that changed.
   Type: alphanumeric value set verb-modifier[-modifier].
5. aid – Access Identifier
   AID of the entity for which the change is reported
   Type: AID.
   Range: As defined by the *aid* input parameter of the corresponding command, defined by *ccb*.

6. com_block – Common Block
   This is a position-defined field. If the database change is the result of a TL1 command which contains parameters in this block, the parameter values are included in this block in the same order as the corresponding TL1 command.
   As exception to this rule are some commands in the protection fragment, where the aliases *rid* and *ppgname* are not reported in the REPT DBCHG notification.
   If the database change is the result of a TL1 command, then the parameter *ctag* from the TL1 command shall not be included in the *com_block*.
   Type: As defined in the input *com_block* of the corresponding command, defined by *ccb*.
   Range: As defined in the input *com_block* of the corresponding command, defined by *ccb*.
   Default: As defined in the input *com_block* of the corresponding command, defined by *ccb*.
7. spec_block – Specific Block
   This is a name-defined field. If the database change is the result of a TL1 command which contains parameters in this block, the parameter names and values are included in this block. parameters within the specific block are positionally independent and are specified using a name-defined construct of *parameter*=value in a comma-separated list. The parameter names are the same as those for the corresponding TL1 command.
   Type: As defined in the input *spec_block* of the corresponding command, defined by *ccb*.
   Range: As defined in the input *spec_block* of the corresponding command, defined by *ccb*.
   Default: As defined in the input *spec_block* of the corresponding command, defined by *ccb*.

Detailed behavior description

The REPT DBCHG message reports any change in the system database. Changes can be caused by a TL1 user or by an internally-generated state change.

Changes in user provisionable attributes are reported as the equivalent TL1 command that would cause that change.

This also means, that e.g. for an ED command the REPT DBCHG message will contain those parameters as specified in the corresponding TL1 command, regardless of whether the command led to an actual change of the attribute or not.

Changes in non-user provisionable attributes are reported using only the AID and the block parameters, i.e. leaving the *ccb* parameter empty.

System initialization

Any time a command is entered that causes a system reset, a REPT DBCHG message is transmitted before the system resets.

AID ranges

If a database change occurs as a result of a TL1 command in which an AID range is entered, the system responds separate REPT DBCHG messages for each affected AID.

Messages caused by own changes

If the database change occurs as a result of a TL1 command, a REPT DBCHG message is transmitted to users provisioned to receive REPT DBCHG messages, including the user which issued the command.

Example input/output

The following is an example of the REPT DBCHG command:

```
   UNITE-NE 00-11-08 08:00:00
A  001 REPT DBCHG
   "TIME=07-59-59,DATE=00-11-08: ENT-EQPT:1-1-#-#-05::nvmname=OP2G5,nvmqual=13SR
;
```

References

GR-199-CORE

□

REPT EVT: Report event

REPT EVT messages are generated autonomously to report alarms of severity NA – Warning (ITU) / Not Alarmed (Telcordia). Also events like protection switches will be reported.

Output format

The general format of a REPT EVT autonomous message is as follows:

```
   sid date time
A  atag REPT EVT modifier
   "aid:condtype,condeff,ocrdat,ocrtm,,,,[thlev]
   [,tmper][:conddescr]"
   (1 or more lines of the above)
;
```

Note: The trailing comma has to be present if *thlev*, *tmper*, or both are used.

Since trailing commas to the left of a colon can be deleted, for non-TCA events, the output format is as follows:

```
   sid date time
A  atag REPT EVT modifier
   "aid:condtype,condeff,ocrdat,ocrtm[:conddescr]"
   (1 or more lines of the above)
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. atag – Automatic Tag
   This parameter is used for message sequencing. The number is incremented by one for each autonomous message sent by the NE.
   Type: integer (3 digits).
   Range: 000 – 999 Leading zeros are not suppressed.
2. modifier – Message Modifier
   This parameter defines the AID type to which the alarm belongs.
   Type: alphanumeric value set.
   Range:
   - COM: Common. An alarm/event that applies to the whole NE system; for example, a processing error.
   - EQPT: An equipment-related alarm/event.

- SYST: An alarm/event related to system timing.
- OUTT: An alarm/event related to output timing.
- STM1E: A facility-related alarm/event for synchronous transport mode 1 (electrical).
- STM1: A facility-related alarm/event for synchronous transport mode 1.
- STM4: A facility-related alarm/event for synchronous transport mode 4.
- STM16: A facility-related alarm/event for synchronous transport mode 16.
- STM16T: A facility-related alarm/event for fully transparent synchronous transport mode 16.
- STM64: A facility-related alarm/event for synchronous transport mode 64.
- STM256: A facility-related alarm/event for synchronous transport mode 256.
- ODU1: A facility-related alarm/event for optical data units of level 1
- OC3: A facility-related alarm/event at the optical carrier signal level 3.
- OC12: A facility-related alarm/event at the optical carrier signal level 12.
- OC48: A facility-related alarm/event at the optical carrier signal level 48.
- OC48T: A facility-related alarm/event at the fully transparent optical carrier signal level 48.
- OC192: A facility-related alarm/event at the optical carrier signal level 192
- OC768: A facility-related alarm/event at the optical carrier signal level 768
- T3: A facility-related alarm/event at the DS3 level
- EC1: A facility-related alarm/event at the EC1 level
- 1GE: A facility-related alarm/event for 1 Gigabit Ethernet.
- VC3: A facility-related alarm/event for virtual container 3.
- VCG: A facility-related alarm/event for virtual concatenation group tributary.
- VC4: A facility-related alarm/event for virtual container 4
- VC44C: A facility-related alarm/event for a signal concatenated at 4 times the VC4 rate.
- VC416C: A facility-related alarm/event for a signal concatenated at 16 times the VC4 rate.
- VC464C: A facility-related alarm/event for a signal concatenated at 64 times the VC4 rate.
- STS1: A facility-related alarm/event at synchronous transport signal level 1.
- STS3C: A facility-related alarm/event at synchronous transport signal level 3.
- STS12C: A facility-related alarm/event at synchronous transport signal level 12.
- STS48C: A facility-related alarm/event at synchronous transport signal level 48.
- STS192C: A facility-related alarm/event at synchronous transport signal level 192.

- HOVC4 : A facility-related alarm/event for virtual container 4 higher-order path termination.
- HOSTS1: A facility-related alarm/event at synchronous transport signal level 1 higher-order path termination.
- LOVC3: A facility-related alarm/event for virtual container 3 (lower-order path).
- LOVC12: A facility-related alarm/event for virtual container 12
- LOVT1: A facility-related alarm/event at transport level VT1.5.

3. aid – Access Identifier
   This is the address of the entity for which an alarm condition is being reported.
   Type: AID.
   Range: All defined AIDs are allowed. It should be a valid AID for the specified *modifier*. Refer to the definition of AIDs.
4. condeff – Condition Effect
   This parameter indicates the effect of the reported event on the NE. It is used to distinguish between persistent and transient alarms/events.
   Two state transitions can be distinguished for a persistent alarm/event:
   - raise transition: state change from not present to present
   - clear transition: state change from present to not present.

   A transient alarm/event has no 'presence' state; i.e. just the occurrence of that event/alarm is reported. ABN condition are always persistent and not transient.
   Type: alphanumeric value set.
   Range:
   - CL: Standing condition cleared for a persistent alarm/event.
   - SC: Standing condition raised for a persistent alarm/event
   - TC: Transient condition occurred for a transient alarms/events.

   Default: There is no default value.
5. conddescr – Description of the Condition
   ASAP related conditions:
   This is a textual Description of the Condition.
   Type: inner string of the format:
   \"<category>, <entity>, <description>, <additional text>\" or
   \"<category>, <entity>, <description>, <additional text>-cleared\" (this form is used in REPT ALM/EVT for cleared alarms)
   Range:
   - category: is the category
   - entity: is the entity for which the alarm is reported

- description: is the Alarm description, the string is up to 32 characters
- additional text: additional text.

If there is no additional text, then the trailing comma may be omitted. For the values of *conddescr*, refer to "Alarm, event, ASAP tables" (p. 7-17).

TCA related conditions:

The general format is: category, entity, description, additional text. If there is no additional text, then the trailing comma may be omitted.

Type: inner string

Range:

- For STM<N>, STM<N>, OC<N>T, OC<N>: Quality of service, {rr} port, TCA where rr is equal to the port rate
- For ODU<N>: Quality of service, {rr} path, TCA where rr is equal to the ODU rate (e.g., ODU1)
- For VC3, VC4, VC44C, VC416C, VC464C, STS1, STS3C, STS12C, STS48C and STS192C: Quality of service, {rr} CS, TCA where rr is equal to the signal rate
- For terminated VC4 and STS1signals: Quality of service, {rr} CS, TCA where rr is equal to the Constituent Signal (CS) rate
- For GE port: Quality of service, GE, TCA
- For VCG port: Quality of service, VCG, TCA
- For DS3 port: Quality of service, T3 port, TCA.

Abnormal conditions:

The general format is: category, description.

Type: inner string.

Range:

- Description for a protection group AID: - Abnormal condition, forced switch active - Abnormal condition, lockout active
- Description for a timing reference AID: - Abnormal condition, operate in hold-over - Abnormal condition, operate in free run mode
- Description for a port AID: - Abnormal condition, facility loopback active
- Description for a logical tributary AID: - Abnormal condition, cross-connect loopback active - Abnormal condition, test access session active
- Description for a system AID: - Abnormal condition, System operates in maintenance mode - Abnormal condition, Autonomous event forwarding is inhibited.

Protection Switch related Conditions:

Refer to the definition of the *conddescr* parameter in the Output parameters section of the "Security event notification" (p. 4-2293) scetion.

Security related Conditions:

Refer to the definition of the *conddescr* parameter in the Output parameters section of the "Security event notification" (p. 4-2293) section.

6. condtype – Condition Type
   ASAP related conditions:
   For events which belong to an ASAP profile, refer to the definition of the *condtype* parameter in the output parameters section of the "RTRV-ALM: Retrieve alarm" (p. 4-1599) command.
   TCA related condition types:
   This parameter identifies the type of event indication being reported.
   Type: nner string with the Format: T-<montype>
   Range for all OC<N> and EC1 signals:
   T-CVS, T-ESS, T-SESS, T-SEFS-S, T-CVL, T-ESL, T-SESL, T-UASL, T-CV-LFE, T-ES-LFE, T-SES-LFE, T-UAS-LFE
   Range for all OC<N>T signals:
   T-CVS, T-ESS, T-SESS, T-SEFS-S, T-CVS-EGR, T-ESS-EGR, T-SESS-EGR, T-SEFS-S-EGR
   Range for the OC192 and OC768 signals:
   T-FECC-L
   Range for the VT1, STS1, STS3C, STS12C, STS48C and STS192C tributaries:
   T-CVP, T-ESP, T-SESP, T-UASP,T-CV-PFE, T-ES-PFE, T-SES-PFE, T-UAS-PFE
   Range for all STM<N> signals:
   T-RS-N-ES, T-RS-N-SES, T-RS-N-BBE, T-RS-N-UAS, T-MS-N-ES, T-MS-N-SES, T-MS-N-BBE, T-MS-N-UAS, T-MS-F-ES, T-MS-F-SES, T-MS-F-BBE, T-MS-F-UAS
   Range for STM<N>T signals:
   T-RS-N-ES, T-RS-N-SES, T-RS-N-BBE, T-RS-N-UAS, T-RS-N-ES-EGR, T-RS-N-SES-EGR, T-RS-N-BBE-EGR, T-RS-N-UAS-EGR
   Range for all ODU<N> signals:
   T-ODU-N-ES, T-ODU-N-SES, T-ODU-N-BBE, T-ODU-N-UAS, T-ODU-F-ES, T-ODU-F-SES, T-ODU-F-BBE, T-ODU-F-UAS
   Range for the STM64 and STM256 signals:
   T-MS-N-FECC
   Range for T3 modifier:
   T-CVL, T-ESL, T-ESA-L, T-ESB-L, T-SESL, T-CVP, T-ESP, T-ESA-P, T-ESB-P, T-SESP, T-UASP, T-SAS-P, T-CV-PFE, T-ES-PFE, T-ESA-PFE, T-ESB-PFE, T-SES-PFE, T-UAS-PFE, T-SAS-PFE, T-CVP-EGR, T-ESP-EGR, T-ESA-P-EGR, T-ESB-P-EGR, T-SESP-EGR, T-UASP-EGR, T-SAS-P-EGR, T-CV-PFE-EGR, T-ES-PFE-EGR, T-ESA-PFE-EGR, T-ESB-PFE-EGR, T-SES-PFE-EGR, T-UAS-PFE-EGR, T-SAS-PFE-EGR
   Range for VC12, VC3, VC4, VC44C, VC416C and VC464C tributaries:
   T-VC-N-ES, T-VC-N-SES, T-VC-N-BBE, T-VC-N-UAS, T-VC-F-ES, T-VC-F-SES, T-VC-F-BBE, T-VC-F-UAS
   Range for ENET signals: T-PDE
   Abnormal condition types:
   This parameter identifies the type of event indication being reported.
   Type: inner string with the Format: ABN-<abntype>

Range:

- ABN-FORCESW: Forced switch active
- ABN-LOCKOUT: Lockout active
- ABN-HLDOVRSYNC: Holdover synchronization mode
- ABN-FREERUNSYNC: Free-run synchronization mode
- ABN-LPBKPORT : Facility Loopback
- ABN-LPBKXCON: Cross Connect Loopback
- ABN-MAINTENANCE: System operates in maintenance mode
- ABN-TESTACC: Test access session has been setup.

Protection Switch related Condition Types:
Refer to the definition of the *condtype* parameter in the Output parameters section of the Protection group section.
Security related Condition Types:
Refer to the definition of the *condtype* parameter in the Output parameters section of the "Security event notification" (p. 4-2293) section.

7. ocrdat – Occurrence Date
   This parameter indicates the raising / clearing date of the alarm.
   Type: value set of the format MM-DD.
   Range: MM represents the month, DD represents the day, leading zeros are not suppressed.
8. ocrtm – Occurrence Time
   This parameter indicates the raising / clearing time of the alarm. The accuracy should be +/- 1 second.
   Type: value set of the format HH-MM-SS.
   Range: HH represents the hours, MM represents the minutes, SS represents the seconds, leading zeros are not suppressed.
9. thlev – Threshold Level
   This parameter is only used for Threshold Crossing Alerts (TCAs). It reports the threshold level value which is set by ED-TCA-PROF.

   The two applicable thresholding methods (tcamd) must be distinguished. For TR-only mode:

   - the raise TCA threshold value is reported.

For TR-RTR mode:

- the raise TCA threshold value is reported for the raise event
- the reset TCA threshold value is reported for the clear event.

Type: integer.
Range: >1 (1 … 4294967295). Leading zeros will be suppressed.

10. tmper – Time Period
    This parameter reports the monitored time interval. This parameter is only used for Threshold Crossing Alerts (TCAs).
    Type: value set.
    Range: 15-MIN, 1-DAY.

Detailed behavior description

If an alarm is provisioned as NA – Warning (ITU) / Not Alarmed (Telcordia), then the occurrence of that alarm is reported in a REPT EVT message. REPT EVT messages also occur when any such standing alarm clears and is used to report transient conditions.

A standing condition is an alarm event that has a beginning and an end. When the event begins, the standing condition is declared via an autonomous message. When the event ends, an autonomous message is sent to indicate that the event cleared.

A transient condition only results in one autonomous message – a declaration that a specific transient condition occurred.

Autonomous performance monitoring (PM) threshold crossing alert (TCA) messages are provided to the OS using the REPT EVT TL1 message.

LambdaUnite® MSS supports two thresholding methods:

1. TR-only (also known as the implicit reset method). Then the TCA is a transient one – it is reported when the threshold is crossed. Because it is transient, there is no report when it clears (TC only).
2. TR-RTR (also known as the explicit reset method). Then the TCA has a standing condition, this means it has a beginning and an end (SC and CL).

The severity of a TCA is not provisionable. It is always NA – warning (ITU) / not alarmed (Telcordia) which implies TCA messages are always reported via REPT EVT.

Protection switching messages are provided to the OS using the REPT EVT TL1 message.

The REPT EVT message reports updates of the protection states.

Abnormal Condition messages are provided to the OS using the REPT EVT TL1 message.

The REPT EVT message reports updates of the abnormal condition states. The abnormal condition is always a standing condition, this means it has a beginning and an end (SC and CL).

The severity of a ABN condition is not provisionable. It is always NA - warning (ITU) / not alarmed (Telcordia) which implies ABN messages are always reported via REPT EVT.

Example input/output

The following example shows an autonomous message REPT EVT for an LOS Alarm which has a severity NA assigned:

```
   LT-UNITE-123 00-01-01 08:00:00
A  003 REPT EVT OC48
   "1-1-#-#-3-1:AIS-L,SC,01-01,07-59-59:\"Communication-Transport, OC48
     port, Alarm Indication Signal\""
;
```

The following example shows an autonomous message REPT ALM for an LOS Alarm clear which has a severity NA assigned:

```
   LT-UNITE-123 00-01-01 08:00:00
A  003 REPT EVT OC48
   "1-1-#-#-3-1:AIS-L,CL,01-01,07-59-59:\"Communication-Transport, OC48
     port, Alarm Indication Signal-cleared\""
;
```

Note: Examples for the other types of REPT EVT e.g. TCAs and protection switches are described in other sections which describes the specifics of the area to which the events belongs to (e.g. performance monitoring, protection switching).

Related TL1 messages

- "ALW-MSG: Allow message" (p. 4-23)
- "ED-ASAP-PROF: Edit alarm severity assignment profile" (p. 4-206)
- "INH-MSG: Inhibit message" (p. 4-1444)
- "REPT ALM: Report alarm" (p. 4-1509)
- "REPT-ALM-ENV: Report Alarm Environment" (p. 4-1514)
- "RTRV-ALM-ENV: Retrieve alarm environment" (p. 4-1605)
- "RTRV-COND: Retrieve condition" (p. 4-1641)

References

GR-833-CORE, Issue 4, June 2000, OTGR Section 12.3, Network Maintenance: NE and Transport Surveillance Messages.

□

REPT EVT FXFR: Report Event FXFR

REPT EVT FXFR is an autonomous message that is used to report remote file transfer activities.

Output format

The general format of a REPT EVT FXFR autonomous message is as follows:

```
   sid date time
A  atag REPT EVT FXFR
   "filename,fxfr_status[,fxfr_rslt][,bytes_xfrd]";
```

Output parameters

Command parameters

1. atag – Automatic Tag
   This parameter is used for message sequencing. The number is incremented by one for each autonomous message sent by the NE.
   Type: integer (3 digits).
   Range: 000 – 999 Leading zeros are not suppressed.
2. filename
   This parameter identifies the name of the file transferred.
   Type: text string.
   Range: 1 to 128 characters.
3. fxfr_status
   This parameter indicates the file transfer status.
   Type: alphanumeric value set.
   Range:
   - START, indicates file transfer has started
   - IP, indicates file transfer is In-Progress; optional
   - COMPLD, indicates file transfer has completed.
4. fxfr_rslt
   This parameter indicates success or failure of the file transfer. This parameter is only displayed when the file transfer has completed (that is., *fxfr_status* is COMPLD).
   Type: alphanumeric value set.
   Range:
   - SUCCESS, indicates successful file transfer
   - FAILURE, indicates failed file transfer.
5. fxfr_xfrd
   Number of bytes transferred for IP and total number of bytes for COMPLD.
   Type: alphanumeric value set.

Detailed behavior description

After the initial response to the COPY-RFILE command by the NE, the autonomous message must be used to communicate any kind of event. So, if the connection or file transfer fails, the autonomous message must be sent with a failure indication. Once the file has been completely downloaded, the autonomous message must then be sent with a successful indication.

Reasons of transmit failure - external communication failure

If the command failed due to an external communications failure.

The following list identifies conditions that will cause an SROF error response as given above:

- External communication failure
- Unsuccessful file transfer.

Reasons of transmit failure - transferred file is invalid

If the transferred file is deemed invalid for miscalleneous reasons such as incorrect checksum, invalid control information, etc., the system shall respond with fxfr_rslt=FAILURE.

Reasons of transmit failure - Generic not available

If the command failed because the generic is not available, the system shall respond with fxfr_rslt=FAILURE. The following condition will cause this ENSG error response: Not a software generic file.

Reasons of transmit failure - Directory not accessible

If a directory is specified that cannot be found or cannot be accessed due to improper privileges, the system shall respond with fxfr_rslt=FAILURE.

Reasons of transmit failure - Product mismatch

If the command failed due to a product mismatch in a retrieved file (file does not belong to NE type), the system shall respond with fxfr_rslt=FAILURE.

Example input/output

The following example shows an autonomous message REPT EVT FXFR for starting a file transfer :

```
   LT-UNITE-123 00-01-01 08:00:00
A  003 REPT EVT FXFR
   "/UNITE/release4,START,8051"
;

   LT-UNITE-123 00-01-01 08:00:00
A  003 REPT EVT FXFR
   "/UNITE/release4,IP,2000"
```

```
;

   LT-UNITE-123 00-01-01 08:00:00
A  003 REPT EVT FXFR
   "/UNITE/release4,COMPLD,SUCCESS,8051"
;
```

Related TL1 messages

- "APPLY: Apply software generic" (p. 4-25)
- "COPY-RFILE: Copy remote file" (p. 4-70)
- "RTRV-PRMTR-DATA: Retrieve parameter data" (p. 4-1982)
- "RTRV-PRMTR-SFTWR: Retrieve parameter software" (p. 4-1991)
- "RTRV-NE: Retrieve NE" (p. 4-1826)
- "ED-NE: Edit NE" (p. 4-320)

□

REPT-NNCHG Notification: Report ONNS data repository changes

Overview

The REPT NNCHG notification is used to notify about NNDR bandwidth availability changes. In addition the REPT NNCHG notification is used to notify about ONNS restarts. In addition the REPT NNCHG notification is used to notify about ONNS System Parameter changes by ED-NNCNFG command. In addition the REPT NNCHG notification is used to notify about ONNS Defragmentation Operation Completion by OPR-DEFRAG command.

The REPT NNCHG notification message reports NNDR bandwidth availability changes which trigger distribution of a new Link State Advertisement (LSA). In addition the REPT NNCHG notification message reports restarts of the ONNS which in case of the XC would not become transparent for the connected management system, otherwise. This notification then would allow a management system to execute RTRV-PATH commands to the affected node to align on connection data and states. This is necessary, as a management system is neither notified about connection data and state changes during downtime of the XC nor about actual connection data and states after recovery of the XC. In addition the REPT NNCHG notification message reports the change of the ONNS System Parameters like 'wait to restore timer', 'default restoration priority' or 'administrative cost escalation'.

Output format

The generic format of a REPT NNCHG message is as follows with the update management block (umb) and the common data block (comBlock).

```
   srcTid rpt-date rpt-time
A  atag REPT NNCHG
   "umb:comBlock"
;
```

The general format of a REPT NNCHG autonomous notification message is expanded as follows:

```
   srcTid rpt-date rpt-time
A  atag REPT NNCHG
   "DATE=ocrDate,TIME=ocrTime:srcNodeID:srcAid:msgCode
   :dataSrcID,,\"
\" eventText \",[eventData]"
;
```

Output parameters

Command parameters

1. srcTid – Source Node Identifier
   Target Identifier of the source node is the logical name of the Host NE. ONNS uses the same *tid* used by Host NE.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: The *srcTid* parameter is a case insensitive ASCII character string of up to 20 characters with the allowed character set as described above.
2. rpt-date - Report date
   This parameter is set to the date when the output message is generated.
   Note: Format uses a 4 digit year instead of a 2 digit year as for host TL1 commands. Compare to RTRV-HDR.
   Range: YYYY-MM-DD; where YYYY=2000-2099, MM=01-12, DD=01-31.
3. rpt-time - Report time
   This parameter is set to the time when the output message is generated.
   Range: HH:MM:SS; where HH=00-23, MM=00-59, SS=00-59.
4. atag - Automatic Tag
   This parameter is used for message sequencing. The atag is available per user session. The number is incremented by one for each autonomous message, and the messages are transmitted to the user in that same order.
   Values: 000 (default) - 999
5. Update Management Block (umb): ocrDate - Occurrence Date
   The date parameter is set to the date when the event occurred in the system.
   Values: .YYYY-MM-DD where YYYY=2000-2099, MM=01-12, DD=01-31
6. umb: ocrTime - Occurrence Time
   Time when the change occurred.
   The time parameter is set to the time when the event occurred in the system.
   Values: HH-MM-SS where HH=0-23, MM=00-59, SS=00-59.
7. Common Block (cb): srcNodeID
   ONNS source nodeID. Together with the following srcPortID field defines the associated Ingress connPoint that connects the source node to the edge/gateway switch or client router.
   Range: Four dot seperated numeric strings. 0 - 255 for each numeric string.
8. cb: srcAid
   Source node ONNS application access identifier of the ONNS controller OS command interface port.
   Range: Source node Access IDentifier parameter of the source node controller ONNS command interface entity has the allowed values shown here: snn.
9. cb: msgCode
   This parameter identifies the reported change.
   Type: alphanumeric string of length.

10. cb: dataSrcID
    The data repository or software package reporting the change: NNDR for the Network Neighbor Data Repository.
    Range:
    - NNDR: for the Network Neighbor Data Repository
    - NNSYS: for ONNS System
    - NNDEFRAG: for the Defragmentation Operation
11. cb: eventText
    Free format text, up to 80 characters.
12. cb: eventData
    Further event data as named-parameter=value pair(s). Comma seperated when multiple pairs.

Example output

The following is an example of the REPT NNCHG message for an ONNS Neighbor Nodal Data Repository LBA update due to a capacity threshold crossing, which causes an LSA distribution:

```
   LT-ONNS-101 2002-08-01 08:02:37
A  004593 REPT NNCHG
   "DATE=2002-08-01,TIME=08-02-00:178.223.45.172:
   SNN:C050:NNDR,,\" Bandwidth availability threshold
   crossing occurred, LBA update sent \",TC=50,,
   NeighborNodeIP=178.23.145.12"
;
```

The following is an example of the REPT NNCHG message for an Neighbor Nodal Data Repository LBA update due to timer expiration, which causes an LSA distribution:

```
   LT-ONNS-007 2002-08-01 08:02:05
A  010152 REPT NNCHG
   "DATE=2002-08-01,TIME=08-02-00:178.223.45.172:
   SNN:C060:NNDR,,\" LBAvailability update timer expired,
   LBA update sent \",TMR=15"
;
```

Note: This message only occurs when the capacity changes have not been reported by a capacity threshold-triggered LSA notification.

The following is an example of the REPT NNCHG message sent after a restart of the ONNS:

```
   LT-ONNS-007 2003-07-01 08:02:05
A  010152 REPT NNCHG
   "DATE=2003-07-01,TIME=08-02-00:178.223.45.172:
   SNN:C085:NNSYS,,\" NN Ready  \"
```

```
;
```

The following is an example of the REPT NNCHG message sent after a change of ONNS System Parameters :

```
ED-NNCNFG:LT-ONNS-A::123456::waitToRevertTimer=120,
defaultRstrPriority=4;
   LT-ONNS-007 2003-07-01 08:02:05
A  010152 REPT NNCHG
   "DATE=2003-07-01,TIME=08-02-00:178.223.45.172:SNN:
   C090:NNSYS,,\" NN System Parameter Changed and Stored
   in NVM \",WaitToRevertTimer=120,DefaultRstrPriority=4
;
```

The following is an example of the REPT NNCHG message sent after interruption of the defragmentation operation:

```
OPR-DEFRAG:LT-ONNS-A::123456::LINK,29.13.80.192;
   LT-ONNS-007 2003-07-01 08:02:05
A  010152 REPT NNCHG
   "DATE=2003-07-01,TIME=08-02-00:178.223.45.172:
   SNN:NNDEFRAG:C151,,\" Defragmentation partially
   completed: Local Bridge and Merge Failure \",
   LINK,TargetID=29.13.80.192,
   PathID=135.13.196.203-432165"
;
```

There could be situations in which the defrag operation gets interrupted or terminated such that it was not able to cleanly complete the particular connection move (bridge and merge on the local or remote end of the connection) that it was involved in.

In these cases it is possible that a dangling bridge and merge cross-connection is left on either the local or the remote end. When this happens, an additional value is returned as part of the qualifier, that is the *pathID* of the connection move that was left incomplete.

The following list identifies conditions that will cause a similar notification:

- C151 (LBMF) Local Bridge and Merge Failure, [Scope,TargetID,PathID]
- C152 (LXCF) Local Cross Connect Release Failure, [Scope,TargetID,PathID]
- C153 (RBMF) Remote Bridge and Merge Failure, [Scope,TargetID,PathID]
- C154 (RXCF) Remote Cross Connect Release Failure, [Scope,TargetID,PathID]
- C155 (LDPD) Path Being Deleted, [Scope,TargetID]
- C156 (NNRP) No Neighbor Response, [Scope,TargetID,PathID]

Notification C153 is also send if a port of the remote side which should be defragmented is in LOCKOUT state.

Related TL1 messages

- "REPT-PTHCHG Notification: Report path change" (p. 4-1540)
- "REPT-PTHEVT Notification: Report ONNS Path Events" (p. 4-1554)
- "REPT-NNEVT Notification: Report ONNS internal events" (p. 4-1536)
- "RTRV-NNDR: Retrieve ONNS neighbor nodal data repository" (p. 4-1836)
- "RTRV-NTDR: Retrieve ONNS network topology data repository" (p. 4-1857)

□

REPT-NNEVT Notification: Report ONNS internal events

Overview

REPT NNEVT notification messages are generated autonomously to report internal ONNS events and status changes such as signaling session failures, internal communication problems, and NVM errors, and Threshold Control Alert status changes..

Output format

The generic format of a REPT NNEVT autonomous notification message is as follows with the update management block (umb) and the common data block (comBlock):

```
   srcTid rpt-date rpt-time
A  atag REPT NNEVT
   "umb:comBlock"
;
```

Expanded output format

The general format of a REPT NNEVT autonomous notification message is expanded as follows:

```
   srcTid rpt-date rpt-time
A  atag REPT NNEVT
   "DATE=ocrDate,TIME=ocrTime:srcNodeID:srcAid:
   msgCode:dataSrcID:condType, condeff:condDescr,
   \" eventText \",[eventData]"
;
```

Output parameters

Command parameters

1. srcTid – Source Node Identifier
   Target Identifier of the source node is the logical name of the Host NE. ONNS uses the same *tid* used by Host NE.
   Type: identifier, in addition the special character underscore ("_") and the password characters are allowed.
   Range: The *srcTid* parameter is a case insensitive ASCII character string of up to 20 characters with the allowed character set as described above.
2. rpt-date - Report date
   This parameter is set to the date when the output message is generated.
   Note: Format uses a 4 digit year instead of a 2 digit year as for host TL1 commands. Compare to RTRV-HDR.
   Range: YYYY-MM-DD; where YYYY=2000-2099, MM=01-12, DD=01-31.

3. rpt-time - Report time
   This parameter is set to the time when the output message is generated.
   Range: HH:MM:SS; where HH=00-23, MM=00-59, SS=00-59.
4. atag – Automatic Tag
   This parameter is used for message sequencing. The atag is available per user session. The number is incremented by one for each autonomous message, and the messages are transmitted to the user in that same order.
   Values: 000 (default) - 999
5. umb - Update Management Block
   - ocrDate - Occurrence DATE
     The date parameter is set to the date when the event occurred in the system.
     Values: .YYYY-MM-DD where YYYY=2000-2099, MM=01-12, DD=01-31
   - ocrTime - Occurrence TIME
     The time parameter is set to the time when the event occurred in the system.
     Values: HH-MM-SS where HH=0-23, MM=00-59, SS=00-59.
6. comBlock - Common Block
   This parameter contains the following fields:
   - srcNodeID
     ONNS source nodeID. Together with the following srcPortID field defines the associated Ingress connPoint that connects the source node to the edge/gateway switch or client router.
     Range: Four dot seperated numeric strings. 0 - 255 for each numeric string.
   - srcAid
     Source node ONNS application access identifier of the ONNS controller OS command interface port.
     Range: Source node Access IDentifier parameter of the source node controller ONNS command interface entity has the allowed values shown here: snn.
   - msgCode
     This code identifies the reason for the event:
     Type: alphanumeric string of length 4.
   - dataSrcID
     The software package originating the event:
     CONN (for Connection Data Mgmt), H-INTF (for Host Interface Pkg), NNDM (Network Neighbor Data Mgmt), NN-SIG (for Signaling Pkg), NNSYS (for ONNS System Pkg).
   - condType - Condition Type
     Values: GEV (General Event), HBO (Host Buffer overflow), NVF (NVM Failure), SCE (Signaling Comm Established), SCF (Sig Comm Failure), TMO (TimeOut expired), TCA (Threshold Control Alert status change).
   - condDescr - Description of the condition
     This parameter consists of the following comma seperated fields: category, entity, description code.

Category values: SIGSES = SIG session; COMM = Communications; STATUS = Event Status

Entity values: NVM, SYSTEM, DCNPORT, LINKBUNDLE

Description code: FAILED = status failure; OK = status okay; ERROR = error condition, INACTIVE = status value, LOW = status value, HIGH = status value.

- eventText

  Free format text, up to 80 characters.

- eventData

  Event data, as name-value pairs.

  For *condType* = TCA, the following name-value pairs are used: *LinkId* = aSTNNodeId&neighborASTNNodeID, *LinkBundleID* = linkBundleID.

Example output

The following REPT NNEVT autonomous message illustrates how an ONNS failure event is reported for signaling communication loss.

```
   LT-WS-ONNS-007 2002-08-01 08:00:00
A  00359 REPT NNEVT
   "DATE=2002-08-01,TIME=07-59-59:135.13.196.45:
   SNN:F401:NN-SIG:SCF: SIGSES,DCNPORT,ERROR,
   \" SIG Communications Loss \",
   NBRID=neighborNodeID"
;
```

Other failure notification messages are listed below:

- F403 - CONN:NVF:COMM, NVM, ERROR - CONN NVM write error
- F404 - H-INTF:HBO:COMM, HostPort, ERROR - Host comm buffer overflow error
- F405 - NNSYS:GEV:STATUS,SYSTEM, FAILED - NN Failed
- F406 - NNDM:NVF:COMM, NVM, ERROR - NNDM NVM write error
- F407:NNDM:XCF:XCON,NNIPORT,FAILED,An XConn Failure occurred during Bridge to original Revertive path connection
- F408:NNDM:XCF:XCON,NNIPORT,FAILED, An XConn Failure occurred on Merge to Revertive path connection
- F409:NNDM:XCF:XCON,TSTPORT,FAILED, Test port bridge XCON failed
- F411:NNDM:EQF:PRTST,TSTPORT,FAILED,Test port equipment failed.

An ONNS clearing event notification is sent when a failure condition has been repaired or cleared. The following event indicates successful establishment of a signaling communication session. Some ONNS failures do not have clearing notifications:

```
   LT-WS-ONNS-007 2002-08-01 08:00:00
A  00359 REPT NNEVT
```

```
   "DATE=2002-08-01,TIME=07-59-59:135.13.196.45:
   SNN:S451:NN-SIG:SCE:SIGSES, DCNPORT,OK,
   \" SIG Communication Session Established \",
   NBRID=198.168.224.37"
;
```

ONNS TCA events shall have a status message code that begins with S (i.e. Sxxx).

The following REPT NNEVT autonomous message illustrates how an ONNS TCA event is reported for the TCA status becoming LOW:

```
   LT-WS-ONNS-007 2002-08-01 08:00:00
A  00359 REPT NNEVT
   "DATE=2002-08-01,TIME=07-59-59:135.13.196.45:
   SNN:S502:NNDM:TCA:STATUS,LINKBUNDLE,LOW,
   \" LOW status entered\"
   ,LinkID=135.13.196.45&135.13.25.68,LinkBundleID=5"
;
```

Other TCA related notification messages (including S502) are listed below:

- S501 - NNDM:TCA:STATUS,LINKBUNDLE,INACTIVE, INACTIVE status entered
- S502 - NNDM:TCA:STATUS,LINKBUNDLE,LOW, LOW status entered
- S503 - NNDM:TCA:STATUS,LINKBUNDLE,HIGH, HIGH status entered

The following REPT NNEVT autonomous message illustrates how an ONNS TCA event is reported for the clearing of a TCA:

```
   LT-WS-ONNS-007 2002-08-01 08:00:00
A  00359 REPT NNEVT
   "DATE=2002-08-01,TIME=07-59-59:135.13.196.45:
   SNN:S501:NNDM:TCA:STATUS,LINKBUNDLE,INACTIVE,
   \" INACTIVE status entered\",
   LinkID=135.13.196.45&135.13.25.68,LinkBundleID=5"
;
```

Related TL1 messages

- "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
- "ENT-PATH: Create ONNS path connection" (p. 4-1190)
- "ED-PATH: Modify alias of ONNS connection" (p. 4-522)
- "DLT-PATH: Delete ONNS path Connection" (p. 4-148)
- "REPT-PTHCHG Notification: Report path change" (p. 4-1540)
- "REPT-PTHEVT Notification: Report ONNS Path Events" (p. 4-1554)
- "REPT-NNCHG Notification: Report ONNS data repository changes" (p. 4-1531)
- "RTRV-NNEVT-TCA" (p. 4-1851)

REPT-PTHCHG Notification: Report path change

Overview

The REPT PTHCHG notification is used to notify about TL1 triggered changes (ENT/ED/DLT-PATH) or autonomously triggered changes, such as restoration, of ONNS connection parameters.

The REPT PTHCHG notification message reports specific changes in the ONNS system data repositories. Changes can be caused by a user's TL1 path command or by autonomous internally-generated connection changes such as path restoration.

Notification messages resulting from a TL1 command that were caused by the user's own requested changes.

If the data repository change occurs as a result of a TL1 ent-path or dlt-path or ed-path-prot/roll command, then a REPT PTHCHG message is transmitted to all users provisioned to receive REPT PTHCHG messages, including the user that issued the command. Therefore, a management OS must expect to receive data repository change messages for changes it caused as well as those made by a CIT user. The REPT PTHCHG CCB field will indicate the TL1 command that caused the connection change.

REPT PTHCHG for path/connection object creation

Only the connection objects (*connID* and *pathID*'s) generated by the TL1 path setup commands are returned in a REPT PTHCHG message. All of the supporting objects (such as cross-connections that are reported by the host NE) which are autonomously created due to the original connection object's creation are not reported in a ONNS REPT PTHCHG notification message. The Host NEs are responsible for sending REPT-DBCHG's for each xcon along the path of the connection.

TL1 commands associated with multiple *connID*'s

If a data repository change occurs as a result of a TL1 command in which multiple connections are involved, then the ONNS system will output separate REPT PTHCHG notification messages for each affected *connID*. The REPT PTHCHG CCB field will indicate the TL1 command that caused the connection change.

The REPT PTHCHG message contains *pst*, *sst* and *tst* state information

The primary pathState (*pst*), secondary state (*sst*) and optional tertiary state (*tst*) parameters of a connection and path appear in the REPT PTHCHG message just as reported in the connection record that is returned in a TL1 command response. If a path or connection's state is changed by a TL1 command, the *pst*, *sst* and *tst* parameters that are returned in the REPT PTHCHG message are the actual *pst*, *sst* and *tst* parameters of the connection object after the state change has occurred. When reporting a path restoration change, the state included in the REPT PTHCHG message is the *ConnStatus* at the time that the message is sent.

The REPT PTHCHG message associated with a connection always contains the entire connection record and includes path Direction (*pdir*). If a connection object's configuration changes autonomously, the *pst*, *sst* and *tst* parameters of the REPT PTHCHG are the actual *pst*, *sst*, and *tst* parameters of the connection object after the configuration change has occurred.

If a connection status or path state changes autonomously, the new state of the ingress (and local egress) paths are returned in a single REPT PTHEVT message.

User defined connection alias returned with REPT-PTHCHG event

The user defined connection alias, if defined, is returned with the event report along with other parameters. If no *connAlias* is defined, then a NULL is returned.

Autonomous path connection configuration change REPT PTHCHG format

Autonomous connection configuration changes that affect the ONNS connection data repository will cause a REPT PTHCHG messages that are output with the CCB= PATH.

Autonomous Path Notification behaviour on a protection switch within an M:N protected connection group

In case of a successful protection switch within an M:N protected connection group, the following autonomous notifications shall be sent with CCB=PATH:

- First of all a REPT PTHEVT notification with code F105 indicating the failure of the working connection, i.e. the working connection and the working path in pathID1 will be in state CON&FAILED
- Then a REPT PTHCHG notification with code C173 for the working connection indicating the completed setup of the protecting path and indicating that the system is waiting for the signal confirmation of the egress port. The connection will be in state CON&SETUP, the protecting path will be associated as pathID2 being in path state CON&SETUP as well. The ID of the associated protecting connection will be given in parameter assocConnID.
- After successful signal confirmation a REPT PTHCHG notifications for the working connection with code C015 indicating that the completed protection switch has been saved in NVM. The connection and the protecting path in pathID2 will both be in state CON&OK&TSTRD
- Additionally a REPT PTHCHG notification for the protecting connection with code C175, also indicating that the completed protection switch has been saved in NVM. The protecting connection will be in state CON&USED and no path will be associated. The ID of the associated working connection will be given in parameter assocConnID.

Autonomous Path Notification behaviour on a protection release within an M:N protected connection group

In case of a successful protection release within an M:N protected connection group, the following autonomous notifications shall be sent with CCB=PATH:

- First of all a REPT PTHEVT notification with code S105 indicating that the original path of working connection is good again and the wait-to-restore time is started. The working connection and the working path in pathID1 will be in state CON&OK&WTORV
- After expiry of the wait-to-restore time a REPT PTHEVT notification with code S102 for the working connection indicating the switch back to the original path. The connection and the working path in pathID1 will be in state CON&OK
- Then a REPT PTHCHG notification for the working connection with code C174 indicating that the protection switch has been released and saved in NVM. The protecting path will not be associated any more in pathID2 and the parameter assocConnID will have the value OPEN.
- Finally a REPT PTHCHG notification for the protecting connection with code C176, also indicating that the protection switch has been released and saved in NVM. The protecting path will be associated again in pathID1 in state RSVD&OK. The connection will be in state CON&STBY and the parameter assocConnID will have the value OPEN.

Output format

The specific format of a REPT PTHCHG notification message from a delete-path command is as follows:

```
   srcTid rpt-date rpt-time
A  atag REPT PTHCHG
   "DATE=ocrDate,TIME=ocrTime:CCB=DLT-PATH:srcNodeIP:
   srcAid:msgCode,\"eventText\",eventData"
   "ConnID=connID,ConnStatus=pst&sst&tst,pdir,
   protectionClass,bandwidth,ConnAlias=connAlias,
   MaxDelay=maxDelay,[SrvID=srvID],[nodeListUsage1=nodeList1],
   [nodeListUsage2=nodeList2],[SrlgExclude=srlgExcludeList,
   IncludeID=linkIncludeID,[specBlock1],[reserved],
   SrcNID=srcNID,srcPortID,DestNID=destNID,destPortID
   [,brDestNID=brDestNID,brDestPortID]:
   PathID=pathID1,State=DLT[:
   PathID=pathID2,State=DLT]"
;
```

A REPT PTHCHG autonomous message contains event information and the current connection configuration data. The format of a REPT PTHCHG autonomous path notification message with CCB=PATH is as follows:

```
   srcTid rpt-date rpt-time
A  atag REPT PTHCHG
```

```
   "DATE=ocrDate,TIME=ocrTime:CCB=PATH:srcNodeIP:srcAid:
   msgCode:\" eventText \":eventData"
   "ConnID=connID,ConnStatus=pst&sst&tst,pdir,protectionClass,
   bandwidth,ConnAlias=connAlias,MaxDelay=maxDelay,
   [SrvID=srvID],[nodeListUsage1=nodeList1],
   [nodeListUsage2=nodeList2],[SrlgExclude=srlgExcludeList],
   IncludeID=linkIncludeID,[specBlock1],[reserved],
   SrcNID=srcNID,srcPortID,DestNID=destNID,destPortID,
   brDestNID=brDestNID,brDestPortID]:
   PathID=pathID1,State=pst&sst&tst,NodeList=srcNode&
   nodeIP1&nodeIP2&...&destNode[:
   PathID=pathID2,State=pst2&sst2&tst2,
   NodeList=srcNodeIP&...&destNodeIP]"
;
```

Output parameters

Command parameters

1. srcTid
   Target Identifier of the source node is the logical name of the Host NE. ONNS uses the same *tid* used by Host NE.
   Type: identifier, in addition the special character underscore ("_") and the password characters are allowed.
   Range: The *srcTid* parameter is a case insensitive ASCII character string of up to 20 characters with the allowed character set as described above.
2. rpt-date - Reporting date
   This parameter is set to the date when the output message is generated.
   Note: Format uses a 4 digit year instead of a 2 digit year as for host TL1 commands. Compare to RTRV-HDR.
   Range: YY-MM-DD; where YY=00-99, MM=01-12, DD=01-31.
3. rpt-time - Reporting time
   This parameter is set to the time when the output message is generated.
   Range: HH:MM:SS; where HH=00-23, MM=00-59, SS=00-59.
4. atag – Automatic Tag
   This parameter is used for message sequencing. The atag is available per user session. The number is incremented by one for each autonomous message, and the messages are transmitted to the user in that same order.
   Values: 000 (default) - 999
5. ocrDate - Occurrence Date
   The date parameter is set to the date when the event occurred in the system.
   Values: .YYYY-MM-DD where YYYY=2000-2099, MM=01-12, DD=01-31
6. ocrTime - Occurrence Time
   The time parameter is set to the time when the event occurred in the system.
   Values: HH-MM-SS where HH=0-23, MM=00-59, SS=00-59.

7. comBlock (CB)- CCB common block
   This block contains the parts of the TL1 command causing this REPT PTHCHG notification plus further event info.
   a. ccb - Command Code Block
      Represents the TL1 path command causing the change.This confirmation notification indicates an ONNS managed path change was stored in the ONNS Host NVM.
      Range: PATH (is specified when the change is not directly caused by a user input TL1 path command, e.g. used for a connection/path change due to restoration). Other values are used when the change is directly caused by a user TL1 command: ENT-PATH-UNPROT, ENT-PATH-AUTO, ENT-PATH-N1PLUS1, ED-PATH-PROT, ED-PATH-ROLL, DLT-PATH, ENT-PATH-YCONN, ED-PATH, ENT-PATH-MBYN
   b. srcNID
      ONNS source nodeID. Together with the following srcPortID field defines the associated Ingress connPoint that connects the source node to the edge/gateway switch or client router.
      Range: Four dot seperated numeric strings. 0 - 255 for each numeric string.
      Note: Not present when CCB=DLT-PATH.
   c. srcAid
      Source node ONNS application access identifier of the ONNS controller OS command interface port.
      Range: Source node Access IDentifier parameter of the source node controller ONNS command interface entity has the allowed values shown here: snn.
   d. msgCode
      Message Code or Status code indicates known or suspected cause or reason for the event, change, or condition.
   e. eventText
      This field records an event description message.
8. connID, connAlias, connStatus, pdir, protectionClass, bandwidth, maxDelay, srvID, nodeListUsage1, nodeList1, nodeListUsage2, nodeList2, srlgExcludeList
   See the parameter description in the "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950) section.
9. linkInclude - VPN Identifier
   A connection constraint link property such as *linkIncludeID* that must be valid to include the link in the connection path(s) to be created. *linkIncludeID* is a link connection property that can be used to group and classify links. VPNID is a special case of this associative property.
   Range: 1 - 65535. 0 (default) or an empty field indicates no VPN constraint is applied.
   Note: Since the corresponding value is not supported as Host port parameter any input different from 0 will lead to DENY of the command.

10. srcNID - NN source node Network IP Access identifier (nid).
    ONNS source nodeID. Together with the following srcPortID field defines the associated Ingress connPoint that connects the source node to the edge/gateway switch or client router.
    Range: Four dot seperated numeric strings. 0 - 255 for each numeric string.
11. srcPortID
    ONNS source node ingress portID. The portID consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # of the *srcNID* ingress *connPoint*. ONNS assumes a bidirectional port pair.
    Value: dash-seperated list of 5 numeric strings
    Example: 1-1-3-1-4
    Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).
12. destNID - Destination nodeID
    ONNS destination nodeID. Together with the following *destPortID* field defines the associated Engress *connPoint* that connects the destination node to the edge/gateway switch or client router.
    Type: Four dot seperated numeric strings. 0 - 255 for each numeric string.
13. destPortID
    ONNS destination node egress portID. The portID consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # of the destNID egress *connPoint*.
    Value: dash-seperated list of 5 numeric strings
    Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).
14. brDestNID - Bridged Destination NodeID
    ONNS bridged destination nodeID. Together with the following brDestPortID field defines the second associated Egress connPoint that connects the destination node to the edge/gateway switch or client router in case of protectionClass YCONN.
    Type: Four dot seperated numeric strings. 0 - 255 for each numeric string.
15. brDestPortID - Bridged Destination PortID
    ONNS bridged destination node egress *portID* in case *protectionClass* = YCONN. The *portID* consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # of the brDestNID egress connPoint. 4.1; 5; 6
    Value: dash-seperated list of 5 numeric strings
    Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).
16. pathID1 - Path ID 1
    The PathID of the 1st path that was created.
    Type: character string of length up to 20.
    Range: nodeID-Index (nodeID: four dot separated numeric strings: each string 0 - 255) (Index: Numeric string).
    Example: 135.13.196.203-432165

17. pathState1 - Path State 1
    Path State1 = *pst*& *sst*[*&tst*]. pathState1 represents the status of the first path of the connection which may be different than the status of the overall connection in *connStatus*.
    PathState1 is composed out of *pst* (PrimaryState), *sst* (SecondaryState) and *tst* (TertiaryState, optional). Up to two of the allowed values are simultaneously permitted as a sst/tst parameter.The two values must be separated by an ampersand (″&″). Individual status values are 7 characters or less.
    Type: up to three &-seperated value sets.
    Range *pst* values: CON: Connected, NOCON: Not Connected, DLT: Deleted, MAINT: Maintenance mode.
    Range *sst* & *tst* values: OK: Conn good, FAILED-PATH: failed, SETUP: Conn SetUp occurring, TRDOWN: Conn teardown occurring, NO-IN: Conn failed, signal in bad, RSTOR: path restore occurring, RSTRD: Conn restored, RSTRFL: Conn restore failed, DLT-FL: Delete operation Failed, UNKNOWN: Conn state unknown, WTORSTR: Waiting to restore path, SETUPFL: Connection SetUp Failed, RVRTFL: Conn revert failed, PREMPTD: Preempted, WTORV: Waiting to revert path, BRDGD: Path bridged, EPRTFLEDGE: Port Failed, BAD-IN: path failed, Bad signal in, FLT: Fault.
    Note: Some states listed in this list will only occur within a DLT-PATH command response or in a REPT-PTHCHG / PTHEVT notification.
18. pNodeList1 - Path Node List 1
    The path node list contains the list of nodes that the 1st path (*pathID1*) traverses in A-Z order from the source node.
    Type: &-seperated list of nodeIDs. A nodeID is represented as four dot seperated numeric string with each numeric string between 0 - 255.
    Range: nid1([&nidX])*
    Example: 135.13.196.203&135.13.42.23&135.213.242.133&135.13.196.123
19. pathID2 - Path ID 2
    The PathID of the 2nd path (if existing) that was created.
    Type: character string of length up to 20.
    Range: nodeID-Index (nodeID: four dot separated numeric strings: each string 0 - 255), (Index: Numeric string).
    Example: 135.13.196.203-432165
20. pathState2 - Path State 2
    pathState2 = pst&sst[&tst]. *pathState2* represents the status of the second path (if existing) of the connection which may be different than the status of the overall connection in *connStatus*.
    PathState2 is composed out of: pst (PrimaryState), sst (SecondaryState), tst (TertiaryState, optional).
    Up to two of the allowed values are simultaneously permitted as a sst/tst parameter.The two values must be separated by an ampersand (″&″). Individual status values are 7 characters or less.
    Type: up to three &-seperated value sets.
    Range *pst* values: CON: Connected, NOCON: Not Connected, DLT: Deleted,

MAINT: Maintenance mode.
Range *sst* & *tst* values: OK: Conn good, FAILED-PATH: failed, SETUP: Conn SetUp occurring, TRDOWN: Conn teardown occurring, NO-IN: Conn failed, signal in bad, RSTOR: path restore occurring, RSTRD: Conn restored, RSTRFL: Conn restore failed, DLT-FL: Delete operation Failed, UNKNOWN: Conn state unknown, WTORSTR: Waiting to restore path, SETUPFL: Connection SetUp Failed, RVRTFL: Conn revert failed, PREMPTD: Preempted, WTORV: Waiting to revert path, BRDGD: Path bridged, EPRTFLEDGE: Port Failed, BAD-IN: path failed, Bad signal in, FLT: Fault.
Note: Some states listed in this list will only occur within a DLT-PATH command response or in a REPT-PTHCHG / PTHEVT notification.

21. pNodeList2 - Path Node List 2
    The path node list contains the list of nodes that the 2nd path (pathID1, if existing) traverses in A-Z order from the source node.
    Type: &-seperated list of nodeIDs. A *nodeID* is represented as four dot seperated numeric string with each numeric string between 0 - 255.
    Range: nid1([&nidX])*
    Example: 135.13.196.203&135.13.42.23&135.213.242.133&135.13.196.123
22. reqType
    This parameter indicates the operation that is to be performed on the connection specified. Only allowed when *mod* = PROT or *mod* = ROLL.
    Range: SETPARAM (default): modifies the value of *rstrPriority*, *wtr* or *htmr* of the connection to the value specified in the spec block, can be used when mod=PROT; SETPROT: converts the connection specified by its connID to a new protection type specified by the *connMode* parameter in the spec block, can be used when mod=PROT; ROLLPATH: used to add a bridged/merge path to an existing connection and then roll to the new path, can be used when mod=ROLL.
    Note: Only present if CCB=ED-PATH[-mod].
23. msgCode
    Message Code or Status code indicates a known result.
    Type: alphanumeric string of length 4

Spec block parameters

1. connMode - Connection Mode
   The connection mode determines ONNS treatment of the failed path after an auto-reroute restoration.
   Type: alphanumeric value set
   Range:
   - UNPROT: converts a auto connection to a unprotected
   - N1PLUS1: Network 1+1 protected connection
   - NONREVERTIVE: Auto-reroute non-revertive
   - EVERTIVE: Auto-reroute revertive
   - YCONN: Y-connection

- BRIDGEY: Y connection Protection
- MBYNWRK: Working connection within an M:N protection group
- MBYNPRT: Protecting connection within an M:N protection group.

2. rstrPriority - Restoration Priority
   This parameter describes the restoration priority of the connection.
   Range: 0 (default) - 7. Lower values represent higher priority.
3. connectionPriority - Connection Priority
   Connection priority allows connection setup of a higher priority connection to utilize the existing path through the network when the existing connection is pre-emptible.
   Range: 0 (default) - 7. 0 = locked, 1 - 7 = Priority, Connection may be pre-empted.
4. disjointness
   The actual level of disjointness of the calculated and established connection. The parameter is not filled when protectionClass is UNPROT.
   Type: alphanumeric value set
   Range:
   - COMPLETE: fully node and SRLG disjoint path
   - FULLYSRLG: maximal node and fully SRLG disjoint path
   - MAXIMAL: maximal node disjoint path.
5. connGrpID
   Connection Group ID for an existing ONNS connection to report the connection group the connection is member of or ″UNDEFINED″, if connection is not member of a group.
   For connection groups identified by A VCG EDGE port, *connGrpID* is formed from the *SrcNodeID* and the Ingress Port #, where LambdaUNITE uses bay =1= shelf. The connection group ID is automatically assigned to a connection, when it is setup. The connection group ID will consist of the nodeID and the EDGE port AID in case the EDGE port is a VCG. The connection group ID will be ″UNDEFINED″ otherwise. For M:N protected connection groups, *connGrpID* is formed from the *SrcNodeID* and a group index chosen by the source node to be unique within this node. The connection group ID is automatically assigned to a connection, when it is setup. The connection group ID will consist of the node ID and a group index in case the connection is member of an M:N connection group. The connection group ID will be ″UNDEFINED″ otherwise.
   Type: Character string of length up to 25.

Range:

- UNDEFINED - special value for connections not being member of a group
- nodeID&Port AID - with: nodeID (four dot separated numeric strings: each string 0..255), Port AID (four dash seperated numeric strings representing Bay/Frame #, Shelf #, Slot/Pack #, Port # with: Bay/Frame #1, Shelf #1, Slot/Pack #1..39, Port #1..4)
- nodeID&groupIndex - with: nodeID (four dot separated numeric strings: each string 0..255), groupIndex (integer value specifying an M:N connection group).

6. protRatio - Protection ratio
   For each working or protecting connection of an M:N protected connection group this parameter will report the concrete protection ratio as specified on creation of the group. For connections not being member of an M:N protected connection group, this parameter shall not be reported at all.
   Type:alphanumeric value set
   Range. BY1 (ratio of 1 to 1 in number of protecting and working connections), 1BY2 (ratio of 1 to 2 in number of protecting and working connections), 1BY3 (ratio of 1 to 3 in number of protecting and working connections).
7. assocConnID - Associated Connection ID
   Associated Connection ID for an existing ONNS connection of an M:N connection group to report the connection ID of the associated connection within the group, when a protection switch is active, i.e. for a working connection the ID of the associated protecting connection and for a protecting connection the ID of the associated working connection is reported. The associated connection ID will be ″OPEN″ for connections of an M:N connection group not involved in a protection switch. The associated connection ID will not be reported for connections not being member of an M:N connection group.

Example output

The following notification examples detail specific situations and the corresponding message codes used in the REPT PTHCHG notification to alert the OS system of the occurrence.

The following is an example of the REPT PTHCHG message for a input TL1 ENT-PATH-UNPROT command that has been saved in the ONNS NVM connection data repository:

```
   LT-ONNS101 2002-07-01 08:00:00
A  01135 REPT PTHCHG
   ″DATE=ocrDate,TIME=ocrTime:CCB=ENT-PATH-UNPROT:
   125.114.48.12:SNN:C001:\″ New UNPROT Connection
   Saved in NN NVM \″:″
   ″ConnID=125.14.48.2&1-1-3-4-1&1,ConnStatus=CON&OK,2WAY,
   UNPROT,STS48,connAlias=AEXP-NY-BOS-ckt,MaxDelay=65,
   SrvID=135.2.5.4-37,Exclude=135.13.42.3&135.213.242.103&
   135.13.198.22,,,IncludeID=0,,,SrcNID=125.14.48.2,
```

```
   1-1-3-4-1&1-1-3-4-1,DestNID=125.9.43.6,1-2-1-2-1&1-2-1-2-1:
   PathID=125.14.48.2-28123,State=CON&OK,
   NodeList=125.14.48.2&nodeIP1&nodeIP2&...
   &78.22.3.17&125.19.43.6"
;
```

The following is an example of the REPT PTHCHG message for a input ED-PATH-PROT or ED-PATH-ROLL change that has been saved in the ONNS NVM connection data repository:

```
   LT-ONNS101 2002-07-01 08:00:00
A  0013495 REPT PTHCHG
   "DATE=ocrDate,TIME=ocrTime:CCB=ED-PATH-PROT:
   125.114.48.12:SNN:C008:\" Edited N1PLUS1 Connection
   Saved in NVM \":RstrPriority=0"
   "ConnID=125.114.48.12&1-1-23-4-13&1,ConnStatus=CON&OK,
   1WAY,N1PLUS1,STS12,connAlias=AEXP-NY-BOS-ckt,
   MaxDelay=99,SrvID=125.4.3.6-75,Exclude=135.13.42.3&
   135.213.242.103&135.13.198 .22,,SrlgExclude=401&319&1024,
   IncludeID=0,rstrPriority=0,,
   SrcNID=125.114.48.12,1-1-23-4-13,DestNID=125.19.43.6,
   1-1-12-2-25&1-2-12-2-25:
   PathID=125.114.48.12-12123,State=CON&OK,
   NodeList=125.114.48.12&nodeIP1&nodeIP2&...&125.19.43.6:
   PathID=125.114.48.12-11013,State=CON&OK,
   NodeList=125.114.48.12&nodeIP4&nodeIP5&...&125.19.43.6"
   "ModifyPath,M100,\"Path Constraints Added Successfully\","
;
```

The following is an example of the REPT PTHCHG message for a DLT-PATH or ED-PATH command that has been saved in the ONNS NVM connection data repository:

```
   LT-ONNS111 2002-07-01 08:00:45
A  002478 REPT PTHCHG
   "DATE=ocrDate,TIME=ocrTime:CCB=DLT-PATH::SNN:C013:
   \" N1PLUS1 Connection Removed from NN NVM \":"
   "ConnID=125.114.48.12&1-1-3-4-1&1,ConnStatus=DLT,1WAY,
   N1PLUS1,STS12,connAlias=AEXP-NY-BOS-ckt,MaxDelay=99,
   SrvID=135.2.5.4-39,Exclude=135.13.42.3&
   135.213.242.103&135.13.198.22,,SrlgExclude=401&319&1024,
   IncludeID=0,RstrPriority=0,,SrcNID=125.114.48.12,
   1-1-23-4-13,DestNID=125.19.43.6,1-1-12-2-25:
   PathID=125.114.48.12-29123,State=DLT:
   PathID=125.114.48.12-29128,State=DLT"
;
```

The following is an example of the REPT PTHCHG message for a path restoration change that has been saved in the ONNS NVM connection data repository. An

auto-rerouting connection has failed and has been restored. This REPT PTHCHG is sent after the restoration result is in NVM, and while the failed path is being torn down:

```
   LT-ONNS101 2002-07-01 08:00:00
A  00134 REPT PTHCHG
   "DATE=ocrDate,TIME=ocrTime:CCB=PATH:
   125.114.48.12:SNN:C015:\" Connection restored and
   Saved in NVM \":"
   "ConnID=125.114.48.12&1-1-3-4-1&1,ConnStatus=CON&OK,2WAY,
   AUTONR,STS192,connAlias=AEXP-NY-BOS-ckt,
   MaxDelay=199,,,SrlgExclude=630&820&720,IncludeID=0,
   RstrPriority=3,,SrcNID=125.114.48.12,1-1-3-4-1,
   DestNID=125.6.19.43,1-1-14-2-1:
   PathID=125.114.48.12-12123,State=CON&OK,
   NodeList=125.114.48.12&nodeIP1&nodeIP2&...&125.6.19.43:
   PathID=125.114.48.12-11013,State=CON&TRDOWN,
   NodeList=125.114.48.12&nodeIP4&nodeIP5&...&125.6.19.43"
   "PathID3=125.114.48.12-16793 State=NOCON&AVAIL
   NodeList=125.114.48.12&nodeIP4&nodeIP5&... &destNodeIP"
;
```

Note: Second PathID is the failed path that is being torn down because it is the non-revertive path, and third pathID is the pre-calculated auto restoration path calculated in case of a new failure.

The following is an example of the REPT PTHCHG message for an ONNS PATH delete after a path restoration that has been saved in the ONNS NVM connection data repository:

```
   LT-ONNS111 2002-05-01 08:00:45
A  002478 REPT PTHCHG
   "DATE=ocrDate,TIME=ocrTime:CCB=PATH:
   125.114.48.1:SNN:C020:\" Failed Path Deleted and
   Removed from NN NVM \":"
   "ConnID=125.114.48.12&1-1-3-3-1&1,ConnStatus=CON&OK,
   2WAY,AUTONR,STS192,connAlias=AEXP-NY-BOS-ckt,
   MaxDelay=199,,,SrlgExclude=11&1024&401,,
   ConnMode=REVERTIVE&RstrPriority=3,,
   SrcNID=125.114.48.12,1-1-3-3-1,DestNID=135.65.67.245,
   1-1-23-1-1:
   PathID=125.114.48.12-12123,State=CON&OK,
   NodeList=125.114.48.12&nodeIP1&nodeIP2&...&125.6.19.43:
   PathID=125.114.48.12-224123,State=DLT"
;
```

The following is an example of the REPT PTHCHG message for a path restoration change that has been saved in the ONNS NVM connection data repository. An auto-rerouting connection has failed and has been restored:

```
  LT-ONNS101 2002-07-01 08:00:00
A  00134 REPT PTHCHG
   "DATE=ocrDate,TIME=ocrTime:CCB=PATH:125.114.48.12
   :SNN:C0125:\" AUTONRV Connection restored and
   Saved in NN NVM \":"
   "ConnID=125.114.48.12&1-1-3-4-1&1,ConnStatus=CON&OK,
   2WAY,AUTONRV,STS192,connAlias=AEXP-NY-BOS-ckt,
   MaxDelay=199,,,SrlgExclude=11&1024&401,IncludeID=0,
   ConnMode=NON-REVERTIVE,,
   SrcNID=125.114.48.12,1-1-3-4-1,DestNID=135.65.67.245,
   1-1-23-1-1:
   PathID=125.114.48.12-12123,State=CON&OK,
   NodeList=125.114.48.12&nodeIP1&nodeIP2&...
   &135.65.67.245:
   PathID=125.114.48.12-11013,State=CON&FAILED,
   NodeList=125.114.48.12&nodeIP4&nodeIP5&...
   &135.65.67.245:
   PathID=125.114.48.12-16793,State=NOCON&AVAIL,
   NodeList=125.114.48.12&nodeIP46&nodeIP51&...
   &135.65.67.245"
```

The following is an example of the REPT PTHCHG message for an ENT PATH after a connection has been setup, and ONNS is waiting for a signal confirmation from the egress ports:

```
   LT-ONNS111 2002-07-01 08:00:45
A  002478 REPT PTHCHG
   "DATE=ocrDate,TIME=ocrTime:CCB=PATH:
   125.114.48.1:SNN:C200:\" Connection Setup completed
   and Waiting for signal confirmation of egress port \
   ":eventData"
   "ConnID=125.14.48.2&1-1-6-3-1&1,ConnStatus=CON&SETUP,
   2WAY,AUTONR,STS192,connAlias=AEXP-NY-BOS-ckt,
   MaxDelay=199,,,SrlgExclude=11&1024&401,,
   ConnMode=REVERTIVE&RstrPriority=2,,
   SrcNID=125.14.48.2,1-1-6-3-1,DestNID=135.6.67.5,
   1-1-3-1-1:
   PathID=125.14.48.2-12123,State=CON&SETUP,"
   NodeList=125.14.48.2&nodeIP1&nodeIP2&...&135.22.3.17
   &135.6.67.5"
   PathID=125.14.48.2-28123,State=NOCON,
   NodeList=125.14.48.2&nodeIP6&nodeIP7&...&
   135.22.53.7&135.6.67.5"
;
```

The following is an example of the REPT PTHCHG message for an ONNS connection data repository change that resulted from a process of network initialization and

resolution to identify newly discovered paths or non-existent paths or broken paths that change the node's connection data repository (NCDR):

```
   LT-ONNS102 2002-10-01 08:01:13
A 003471 REPT PTHCHG
   "DATE=ocrDate,TIME=ocrTime:CCB=PATH:125.114.48.12:
   SNN:C040:\"Deleted path from NN ConnectionDR in NVM,
   broken path \":""ConnID=125.114.48.12&1-1-17-41&1,
   ConnStatus=DLT,2WAY,AUTONRV,STS192,
   connAlias=AEXP-NY-BOS-ckt,MaxDelay=49,,,
   SrlgExclude=4&1024&401,,ConnMode=REVERTIVE&RstrPriority=2,,
   SrcNID=125.114.48.12,1-1-3-4-1,DestNID=135.65.67.245,
   1-1-23-1-1:PathID=125.114.48.12-224123,State=DLT"
;
```

Related TL1 messages

- "ENT-PATH: Create ONNS path connection" (p. 4-1190)
- "ED-PATH: Modify alias of ONNS connection" (p. 4-522)
- "DLT-PATH: Delete ONNS path Connection" (p. 4-148)
- "REPT-PTHEVT Notification: Report ONNS Path Events" (p. 4-1554)
- "RTRV-NNDR: Retrieve ONNS neighbor nodal data repository" (p. 4-1836)
- "RTRV-NTDR: Retrieve ONNS network topology data repository" (p. 4-1857)
- "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
- "REPT-NNCHG Notification: Report ONNS data repository changes" (p. 4-1531)
- "REPT-NNEVT Notification: Report ONNS internal events" (p. 4-1536)
- "RTRV-LOG-NTFCN: Retrieve notification Log" (p. 4-1765)
- "RTRV-NNCNFG: Retrieve ONNS configuration data" (p. 4-1831)
- "ED-NNCNFG: Edit ONNS configuration data" (p. 4-329)

□

REPT-PTHEVT Notification: Report ONNS Path Events

Overview

REPT PTHEVT notification messages are generated autonomously by ONNS to report network connection status changes, and path state change events.

General description of ONNS events

ONNS reports events to NMS when certain network connection state changes occur or path state events that relate to connections originating from this node.

In general, destination nodes report client port alarms as a path fault event via the signaling network to the controlling source node. The source node will verify the fault state by checking the ingress signal states. Then ONNS shall send up a REPT PTHEVT: failed_path notification message indicating that the optical path has failed, and then ONNS begins the rerouting process to create a new optical path if one is required by the provisioned restoration service.

ONNS reports events to the Network Management users that are provisioned to receive the ONNS PTHCHG's. Message provisioning occurs via the Host NE's ED-USER-SECU command.

When the source node has verified a path failure, it shall send out a REPT PTHEVT notification indicating that the path has failed. When the restoration path switch has occurred successfully, the source node shall report the REPT PTHCHG: restoration message indicating that the restoration path is operational and reports its pathID. When the connection status changes to CON&OK, ONNS shall report the event by a REPT PTHEVT: connection_OK notification. When the ingress signal state of source or destination port is determined to have failed and restoration would not be successful, ONNS shall not proceed with restoration and ONNS report a REPT PTHEVT: Input_failed notification.

1+1 protection switching events are not reported via a REPT PTHEVT notification

Protection switching messages shall not be provided to the MS using the REPT PTHEVT TL1 message. By definition, a protection switching event occurs when the service switches from working to protection or active to standby and vice versa.

Unique autonomous REPT PTHEVT notification messages

REPT PTHEVT shall not report any autonomous notification messages that are reported by other ONNS REPT notifications. REPT PTHEVT shall report connection status changes and path state changes. As an example, REPT PTHCHG autonomous notification messages report when connection configuration or provisioning changes are made. REPT PTHEVT does not report the connection provisioning changes.

User defined connection alias returned with REPT-PTHEVT

The user defined connection alias, if defined, shall be returned with the event report along with other parameters. If no connAlias is defined, then a NULL shall be returned.

Output format

General format of REPT PTHEVT autonomous notification output:

```
   srcTid rpt-date rpt-time
A  atag REPT PTHEVT
   "DATE=ocrDate,TIME=ocrTime:srcNodeIP:srcAid:msgCode
   ::condType,condeff:condDescr:\" eventText \":eventData"
   "ConnID=connID,ConnStatus=pst&sst[&tst],
   ConnAlias=connAlias,
   PathID=pathID,State=pst&sst[&tst]"
   ["errorMsgCode:\" ErrorText String \":"]
;
```

Output parameters

Command parameters

1. srcTid – Source Node Identifier
   Target Identifier of the source node is the logical name of the Host NE. ONNS uses the same *tid* used by Host NE.
   Type: identifier, in addition the special character underscore ("_") and the password characters are allowed.
   Range: The *srcTid* parameter is a case insensitive ASCII character string of up to 20 characters with the allowed character set as described above.
2. rpt-date - Reporting date
   This parameter is set to the date when the output message is generated.
   Note: Format uses a 4 digit year instead of a 2 digit year as for host TL1 commands. Compare to RTRV-HDR.
   Range: YYYY-MM-DD; where YYYY=2000-2099, MM=01-12, DD=01-31.
3. rpt-time - Reporting time
   This parameter is set to the time when the output message is generated.
   Range: HH:MM:SS; where HH=00-23, MM=00-59, SS=00-59.
4. atag – Automatic Tag
   This parameter is used for message sequencing. The atag is available per user session. The number is incremented by one for each autonomous message, and the messages are transmitted to the user in that same order.
   Values: 000 (default) - 999
5. ocrDate - Occurrence Date
   The date parameter is set to the date when the event occurred in the system.
   Values: .YYYY-MM-DD where YYYY=2000-2099, MM=01-12, DD=01-31

6. ocrTime - Occurrence Time
   The time parameter is set to the time when the event occurred in the system.
   Values: HH-MM-SS where HH=0-23, MM=00-59, SS=00-59.
7. comBlock (CB)- CCB common block
   This common block contains the message-dependent parameters.
   a. srcNID
      ONNS source nodeID. Together with the following srcPortID field defines the associated Ingress connPoint that connects the source node to the edge/gateway switch or client router.
      Range: Four dot seperated numeric strings. 0 - 255 for each numeric string.
   b. srcAid
      Source node ONNS application access identifier of the ONNS controller OS command interface port.
      Range: Source node Access IDentifier parameter of the source node controller ONNS command interface entity has the allowed values shown here: snn.
   c. msgCode
      Message Code or Status code indicates known or suspected cause or reason for the event, change, or condition.
   d. condType - Condition Type
      This is a short hand notation for the *condDescr*.
      Range: CLR (Path condition cleared), PFL (Path Failure), LOS (Loss of Signal), PEF (Port Equipment Failure), PEV (Generic Path event).
   e. condDescr - Condition Description
      This is a more detailed description of the condition and consists of the following comma seperated fields: *category*, *entity*, *protType* (may be empty), *description*, *additional text* (optional, if omitted, the comma before might be omitted, too).
      Range for *category*: TRAN (Transmission), RESTR (Restoration), PRTST (Port_state).
      Range for *entity*: PATH (path connection), CONN (End to end connection), XCON (NE cross connection), IPORT (Ingress port).
      Range for *protType*: UNPROT (Unprotected path), N1PLUS1 (Netwrk1+1 protected path), AUTONR (Auto-rerouted protection path, non-revertive), AUTORV (Auto-rerouted protection path, revertive), YCONN (Y-Connection), MBYNWRK Working connection of M:N protection group.
      Range for *description*: FAILED (path failure), FAULT (path fault), CLEAR (path problem cleared), RSTRFL (connection restore failed), WARNING (path warning), PRTFL (Protection Switch Failed).
   f. eventText
      This field records an event description message.
   g. eventData

8. connID, connAlias, connStatus, pathID1, pathState1, pathID2, pathState2
   See the parameter description in the "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950) section.
9. errorMsgCode - Error Message Code
   Message Code or Status code indicates known or suspected cause or reason for the event, change, or condition.
10. errorText
    Additional free format error message text
11. errorData
    Further error data which reports named-parameter=value pair(s) for the paths.

Example output

The following REPT PTHEVT autonomous notification message illustrates how an unprotected path connection fault shall be reported. The REPT PTHEVT autonomous message declares the occurrence of a path failure on pathID of connection connID, and describes the state of the path:

```
   WS-LT-ONNS-M 2002-08-01 08:00:00
A  00313 REPT PTHEVT
   "DATE=2002-08-01,TIME=07-59-59:135.13.16.45:snn:
   F102::PFL:TRAN,CONN,AUTONR,FAILED:\" Connection Failed,
   Restoration In Progress \":"
   "ConnID=135.13.196.45&1-1-4-2-1&1,ConnStatus=CON&Failed:
   ConnAlias=AEXP-NY-BOS-ckt,
   PathID=135.13.196.45-987654,State=CON&FAILED"
;
```

The following REPT PTHEVT autonomous message reports that the LOS cleared. . If the connection has two paths, the *pathID* and *pathState* for both paths is included:

```
   WS-LT-ONNS-A 2002-07-01 08:11:05
A  01104 REPT PTHEVT
   "DATE=2002-08-01,TIME=07-59-59:135.13.19.45:snn:S101::
   CLR:TRAN,CONN,UNPROT,CLEAR:\" Unprotected path is OK \":"
   "ConnID=135.13.196.45&1-1-4-2-1&1,
   ConnAlias=AEXP-NY-BOS-ckt,ConnStatus=CON&OK:
   PathID=135.13.196.45-987654,State=CON&OK"
;
```

The following REPT PTHEVT autonomous message reports that a path event occurred relating to path failure:

```
   WS-LT-ONNS-A 2002-07-01 08:11:05
A 01104 REPT PTHEVT
   "DATE=2002-08-01,TIME=07-59-59:135.13.196.45:
   snn:S301::PFL:TRAN,PATH,[protType],DLT-FL:
   \"Path delete failed during setup retry or restoration\":"
```

```
   "ConnID=135.13.196.45&1-1-4-2-1&1,ConnStatus=CON&FAILED:
   ConnAlias=AEXP-NY-BOS-ckt,
   PathID=135.13.196.45-987654,State=CON&FAILED"
;
```

A special case of the REPT PTHEVT message covers the situation when a path setup attempt failed and a path setup retry will occur. The error message included is the code that would have been returned in a failed ENT-PATH response. The following is the output response:

```
   WS-LT-ONNS-A 2002-07-01 08:11:05
A 01104 REPT PTHEVT
  "DATE=2002-08-01,TIME=07-59-59:135.13.196.45:snn:
   S310::PEV:TRAN,PATH,AUTONR,FAILED:\"Path operation attempt
   failed, An error occurred\":connID=connID&pathID=pathID"
   "ConnID=135.13.196.45&1-1-4-2-1&1,ConnStatus=CON&FAILED:
   ConnAlias=AEXP-NY-BOS-ckt,PathID=135.13.196.45-654,
   State=CON&FAILED[:PathID=135.13.196.45-9874,State=
   CON&FAILED]""Error=E022:\"Status, Path Setup Failure
   caused by signal transmission failure at egress node\":
   NodeID=nodeIPaddr"
;
```

Related TL1 messages

- "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
- "ENT-PATH: Create ONNS path connection" (p. 4-1190)
- "ED-PATH: Modify alias of ONNS connection" (p. 4-522)
- "DLT-PATH: Delete ONNS path Connection" (p. 4-148)
- "RTRV-NNDR: Retrieve ONNS neighbor nodal data repository" (p. 4-1836)
- "RTRV-NTDR: Retrieve ONNS network topology data repository" (p. 4-1857)
- "REPT-PTHCHG Notification: Report path change" (p. 4-1540)
- "REPT-NNCHG Notification: Report ONNS data repository changes" (p. 4-1531)
- "RTRV-NNCNFG: Retrieve ONNS configuration data" (p. 4-1831)

□

REPT SW: Report switch

REPT SW messages are generated autonomously to report equipment protection switches of a duplex equipment unit pair. These equipment pairs are referred to as 1+1 equipment protection groups. The message indicates the equipment/circuit pack that was placed in the active state.

The notification has been extended for LOXC equipment protection groups.

Output format

The general format of a REPT SW message is as follows:

```
   tid date time
A  atag REPT SW
   "actid,stbyid"
;
```

Output parameters

Command parameters

1. atag – AutomaticTag
   This parameter specifies the message sequence number. The number is incremented by one for each autonomous message generated by the NE. Leading zeros are not suppressed.
   Type: numeric string
   Range: 000 .. 999
2. actid – Active Identifier
   This parameter specifies the circuit pack AID which is active within the 1+1 equipment protection group.
   Type: AID
   Range: CpAID (if reported by a EQP group with protype unequal to EQPTLOXC) or LoxcAID (if reported by a EQP group with protype equal to EQPTLOXC).
3. stbyid - Standby Identifier
   This parameter specifies the circuit pack AID which is standby (non-active) within the 1+1 equipment protection group.
   Type: AID
   Range: CpAID (if reported by a EQP group with protype unequal to EQPTLOXC) or LoxcAID (if reported by a EQP group with protype equal to EQPTLOXC).

Detailed behaviour description

The system shall evaluate the current fault information and the current active unit at the protection group creation time. Based on that, the sytem shall calculate and report the selected active unit and the standby unit.

Example input/output

The following example shows a switch report (with *stbyid* parameter):

```
   LT-UNITE 99-01-10 08:12:00
A  001 REPT SW
   "1-1-#-#-xcp-cp,1-1-#-#-xcw-cp"
;
```

Related TL1 messages

- "RTRV-PROTN-GRP: Retrieve protection group" (p. 4-1997)
- "OPR-PROTNSW: Operate protection switch" (p. 4-1472)
- "RLS-PROTNSW: Release protection switch" (p. 4-1574)

References

GR-833-CORE

□

RLS-EXT-CONT: Release external control

The RLS-EXT-CONT releases a MDO port (Miscellaneous Discrete Output / external discrete control), i.e. switches off the MDO port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M3

Priority: 1

Abortable: No

Input format

Command Syntax: `RLS-EXT-CONT:`*tid:aid:ctag;*

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   This is the address of the MDO port entities on which the command operates. If misc_outall is specified the configuration of all MDO's will be retrieved.
   Type: AID
   Range: Miscellaneous_out_discreteAID
   Default: misc_outall (if the *aid* is omitted).
3. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output format

The following example shows the successful completion of the RLS-EXT-CONT command by the NE:

```
   sid date time
M  ctag COMPLD
;
```

If the RLS-EXT-CONT command does not alter the existing attributes, i.e., the control referenced by the aid is already released, the NE will not deny the command. The system will respond with the completion message shown above.

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

If no probable cause is assigned to the MDO port the command changes the state of the MDO specified via aid to ″switched off″, i.e. the MDO port will be deactivated.

The update will be reported via a RLS-EXT-CONT - REPT DBCHG message. Refer to the definition of the RLS-EXT-CONT notification.

Example input/output

The following example shows the successful completion of the RLS-EXT-CONT command by the NE:

```
RLS-EXT-CONT:LT-UNITE-123:MISC_OUT3:123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the “RTRV-HDR: Retrieve header” (p. 4-1736) command error responses section. The error responses listed there also apply to the RLS-EXT-CONT command.

Validation rule: probable cause assigned to MDO port

A probable cause is assigned to the MDO port. This command will be not performed.

Error Code: `SDNC - Status, Data Not Consistent, asgncond not empty`

Related TL1 messages

- “RTRV-ATTR-CONT: Retrieve attribute control” (p. 4-1621)
- “SET-ATTR-CONT: Set attribute control” (p. 4-2295)
- “RLS-EXT-CONT: Release external control” (p. 4-1561)

References

GR-833-CORE, Issue 4, June 2000, OTGR Section 12.3, Network Maintenance: Network Element and Transport Surveillance Messages.

□

RLS-EXT-CONT notification

Output format

The RLS-EXT-CONT notification has the following specific syntax:

```
RLS-EXT-CONT:aid
```

Output parameters

Command parameters

1. aid - Access Identifier
   This is the address of the MDO port entity for which the configuration is retrieved or on which an operation is performed.
   Type: AID.
   Range: Miscellaneous_out_discreteAID. misc_outall must not be reported or used.

Example output

The example shows a normal RLS-EXT-CONT notification:

```
   LT-UNITE-123 00-01-01 08:00:50
A 815 REPT DBCHG
   "TIME=08-00-12,DATE=00-01-01:RLS-EXT-CONT:MISC_OUT3"
;
```

□

RLS-LPBK notification (here cross-connection loopback)

There will be no RLS-LPBK notification because the changes (for the parameter *crslpbkstat* and *crslpbkrate*) caused by an RLS-LPBK command will be notified via an ED-*rr* (*rr* being either VC3 or STS1) notification for normal tributaries and by an ED-VCGTRIB notification for virtual concatenation tributaries.

□

RLS-LPBK notification (here facility loopback)

There will be no RLS-LPBK notification because the changes (for the parameter *lpbk* and *fsflpbkstat*) caused by an RLS-LPBK command will be notified via an ED-*rr* notification (*rr* specifying the affected port i.e. OC<M>/STM<N> or OC<M>T/STM<N>T) for an OPn or an EPn or an OPTn port or an ED-EPORT notification for a GE1port.

□

RLS-LPBK: Release loopback (here cross-connection loopback)

The RLS-LPBK-*modifier* command can be initiated by a user to release a loopback on a tributary.

In this section only the loopback on tributaries are considered.

The *modifier* in the RLS-LPBK command indicates the rate on which the loopback command is applied to. There is no difference if the rate is specified as a SONET rate (STS1, STS3,..) or as SDH-rate (VC3, VC4,..) for the i.e. the RLS-LPBK-<*sonet-rate*> yields to the same physical and logical behavior as RLS-LPBK-<*sdh-rate*>. No check is made if the *modifier* matches the interface-standard of the port i.e. if the port is provisioned as SONET (resp. SDH) and the rate is a SONET (resp. SDH) rate.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): T4

Priority: 1

Abortable: No

Input format

Command Syntax: `RLS-LPBK-`*modifier*:*tid*:*aid*:*ctag*;

Input parameters

Command parameters

1. modifier
   This parameter indicates the tributary- respectively cross-connection-rate on which the OPR-LPBK command acts on.
   For detailed description please refer to the "RTRV-CRS: Retrieve cross-connection" (p. 4-1649) command
   Type: Alphanumeric value set
   Range:
   - VC3
   - VC4
   - VC44C
   - VC416C
   - VC464C
   - STS1
   - STS3
   - STS12

- STS48
- STS192.

No use of the `all` value is allowed.

2. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
3. aid – Access Identifier
   This parameter specifies the tributary for which the loopback is requested.
   Type: STS1NumAID (when using OPn packs) or VCGNumAID (when using GEn or OPTn packs).
   Range: No `all` or `usall` or `vall`-value shall be possible for any part of the aid.
4. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the NE in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters. Note: current implementation also allows ’0’ as valid CTAG, which is an extension to GR-831.

Output format

If the RLS-LPBK command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of “RTRV-HDR: Retrieve header” (p. 4-1736).

Detailed behavior description

Existing loopback on tributaries can be released via the RLS-LPBK command. The attribute *crslpbkstat* of the entity tributary shall be updated to NO.

This update is reported by an ED-*rr* (*rr* being either VC3 or STS1) notification for normal tributaries and by an ED-VCGTRIB notification for virtual concatenation tributaries.

Updated affected entities

Apart from the tributary entity no further entities are affected by the RLS-LPBK command.

Example input/output

```
RLS-LPBK-vc3:UNITE-NE:1-1-#-#-1-1-4:123456;
   UNITE-NE 00-11-14 12:00:00
M  123456 COMPLD
;
```

Error responses

Validation rule: Valid rate

Loopback command processing verifies that the specified rate is equivalent to the rate of the existing loopback. Hereby the SONET-rates are treated identical to the SDH-rates (i.e. sts1/vc3, STS3/vc4 etc.).

Error code: `IDNC - Input Data Not Consistent, Rate is inconsistent with existing cross-connection`

Validation rule: Entities (tributaries) must exist

Loopback command processing verifies that the logical tributaries specified in the command do exist.

Error code: `IENE - Input, Entity Not Exists, Specified tributary/tributaries do not exist.`

Validation rule: Loopback must exist

Loopback command processing verifies that the RLS-LPBK command can not be applied to non-existing loopback.

Error code: `SNVS - Status, Not in Valid State, loopback does not exist.`

Related TL1 messages

- "OPR-LPBK: Operate loopback (here facility loopback)" (p. 4-1465)
- "RTRV-LPBK: Retrieve loopback (here facility loopback)" (p. 4-1804)

References

GR-199-CORE

□

RLS-LPBK: Release loopback (here facility loopback)

The RLS-LPBK-*modifier* command can be initiated by a user to release an existing loopback on an OPn, GEn, EPn or OPTn port in the NE.

Note that the loopback type is not specified explicitly as a command parameter – instead the currently existing loopback (either a near-side or a far-side) will be released.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): T4

Priority: 1

Abortable: No

Input format

Command Syntax: `RLS-LPBK-`*modifier*:*tid*:*aid*:*ctag*;

Input parameters

Command parameters

1. modifier
   This parameter indicates the port rate on which the OPR-LPBK command acts on.
   Type: Alphanumeric value set.
   Range:
   - STM1E
   - STM1
   - STM4
   - STM16
   - STM16T
   - STM64
   - STM256
   - OC3
   - OC12
   - OC48
   - OC48T
   - OC192

- OC768
- 1GE.

No use of the `all` value is allowed.

2. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
3. aid – Access Identifier
   Access Identifier of the port for which the loopback state is returned.
   Type: SPortAID (when using OPn, EP155, OPTn packs or EC1 interfaces on the EP51 pack) or EPortAID (when using GEn) or APortAID (when using DS3 interfaces on the EP51 pack).
   Range: No *all* is allowed.
4. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the network element in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters Note: Current implementation also allows ’0’ as valid CTAG, which is an extension to GR-831.

Output format

If the RLS-LPBK command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of “RTRV-HDR: Retrieve header” (p. 4-1736).

Detailed behavior description

Behavior – OPn Port

Existing loopback on ports can be released via the RLS-LPBK command. The attribute *lpbk* and *fsflpbkstat* of the entity port is updated by this command:

- *lpbk* should be set to NO in case the *lpbktyp*=FACILITY is released
- *fsflpbkstat* should be set to NO in case the *lpbktyp*=FSF is released.

This update is reported by a ED-*rr* notification for an OPn port (*rr* specifying the affected port i.e. OC<M>/STM<N>).

Example:

RLS-LPBK-OC48:UNITE-NE:1-1-#-#-1-1:123456;

REPT DBCHG

ED-OC48:1-1-#-#-1-1::fsflpbkstat=NO;

Behavior – OPTn Port

Existing loopback on ports can be relaesed via the RLS-LPBK command. The attribute *lpbk* and *fsflpbkstat* of the entity port shall be updated by this command:

- *lpbk* should be set to NO in case the *lpbktyp*=FACILITY is released
- *fsflpbkstat* should be set to NO in case the *lpbktyp*=FSF is released.

This update is reported by a ED-*rr* notification for an OPTn port (*rr* specifying the affected port i.e. OC<M>T/STM<N>T).

Behaviour - EP155 Port

Existing loopback on ports can be released via the "RLS-LPBK: Release loopback (here facility loopback)" (p. 4-1569) command.

The attribute *lpbk* and *fsflpbkstat* of the entity port shall be updated by this command:

- *lpbk* should be set to NO in case the *lpbktyp*=FACILITY is released
- *fsflpbkstat* should be set to NO in case the *lpbktyp*=FSF is released.

This update shall be reported by an ED-rr notification for an EP155 port (rr specifying the affected port STM1E).

Behavior – Asynchronous Port

Existing loopback on asynchronous ports can be released via the RLS-LPBK command. The attribute *lpbk* and *fsflpbkstat* of the entity port shall be updated by this command::

- *lpbk* should be set to NO in case the *lpbktyp*=FACILITY is released
- *fsflpbkstat* should be set to NO in case the *lpbktyp*=FSF is released.

This update shall be reported by a ED-rr notification for an asynchronous port (rr specifying the affected port.

Behavior - EC1 Port

Existing loopback on EC1 ports can be released via the RLS-LPBK command. The attribute *lpbk* and *fsflpbkstat* of the entity port is updated by this command:

- *lpbk* should be set to NO in case the *lpbktyp*=FACILITY is released
- *fsflpbkstat* should be set to NO in case the *lpbktyp*=FSF is released.

This update is reported by a ED-EC1 notification for the port.

Behavior – GE1 Port

Existing loopback on ports can be released via the RLS-LPBK command. The attribute *lpbk* and *fsflpbkstat* of the entity port is updated by this command:

- *lpbk* should be set to NO in case the *lpbktyp*=FACILITY is released
- *fsflpbkstat* should be set to NO in case the *lpbktyp*=FSF is released.

This update is reported by a ED-EPORT notification for a GEn port (only *fsflpbkstat*).

Updated affected entities

Apart from the port entity no further entities are affected by the RLS-LPBK command. Changes of the port entity are notified via ED-*rr* (OPn port) or ED-EPORT (GEn port) notifications.

Apart from the port entity no further entities are affected by the RLS-LPBK command. Changes of the port entity are notified via ED-rr for EP155 port.

Example input/output

Please refer to the *Detailed behavior description* section for this command.

Error responses

Validation rule: Loopback must exist

Loopback command processing verifies that the RLS-LPBK command can not be applied to non-existing loopback. This means e.g. that a request to release a near-side (far-side) loopback while no near-side (far-side) loopback exists is rejected.

Error code: `SNVS - Status, Not in Valid State, loopback does not exist.`

Validation rule: *modifier* consistent with given port-rate

Loopback command processing verifies that the *modifier* parameter is consistent with the rate of the port (given by the *aid* parameter). E.g. for an OP2G5 only the *modifier* values STM16 or OC48 (depending on the port's interface standard) are allowed, for an OP10 only *modifier* values STM64 or OC192 (depending on the port's interface standard) are allowed etc.

Error code: `IDNC - Input Data Not Consistent, modifier is inconsistent with existing port rate.`

Validation rule: *modifier* consistent with given port's interface standard

Loopback command processing verifies that the *modifier* parameter is consistent with the interface standard of the port (given by the *aid* parameter). E.g. for an SDH port only the *modifier* values for STM16 or STM64 or STM256 are valid, for a SONET port only the *modifier* values OC48 or OC192 or OC768 are valid.

Error code: `ICNV - Input Command Not Valid, Interface Standard does not match.`

Related TL1 messages

- "OPR-LPBK: Operate loopback (here facility loopback)" (p. 4-1465)
- "RTRV-LPBK: Retrieve loopback (here facility loopback)" (p. 4-1804)

References

GR-199-CORE

□

RLS-PROTNSW: Release protection switch

The RLS-PROTNSW command allows to clear protection switch requests for one or more existing protection group instances of any protection group type. Different identification methods are supported for the different protection types.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M4

Priority: 1

Abortable: No

Input format

1+1 equipment group

Command Syntax: `RLS-PROTNSW`:*tid*:*aid*:*ctag*::*protype*:*spec_block*;

Multiplex section/line protection group

Command Syntax: `RLS-PROTNSW`:*tid*:*aid*:*ctag*::*protype*:*spec_block;*

2-/4-fibre MS-SPRing/BLSR protection group

Command Syntax: `RLS-PROTNSW`:*tid*:*[aid]*:*ctag*::*protype,[rid]*:*spec_block*;

Path protection group

Command Syntax: `RLS-PROTNSW`:*tid*:*[aid]*:*ctag*::*protype, ,[ppgname][,aid1]*:*spec_block*;

The parameter *ppgname* is kept for compatibility reasons only. Because of limitations of the path protection group name aliasing, the use of *ppgname* is not recommended.

Important! The use of *ppgname* as input parameter with alias function is not yet supported. Address path-protected cross-connections individually via *Navis*® Optical EMS/CIT GUI using their AIDs.

Important! If a RLS-PROTNSW command is executed on a MSP 1+1 optimized protection group while the command would have no effect (e.g. already cleared by previous command), then the command is denied with the eror code: `SROF, Status, Requested Operation Failed`. The correct behaviour should be that the command completes without error.

Input parameters

Command parameters (1+1 equipment protection group)

1. tid – Target Identifier
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   Description: The parameter specifies the aid of 1+1 equipment protection group.
   Type: AID
   Range: SwitchAndTmgProtGrpAID or CtlProtGroupAID or EP155ProtGroupAID or EP51ProtGroupAID or LOXCProtGroupAID
   All actual existing equipment protection groups will be returned with a specific AID:
   - SwitchAndTmgProtGrpAID for high order switch fabric and timing group,
   - CtlProtGroupAID for system controller group,
   - EP155ProtGroupAID for electrical 155 MBit/s groups,
   - EP51ProtGroupAID for electrical 51 MBit/s groups,
   - LOXCProtGroupAID for low order switch farbic groups.

   Default: No default
3. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the network element in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters Note: Current implementation also allows '0' as valid CTAG, which is an extension to GR-831.
4. protype – Protection Type
   The parameter specifies the type of the protection group.
   Type: alphanumeric value set.
   Range:
   - EQPTSWFBR (if aid is SwitchAndTmgProtGrpAID)
   - EQPTCTL (if aid is CtlProtGroupAID)
   - EQPTEP155 (if aid is EP155ProtGroupAID)
   - EQPTEP51 (if aid is EP51ProtGroupAID)
   - EQPTLOXC (if aid is LOXCProtGroupAID)

Command parameters (multiplex section/line protection group)

1. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
2. aid – Access Identifier
   This parameter specifies the aid of a 1+1 multiplex section/line protection group or the aid of a 1:1 multiplex section/line protection group (only R3.0 and later) or an port aid being a member of the group.
   Type: AID.
   Range: OnePlusOne_ProtGrpAID (not ranged) or SPortAID NByOne_ProtGrpAID (not ranged) or SPortAID (not ranged).
3. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the network element in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters Note: Current implementation also allows ’0’ as valid CTAG, which is an extension to GR-831.
4. protype – Protection Type
   This parameter specifies the architecture (type) of the protection group. The value for the 1+1 line/MS protection group is 1+1. The value for the 1:1 line/MS protection group is 1xNOPT (only R3.0 and later)
   Type: value set
   Range: 1+1 or 1xNOPT

Command parameters (2-/4-fibre MS-SPRing/BLSR protection group)

1. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
2. aid – Access Identifier
   This parameter specifies the aid of a MS-SPRing/BLSR protection group or an port aid being a member of the group.
   Option: If *rid* is specified, then *aid* can be omitted.
   Type: AID.
   Range: TwoFibre_ProtGrpAID (not ranged) or FourFibre_ProtGrpAID (not ranged) or SPortAID (not ranged)

3. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the network element in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters Note: Current implementation also allows ’0’ as valid CTAG, which is an extension to GR-831.
4. protype – Protection Type
   This parameter specifies the protection group type for which the information is retrieved.
   Type: alphanumeric value set
   Range: 2F or 4F
5. rid – Ring Identification
   This parameter specifies the ring identification name. Storage and retrieval of the *rid* is case sensitive, but actual use of the rid to determine the corresponding protection group is case insensitive. The parameter is used as an alias to identify exactly one MS-SPRing/BLSR protection group of any type. Therefore the value shall be unique for all protection groups of type 2F or 4F within the NE.
   Type: text string of chars allowed for TID strings.
   Range: 1 to 15 characters.
   Default: NONE.
   Option: If *aid* is specified, then *rid* can be omitted.

Command parameters (Path protection group)

1. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
2. aid – Access Identifier
   This parameter specifies a path protection group *aid* or an input tributary *aid* being a member of the group in combination with *ppgname.*
   The parameter specifies an input tributary when used in combination with parameter *aid1*.
   Option: If *ppgname* is specified, then *aid* can be omitted or used as an input tributary *aid*. The parameter *ppgname* is kept for compatibility reasons only. Because of limitations of the path protection group name aliasing, the use of *ppgname* is not recommended. For low order path protections, the *aid* is mandatory since the *ppgname* is not supported for those protection groups. For such protection groups, always a path protection group AID has to be specified.
   Option: If parameter *aid* specifies a HO tributary on a port of port class EDGE and this tributary is combined with another HO tributary within an OUC, then the command shall operate on all protection groups of type PATHDRI identified by

these two HO tributaries, if existing. If *aid* specifies a HO tributary on a port of port class INNI, the command shall be rejected.
Option: When parameter aid is used in combination with parameter *aid1*, then the command shall operate on all protection groups of type PATHDRI having the AIDs given in parameters *aid* and *aid1* as input tributaries. If *aid* or *aid1* specifies a tributary on a port of port class INNI, the command shall be rejected.
Type: AID
Range: STS1NumAID or VCGNumAID or GenLOTribAID
The use of wild cards shall not be restricted for STS1NumAID and VCGNumAID. No wildcards shall be allowed in a GenLOTribAID.

3. protype – Protection Type
   This parameter specifies the protection group type for which the information is retrieved.
   Type: alphanumeric value set
   Range: PATHDRI

4. ppgname – Path protection group Name
   The parameter shall specify the path protection group name. Storage and retrieval of the *ppgname* shall be case sensitive, but actual use of the *ppgname* to determine the corresponding protection group is case insensitive.
   Option for high order path protection groups: For high order path protections, if *aid* is specified, then *ppgname* can be omitted. For low order path protections, the *ppgname* shall be omitted as not being supported at all.
   If an input value is specified for *ppgname* and none is specified for aid, then RTRV-PROTN-GRP operates on all protection groups of type PATHDRI that have the specified path protection group name. If input values are specified for aid and *ppgname* then RTRV-PROTN-GRP operates on all protection groups of type PATHDRI that have the specified *aid*, *ppgname* pair.
   The command will complete successfully if there is no protection group described by *aid*, *ppgname*, but no data will be returned.
   The parameter *ppgname* is kept for compatibility reasons only. Because of limitations of the path protection group name aliasing, the use of *ppgname* is not recommended.
   Type: text string
   Range: 1 to 24 characters
   Option: or high order path protections, if *aid* is specified, then *ppgname* can be omitted. For low order path protections, the *aid* shall not be omitted since the *ppgname* is not supported for those protection groups. For lower order path protection groups, always a path protection group AID has to be specified. If an input value is specified for *ppgname* and none is specified for *aid*, then the

command operates on all protection groups that have the specified path protection group name. If input values are specified for aid and *ppgname* then the command operates on all protection groups that have the specified *aid*, *ppgname* pair. The command will complete successfully if there is no protection group described by *aid*, *ppgname*.

5. aid1 - Access identifier 1
   Together with parameter *aid* this parameter shall specify a pair of tributaries in order to execute switches to emulated selector bridges in one command.
   Option: If input values are specified for *aid* and *aid1* then OPR-PROTNSW operates on all protection groups of type PATHDRI that have these specified tributaries as inputs. If an input value is specified for *aid1*, no value must be specified for *ppgname*. If aid1 specifies a HO tributary in a port of port class INNI, the command shall be rejected.
   Type: AID
   Range: STS1NumAID

Command parameters (Constituent path protection group)

1. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The *tid* is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
2. aid – Access Identifier
   The parameter shall specify the constituent member of a path protection group or an input tributary *aid* of a constituent member within the path protection group in combination with *ppgname*.
   If *ppgname* is specified, then aid can be used as an input tributary aid. The parameter *ppgname* is kept for compatibility reasons only. Because of limitations of the path protection group name aliasing, the use of *ppgname* is not recommended.
   Type: AID
   Range: Path_ProtGrpAID
3. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the network element in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters Note: Current implementation also allows ’0’ as valid CTAG, which is an extension to GR-831.
4. protype – Protection Type
   This parameter specifies the protection group type for which the information is retrieved.
   Type: alphanumeric value set
   Range: CONSTITUENTPATH

Spec block parameters (1+1 Equipment, multiplex section/line, Path protection group)

1. sc – Switch Command
   This parameter specifies the clear command to be executed by the protection state machine.
   Type: alphanumeric value set
   Range: CLEAR
   Option: If the parameter is omitted the default switch command will be executed.

Spec block parameters (2/4-fibre MS-SPRing/BLSR protection group)

1. destside – Destination Side
   This parameter specifies the destination side to which the switch command shall be applied; i.e.
   - it is EAST for the east ring side
   - it is WEST for the west ring side

   Type: alphanumeric value set
   Range: EAST, WEST
2. sc – Switch Command
   This parameter specifies the clear command to be executed by the protection state machine.
   Type: alphanumeric value set
   Range: CLEAR
   Option: If the parameter is omitted the default switch command will be executed.

Output format

After receiving the RLS-PROTNSW command, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

Detailed behavior description

The command clears the protection switch of the identified protection groups. The clear command is processed according to the state machine behavior for the different protection group types. As consequence, the values of the following attributes of the state machine may be updated:

EQPTSWFBR: *actunit*, *swreq*

EQPTCTL: *swreq*

EQPTEP155: *actunit*, *swreq*

EQPTEP51: *actunit*, *swreq*

EQPTLOXC: *actunit*, *swreq*

1+1/1:1: *actunit*, *swreq*

2F: *eswreq*, *wswreq*

4F: *eactunit*, *eswreq, wactunit*, *wswreq,*

PATHDRI: *actunit*, *actunitaid*, *swreq*

The update of the attributes is reported by means of a protection switch notification for the corresponding protection group type.

Behavior of path-protected pipe cross-connections

If the protection type specified in the command is PATHDRI, then the command shall be applied to all constituent members of the path-protected pipe cross-connection. The system shall send protection switch notifications only for those constituent members, where the command leads to a change of the protection state.

Boundary Independence for Constituent Members:

If the protection type specified in the command is CONSTITUENTPATH, then the command shall be applied to the constituent member of the path-protected pipe cross-connection, which includes the specified tributary AID.

Identification of path protection groups

A set of path protection groups is identified by a path protection group name (*ppgname*). If an input tributary AID (*aid*) is specified in addition to the *ppgname*, then the command operates on the subset of protection groups that share both of these parameters.

The protection group name handling shall only apply to protections groups which have tributaries of high-order signal rates been involved.

The parameter *ppgname* is kept for compatibility reasons only. Because of limitations of the path protection group name aliasing, the use of *ppgname* is not recommended.

For PATHDRI, the protection switch applies to all constituents of the identified tributary. For this case, the following table summarizes the use of path protection group names as related to RLS-PROTNSW.

aid	ppgname	comment
not used	ppgname	operation applies to all tributaries that are group members of the ppgname (note 1)

aid	ppgname	comment
grp member (input) logical tributary AID	ppgname	operation applies to all tributaries that are group members of the aid, ppgname subset
path prot grp id (output logical tributary AID)	not used	normal, non-aliasing target identification

Note 1: group members are defined to be the working and protection input logical tributaries of the path protection group.

Example input/output

1+1 Equipment Protection Group

The following example shows an successful clear command for a 1+1 equipment protection group:

```
RLS-PROTNSW:LT-UNITE:1-1-estgrp:123456::EQPTSWFBR;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
;
```

Multiplex section/line protection group (1+1)

The following example shows an successful clear command for a 1+1 multiplex section/line protection group:

```
RLS-PROTNSW:LT-UNITE:1-1-o110:123456::1+1;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
;
```

2 fibre MS-SPRing/BLSR protection group

The following example shows an successful 'clear' command for the east side of a 2F MS-SPRing/BLSR protection group:

```
RLS-PROTNSW:LT-UNITE:1-1-t001:123456::2F:sc=CLEAR,
destside=EAST;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
;
```

4 fibre MS-SPRing/BLSR protection group

The following example shows an successful 'clear' command for the west side of a 4F MS-SPRing/BLSR protection group:

```
RLS-PROTNSW:LT-UNITE:1-1-f001:123456::4F:sc=CLEAR,
```

```
destside=WEST;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
;
```

Path protection group

The following example shows an successful clear command for a path protection group:

```
RLS-PROTNSW:LT-UNITE:1-1-#-#-10-1-25:123456::PATHDRI;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
;
```

The following example shows a successful clear command to both path protection groups forming an emulated selector bridge on input tributaries 1-1-#-#-8-1-25 and 1-1-#-#-6-1-25:

```
RLS-PROTNSW:LT-UNITE:1-1-#-#-8-1-25:123456::PATHDRI,,,
1-1-#-#-6-1-25:;
   UNITE-NE 98-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses (general)

Validation rule: consistent *aid* and *protype*

The specified *aid* shall be consistent with the specified *protype*.

Error code: `IIAC - Input, Invalid ACcess identifier,incorrect syntax`

Error responses (multiplex section/line protection group)

Validation rule: succeeding switch command

The switch command shall be executed by the protection state machine running on the XC pack.

Error code: `SPFA Status, Protection unit FAiled`

Error responses (2-/4-fibre MS-SPRing/BLSR protection group)

Validation rule: consistent aid and rid

If both an aid and an rid are specified as input parameters and they are inconsistent, then the following error response is returned

Error code: `IIAC - Input, Invalid ACcess identifier,incorrect syntax`

Validation rule: succeeding switch command

The switch command shall be executed by the protection state machine running on the XC pack.

Error code: `SPFA - Status, Protection unit FAiled`

Error responses (Path protection group)

Validation rule: Protection Group must exist

If the parameter *aid*, or the combination of the parameters *aid* and *ppgname* does not specify a path protection group, then the following error response is returned:

Error code: `IENE - Input, Entity Not Exists`

Validation rule: Protection Group must exist

If the combination of the parameters *aid* and *aid1* does not specify a path protection group, then the following error response is returned:

Error code: `IENE - Input, Entity Not Exists`

Validation rule: succeeding switch command

The switch command shall be executed by the protection state machine running on the XC pack.

Error code: `SPFA - Status, Protection unit FAiled`

Validation rule: *ppgname* and low order path protections

If a ppgname is given as input parameter while the aid references a low order tributary, then the following error response is returned:

Error code: `IDNV - Input, Data Not Valid, ppgname not supported for this transmission rate`

Validation rule: *ppgname* and *aid1*

If an *aid1* is given as input parameter and additionally a value is given for parameter *ppgname*, then the following error response is returned:

Error Code: `IDNV - Input, Data Not Valid, ppgname not allowed if aid1 is given`

Validation rule: Access via tributary on INNI port

If in input parameter aid or *aid1* for access via input or output a tributary is given located on a port of port class INNI, then the following error response is returned:

Error Code: `IDNV - Input, Data Not Valid, No Access via AID located on INNI port`

Related TL1 messages

- "RTRV-PROTN-GRP: Retrieve protection group" (p. 4-1997)
- "ED-PROTN-GRP: Edit protection group" (p. 4-551)
- "ENT-PROTN-GRP: Enter protection group" (p. 4-1222)
- "ENT-CRS: Enter cross-connection" (p. 4-1026)
- "OPR-PROTNSW: Operate protection switch" (p. 4-1472)

□

RLS-SYNCNSW: Release synchronization switch

The RLS-SYNCNSW command can be initiated by user to request the management system to release (clear) any existing lockout, forced or manual timing reference switching or external output timing switch or to release the forced request on the timing mode so that it will return to the provisioned locked mode from the holdover mode.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M4

Priority: 1

Abortable: No.

Input format

Command Syntax: `RLS-SYNCNSW-`*modifier*`:`*tid*`::`*ctag*`::`*[dest]*;

Input parameters

Command parameters

1. modifier – modifier
   This parameter indicates the management system on which the switch request acts. The *modifier* REF specifies the assigned timing reference switch. The *modifier* MOD specifies the clock mode switch of the system clock. The *modifier* OUTREF specifies the external timing output switch (for SDH only).
   Type: Alphanumeric value set
   Range:
   - REF
   - MOD
   - OUTREF

   Default: Not applicable.
2. tid – target identifier
   See definition of *tid – target identifier* in "RTRV-HDR: Retrieve header" (p. 4-1736).
3. ctag – correlation tag
   See definition of *ctag – correlation tag* in "RTRV-HDR: Retrieve header" (p. 4-1736).

4. dest – destination
   This parameter specifies the assigned timing reference identifier destination. This is the list of timing references available to the system clock or to the timing link switch of the external output timing. This parameter is valid and required for the REF and OUTREF modifiers.
   Type: AID
   Range:
   - *modifier* REF: External_timing_ref_AID, Line_timing_ref_AID
   - *modifier* OUTREF (for SDH only): Line_timing_ref_AID

   Default: Not applicable.

Output format

After receiving the RLS-SYNCNSW command, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output Parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The RLS-SYNCNSW command generates no REPT DBCHG Report Database Change notification. The RLS-SYNCNSW command returns a REPT EVT Report Event notification in consequence of a protection switch notification.

Clear clock backup request

The system clock leaves the Forced Holdover state by means of the RLS-SYNCNSW command with *modifier* MOD without parameter. The Clear Mode Switch request removes any active external request and does not affect the state of the automatic protection switching based on synchronization reference failure. The following parameter is affected by release of the clock mode switch Forced Holdover: – clkmod_stat = NORMAL.

Clear system timing reference or output timing switch request

The Clear Reference Switch command removes any active external request as is clear the Lockout, Forced Switch and Manual Switch conditions. The Clear Reference Switch command does not affect the state of the automatic protection switching based on synchronization reference failure, except for its effect on Wait to Restore. The Clear Reference Switch invokes the management system to terminate the wait to restore period for the specified timing reference and may be used to clear Wait to Restore. The signal status will revert to NORMAL.

Forced Switch: The system leaves the Forced Switch state by means of the OPR-SYNCNSW command with *sc* value LOCKOUT, or RLS-SYNCNSW command.

Manual Switch: The system leaves the Manual Switch state by means of the OPR-SYNCNSW command with *sc* value LOCKOUT, or OPR-SYNCNSW command with *sc* value FRCD, or RLS-SYNCNSW command.

Lockout: The system leaves the Lockout state by means of the RLS-SYNCNSW command. The following parameters are affected by release of the system timing reference switch:

- active_ref = [External_timing_ref_AID, Line_timing_ref_AID]
- refsw_stat = NO-REQUEST
- ref_lock = NO-LOCKOUT
- ref_stat = NORMAL

The following parameters are affected by release of the external output timing switch request:

- active_oref_stat = Line_timing_ref_AID
- orefswr_stat = NO-REQUEST
- sclkref_lockstat = NO-LOCKOUT

Example input/output

The following is an example of the RLS-SYNCNSW command for System Timing with *modifier* MOD:

```
RLS-SYNCNSW-MOD:LT-UNITE::123456:::;
   LT-UNITE 00-11-09 12:00:00
M  123456 COMPLD
;
```

The following is an example of the RLS-SYNCNSW command for System Timing with *modifier* REF:

```
RLS-SYNCNSW-REF:LT-UNITE::123456::EXTREF1;
   LT-UNITE 00-11-09 12:00:00
M  123456 COMPLD
;
```

The following is an example of the RLS-SYNCNSW command for Output Timing with *modifier* OUTREF:

```
RLS-SYNCNSW-OUTREF:LT-UNITE::123456:::;
   LT-UNITE 00-11-09 12:00:00
M  123456 COMPLD
;
```

Error responses

See definition in "RTRV-HDR: Retrieve header" (p. 4-1736) command error responses section for general validation rules and in "OPR-SYNCNSW: Operate synchronization switch " (p. 4-1492) command error responses section for specific validation rules.

Related TL1 messages

- "OPR-SYNCNSW: Operate synchronization switch " (p. 4-1492)
- "SET-SYNCN: Set synchronization" (p. 4-2318)
- "RTRV-SYNCN: Retrieve synchronization" (p. 4-2157)

References

GR-833-CORE

□

RTRV-ACTLCP: Retrieve acceptable circuit pack list

The RTRV-ACTLCP command returns all circuit packs (name and qualifier) which are supported in the system; i.e. there is at least one slot, where a circuit pack of that type is accepted to be provisioned/pre-provisioned.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-ACTLCP`*:tid:aid:ctag;*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   The aid of the system itself.
   Type: AID
   Range: system.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

In response to a valid RTRV-ACTLCP command, the following output report shall be returned:

```
   sid date time
M  ctag COMPLD
   "aid[:spec_block]"
        ...
        ...
   "aid[:spec_block]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

The output shall contain one line per supported circuit pack (name, qualifier pair).

Output parameters

Command parameters

1. aid – Access Identifier:
   See definition of *aid* input parameter in Input parameter section above.

Spec block parameters

1. actlname – Acceptable Circuit Pack Name
   This parameter specifies the name of a circuit pack supported by system.
   Type: value set.
   Range: 12 character.
2. actlqual - Acceptable Circuit Pack Qualifier
   This parameter specifies the qualifier of a circuit pack supported by system.
   Type: value set.
   Range: 7 character.

Note: The TL1-representation of the functional qualifier shall follow the rules as defined in SRD_ConfigurationManagement:

- alphanumeric characters or the special character '-' only
- special characters like '/' and '.' to be omitted.

Example input/output

```
RTRV-ACTLCP:UNITE-NE:system:123456;
   UNITE-NE 00-11-03 08:00:00
M  123456 COMPLD
   "system:actlname=OP2G5,actlqual=13SR4"
   "system:actlname=OP10,actlqual=15LR1"
    ...
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also pertain to the RTRV-ACTLCP command.

Related TL1 messages

- "ED-EQPT (CP): Edit equipment (circuit pack)" (p. 4-255)
- "DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116)
- "ENT-EQPT (slot): Enter equipment (slot)" (p. 4-1079)
- "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720)

□

RTRV-ALL: Retrieve all (port)

The RTRV-ALL command is used to retrieve all parameters related to SDH/SONET ports.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-ALL:`*tid:aid:ctag[:::spec_block];*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   AID of SDH or SONET port.
   Type: AID.
   Range: SPortAID of STMn ports and OCn ports of supported rates or EC1 port. The keyword `usall` and `all` is allowed for Simple_SlotAID. The keyword `all` is allowed for Simple_SPortAID.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. dyn - Retrieve Dynamic Parameters
   This parameter controls whether dynamic parameters shall be reported with the command reply or not.
   The following output parameters of a port are affected:
   - strc
   - strcst.

   Type: alphanumeric value set.
   Range: YES: Report dynamic parameters in the reply as well; NO: Do not report dynamic parameters in the reply.
   Default: NO.

Output format

In response to a valid RTRV-ALL command, the following output report is returned:

```
   sid date time
M  ctag COMPLD
   "aid[:spec_block]"
        ...
        ...
   "aid[:spec_block]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. aid – Access Identifier
   Access Identifier of the SDH or SONET port.
   Type: AID.
   Range: SPortAID.
   The value `all` is not allowed.

Spec block parameters

1. ptype – Port Type
   This identifies the port type of the AID.
   Type: alphanumeric value set.
   Range:
   - STM1E
   - STM1
   - STM4
   - STM16
   - STM16T
   - STM64
   - STM256
   - OC3
   - OC12
   - OC48
   - OC48T
   - OC192
   - OC768

- T3
- EC1

2. <others>
   Depending on *ptype*.
   See definition of spec_block output parameters in RTRV-ptype.

Detailed behavior description

The command retrieves the parameters as described above.

The RTRV-ALL command does not generate a REPT DBCHG message.

Example input/output

The following example shows the successful execution of a RTRV-ALL command. Not all output parameters are listed (missing ones indicated by …):

```
RTRV-ALL:LT-UNITE:1-1-#-#-usall-all:123456;
   LT-UNITE 00-11-27 08:00:00
M  123456 COMPLD
   "1-1-#-#-4-1:ptype=OC768,frcdus=DISABLE,sfthr=-3,
   sdthr=-6, pmode=MON,..... pmmsneses=15,pmrsneses=30"
   "1-1-#-#-5-1: ptype=STM64,frcdus=DISABLE,dexcthr=-3,
   degthr=-6, pmode=MON,.....,pmmsneses=15,pmrsneses=30"
;
```

Error Responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-ALL command.

Related TL1 messages

- "RTRV-STM1E: Retrieve STM1E port" (p. 4-2063)
- "RTRV-STM1: Retrieve STM1 port" (p. 4-2074)
- "RTRV-STM4: Retrieve STM4 port" (p. 4-2086)
- "RTRV-STM16: Retrieve STM16 port" (p. 4-2099)
- "RTRV-STM16T: Retrieve STM16T port" (p. 4-2113)
- "RTRV-STM64: Retrieve STM64 port" (p. 4-2122)
- "RTRV-STM256: Retrieve STM256 port" (p. 4-2137)
- "RTRV-OC3: Retrieve OC3 port" (p. 4-1868)
- "RTRV-OC12: Retrieve OC12 port" (p. 4-1881)
- "RTRV-OC48: Retrieve OC48 port" (p. 4-1894)
- "RTRV-OC48T: Retrieve OC48T port" (p. 4-1908)

- "RTRV-OC192: Retrieve OC192 port" (p. 4-1916)
- "RTRV-OC768: Retrieve OC768 port" (p. 4-1931)
- "RTRV-EC1: Retrieve EC1 port" (p. 4-1672)

References

GR-199-CORE (RTRV-*rr*)

□

RTRV-ALL: Retrieve all (trib)

The RTRV-ALL command is used to retrieve all parameters related to the tributaries.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-ALL:`*tid:aid:ctag*[:::spec_block];

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   AID of SDH/SONET tributary. The keyword `all` is allowed on slot, port and tributary level.
   Type: AID
   Range: STS1NumAID
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameter

1. dyn - Retrieve Dynamic Parameters
   This parameter controls whether dynamic parameters shall be reported with the command reply or not.
   The following output parameters of a tributary are affected:
   - ptrc
   - ptrcst
   - siglb
   - trailstate.

   Type: alphanumeric value set
   Range: YES, report dynamic parameters in the reply as well; NO, do not report dynamic parameters in the reply.
   Default: NO.

Output format

In response to a valid RTRV-ALL command, the following output report is returned:

```
   sid date time
M  ctag COMPLD
   "aid[:spec_block]"
        ...
        ...
   "aid[:spec_block]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. aid – Access Identifier
   AID of the SDH/SONET tributary. The keyword `all` is not allowed on any level.
   Type: AID.
   Range: STS1NumAID.

Spec block parameters

For the spec block parameters refer to the descriptions of the following commands "RTRV-VC3: Retrieve VC3 tributary" (p. 4-2246) and "RTRV-STS1: Retrieve STS1 tributary" (p. 4-2149) .

Detailed behavior description

The command retrieves the spec block parameters for the tributaries specified by the input parameter *aid*.

Example input/output

```
RTRV-ALL:LT-UNITE:1-1-#-#-ALL-ALL-ALL:123456;
   LT-UNITE 00-11-27 08:00:00
M  123456 COMPLD
   "1-1-#-#-3-1-1:crslpbkstat=NO,tmonmd=NMON,
   tribsdhpn=Default,ptca=Default,neppm=DISABLE,
   pmhpneses=30,pmhpfeses=30,degthr=-6,...,
   ptrcrfmt=1,dexcthr=-3,ptrc=00,sdsfmode=POISSON"
   "1-1-#-#-3-1-2:crslpbkstat=NO,tmonmd=NMON,
   tribsonetpn=Default,ptca=Default,neppm=DISABLE,
   pmhpneses=30,pmhpfeses=30,degthr=-6,...,
   ptrcrfmt=1,dexcthr=-3,ptrc=00,sdsfmode=POISSON"
   "1-1-#-#-3-1-3:crslpbkstat=NO,tmonmd=NMON,
   tribsonetpn=Default,ptca=Default,neppm=DISABLE,
```

```
   pmhpneses=30,pmhpfeses=30,degthr=-6,...,
   ptrcrfmt=1,dexcthr=-3,ptrc=00,sdsfmode=POISSON"
                              .
                              .
                              .
                              .
                              .
                              .
                              .
   "1-1-#-#-3-1-192:crslpbkstat=NO,tmonmd=NMON,
   tribsonetpn=Default,ptca=Default,neppm=DISABLE,
   pmhpneses=30,pmhpfeses=30,degthr=-6,...,
   ptrcrfmt=1,dexcthr=-3,ptrc=00,sdsfmode=POISSON"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-ALL command.

Related TL1 messages

- "RTRV-VC3: Retrieve VC3 tributary" (p. 4-2246)
- "RTRV-STS1: Retrieve STS1 tributary" (p. 4-2149)

References

GR-199-CORE (RTRV-*rr*)

□

RTRV-ALM: Retrieve alarm

The RTRV-ALM command messages can be initiated by the user to retrieve all active alarms with properties defined by command parameters of level critical, major or minor from a NE.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M1

Priority: 1

Abortable: Yes.

Input format

Command Syntax: `RTRV-ALM`[-*modifier*]:*tid*::*ctag*::[*ntfcncde*],[*condtype*],[*srveff*],,,;

The last three trailing commas are used to specify that the optional parameters *locn*, *dirn*, *tmper* as defined in GR-833 are omitted since these parameters are not supported as input parameters.

Input parameters

Command parameters

1. modifier – Message Modifier
   This parameter defines for which AID types the conditions will be retrieved. If the value 'ALL' is used, the specified parameter has no impact on the set of retrieved alarms delivered in the retrieve reply.
   Type: alphanumeric value set.
   Range: ALL. This requests all alarms.
   The modifier can be omitted. In this case the ALL modifier will be set implicit.
2. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
3. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
4. ntfcncde – Notification Code
   This is the alarm severity (alarm level) for which the current alarms are requested.
   Type: alphanumeric value set.
   Range: ALL, requests all alarms.
   ntfcncde can be omitted. In this case ALL will be set implicit.

5. condtype – Condition Type
   This parameter identifies the type of alarm indication being reported.
   Type: alphanumeric value set.
   Range: ALL, requests all alarms.
   condtype can be omitted. In this case ALL will be set implicit.
6. srveff – Service Effect
   This parameter identifies the service affect of alarms being reported.
   Type: alphanumeric value set.
   Range: ALL, requests all alarms.
   srveff can be omitted. In this case ALL will be set implicit.

Output format

The following example shows the successful completion of the RTRV-ALM command by the NE:

```
   sid date time
M  ctag COMPLD
   "aid,aidtype:ntfcncde,condtype,srveff,ocrdat,
   ocrtm:conddescr"
   (0 or more lines of the above)
;
```

If no alarms are raised only COMPLD will be returned.

The alarms are reported one line per condition, similar to the autonomous messages conveyed by REPT ALM.

Output parameters

Command parameters

1. aid – Access Identifier
   This is the address of the entity for which an alarm condition is being reported.
   Type: AID.
   Range: All defined AIDs are allowed. It should be a valid AID for the specified *modifier*. Refer to the definition of AIDs.
2. aidtype – Access Identifier Type
   This parameter defines the AID type to which the alarm belongs.
   Type: alphanumeric value set.
   Range:
   - COM: Common. An alarm/event that applies to the whole NE system; for example, a processing error.
   - EQPT: An equipment-related alarm/event.
   - SYST: An alarm/event related to system timing.
   - OUTT: An alarm/event related to output timing.

- STM1E: A facility-related alarm/event for synchronous transport mode 1 (electrical).
- STM1: A facility-related alarm/event for synchronous transport mode 1.
- STM4: A facility-related alarm/event for synchronous transport mode 4.
- STM16: A facility-related alarm/event for synchronous transport mode 16.
- STM16T: A facility-related alarm/event for fully transparent synchronous transport mode 16.
- STM64: A facility-related alarm/event for synchronous transport mode 64.
- STM256: A facility-related alarm/event for synchronous transport mode 256.
- ODU1: A facility-related alarm/event for optical data units of level 1
- OC3: A facility-related alarm/event at the optical carrier signal level 3.
- OC12: A facility-related alarm/event at the optical carrier signal level 12.
- OC48: A facility-related alarm/event at the optical carrier signal level 48.
- OC48T: A facility-related alarm/event at the fully transparent optical carrier signal level 48.
- OC192: A facility-related alarm/event at the optical carrier signal level 192
- OC768: A facility-related alarm/event at the optical carrier signal level 768
- T3: A facility-related alarm/event at the DS3 level
- 1GE: A facility-related alarm/event for 1 Gigabit Ethernet.
- VC3: A facility-related alarm/event for virtual container 3.
- VCG: A facility-related alarm/event for virtual concatenation group tributary.
- VC4: A facility-related alarm/event for virtual container 4
- VC44C: A facility-related alarm/event for a signal concatenated at 4 times the VC4 rate.
- VC416C: A facility-related alarm/event for a signal concatenated at 16 times the VC4 rate.
- VC464C: A facility-related alarm/event for a signal concatenated at 64 times the VC4 rate.
- STS1: A facility-related alarm/event at synchronous transport signal level 1.
- STS3C: A facility-related alarm/event at synchronous transport signal level 3.
- STS12C: A facility-related alarm/event at synchronous transport signal level 12.
- STS48C: A facility-related alarm/event at synchronous transport signal level 48.
- STS192C: A facility-related alarm/event at synchronous transport signal level 192.
- HOVC4 : A facility-related alarm/event for virtual container 4 higher-order path termination.

- HOSTS1: A facility-related alarm/event at synchronous transport signal level 1 higher-order path termination.
- LOVC3: A facility-related alarm/event for virtual container 3 (lower-order path).
- LOVC12: A facility-related alarm/event for virtual container 12
- LOVT1: A facility-related alarm/event at transport level VT1.5.
- LINK: A signaling communication link related alarm/event for ONNS

Refer to "Alarms, events, ASAPs" (p. 7-4) for the relation of alarm / entity / *aidtype*.

3. conddescr – Description of the Condition
   This is a textual Description of the Condition.
   Type: inner string of the format:
   \"<category>, <entity>, <description>, <additional text>\" or
   \"<category>, <entity>, <description>, <additional text>-cleared\" (this form is used in REPT ALM/EVT for cleared alarms)
   Range:
   - category: is the category
   - entity: is the entity for which the alarm is reported
   - description: is the Alarm description, the string is up to 32 characters
   - additional text: additional text.

   If there is no additional text, then the trailing comma may be omitted. For the values of *conddescr*, refer to "Alarm, event, ASAP tables" (p. 7-17).
4. condtype – Condition Type
   This parameter identifies the probable cause (type of alarm indication) being reported.
   Type: alphanumeric value set.
   Range: All defined probable causes. For the values of *condtypr*, refer to "Alarm, event, ASAP tables" (p. 7-17).
5. ntfcncde – Notification Code
   This is the alarm severity (alarm level) or if the alarm is cleared.
   Type: alphanumeric value set.
   Range:
   - CR - Critical (ITU / Telcordia)
   - MJ - Major (ITU / Telcordia)
   - MN - Minor (ITU / Telcordia)
   - CL - Cleared.
6. srveff – Service Effect
   This parameter identifies the service affect of alarms being reported. It presents the "best guess" from a local system point of view.
   Type: alphanumeric value set.

Range:

- SA: Service-Affecting alarm condition
- NSA: Non-Service-Affecting alarm condition.

7. ocrdat – Occurrence Date
   This parameter indicates the raising / clearing date of the alarm.
   Type: value set of the format MM-DD.
   Range: MM represents the month, DD represents the day, leading zeros are not suppressed.
8. ocrtm – Occurrence Time
   This parameter indicates the raising / clearing time of the alarm. The accuracy should be +/- 1 second.
   Type: value set of the format HH-MM-SS.
   Range: HH represents the hours, MM represents the minutes, SS represents the seconds, leading zeros are not suppressed.

Detailed behavior description

RTRV-ALM retrieves all active alarms of level CR, MJ, MN.

Any alarm reported by an autonomous REPT ALM message which is active when a RTRV-ALM message is received, is included in the RTRV-ALM response message. Alarms of level NA are reported by RTRV-COND and not by RTRV-ALM.

RTRV-ALM is an on-demand version of the autonomous REPT ALM. The on-demand command only report alarms that are still set when the command is executed.

The REPT-ALM command does not generate a REPT DBCHG message.

```
RTRV-ALM:LT-UNITE-123::123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
   "1-1-#-#-4-1,STM16:CR,LOS,SA,01-01,07-29-13:
   \"Communication-Transport, STM16 port, Loss Of Signal\""
   "1-1-#-#-1-3,STM4:MJ,LOF,SA,12-31,03-50-32:
   \"Communication-Transport, STM4 port, Loss of Frame\""
;
```

Example input/output

The following example shows the successful completion of the RTRV-ALM command by the NE if no *modifier* is specified and all alarms will be retrieved for the whole NE:

The following example shows the successful completion of the RTRV-ALM command by the NE if the alarms for a specified *aid* will be retrieved:

```
RTRV-ALM:LT-UNITE-123:1-1-#-#-4-1:123456;
   LT-UNITE-123 00-01-01 08:00:00
```

```
M  123456 COMPLD
   "1-1-#-#-4-1,STM16:CR,LOS,SA,01-01,07-29-13:
   \"Communication-Transport, STM16 port, Loss Of Signal\""
;
```

The following example shows the successful completion of the RTRV-ALM command by the NE if no alarms are raised on the NE:

```
RTRV-ALM:LT-UNITE-123:1-1-#-#-3-1:123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command error responses section. The error responses listed there also apply to the RTRV-ALM command.

Related TL1 messages

- "ALW-MSG: Allow message" (p. 4-23)
- "ENT-ASAP-PROF: Enter alarm severity assignment profile" (p. 4-1018)
- "ED-ASAP-PROF: Edit alarm severity assignment profile" (p. 4-206)
- "RTRV-ASAP-PROF: Retrieve ASAP profile" (p. 4-1616)
- "INH-MSG: Inhibit message" (p. 4-1444)
- "REPT ALM: Report alarm" (p. 4-1509)
- "REPT-ALM-ENV: Report Alarm Environment" (p. 4-1514)
- "REPT EVT: Report event" (p. 4-1520)
- "RTRV-ALM-ENV: Retrieve alarm environment" (p. 4-1605)
- "RTRV-COND: Retrieve condition" (p. 4-1641)
- "RTRV-HDR: Retrieve header" (p. 4-1736)

References

GR-833-CORE, Issue 4, June 2000, OTGR Section 12.3, Network Maintenance: NE and Transport Surveillance Messages

□

RTRV-ALM-ENV: Retrieve alarm environment

The RTRV-ALM-ENV command retrieves active environmental alarms of the severity CR, MJ, MN (Critical, Major, or Minor (ITU/Telcordia)).

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-ALM-ENV`:*tid*:[*aid*]:*ctag*::[*ptfcncde*],[*almtype*];

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   This is the address of the MDI port entities for which an alarm condition or the configuration is being reported. If misc_inall is specified the information for all entities will be retrieved.
   Type: AID.
   Range: Miscellaneous_in_discreteAID.
   Default: misc_inall (if the aid is omitted).
3. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
4. ntfcncde – Notification Code
   This is the alarm severity (alarm level) for which the current alarms are requested.
   Type: alphanumeric value set.
   Range: ALL, requests all alarms.
   ntfcncde can be omitted. In this case ALL will be set implicit.
5. almtype – Alarm Type
   This parameter identifies the type of alarm indication being reported.
   Type: alphanumeric value set.
   Range: MISC (default), an event that applies to the miscellaneous discrete outputs inputs.

Output format

The following example shows the successful completion of the RTRV-ALM-ENV command by the NE:

```
   sid date time
M  ctag COMPLD
   "aid:ntfcncde,almtype,ocrdat,ocrtm[,almmsg]"
   (0 or more lines of the above)
;
```

If no alarms are raised only COMPLD will be returned.

Output parameters

Command parameters

1. aid – Access Identifier
   This is the address of the entity for which an alarm condition is being reported.
   Type: AID.
   Range: Miscellaneous_in_discreteAID. The AID misc_inall must not appear.
2. almtype – Alarm Type
   This parameter identifies the type of alarm indication being reported.
   Type: alphanumeric value set.
   Range: MISC (default), an event that applies to the miscellaneous discrete outputs inputs.
3. ntfcncde – Notification Code
   This is the alarm severity (alarm level) for which the current alarms are requested.
   Type: alphanumeric value set.
   Range: ALL, requests all alarms.
   ntfcncde can be omitted. In this case ALL will be set implicit.
4. ocrdat – Occurrence Date
   This parameter indicates the raising / clearing date of the alarm.
   Type: value set of the format MM-DD.
   Range: MM represents the month, DD represents the day, leading zeros are not suppressed.
5. ocrtm – Occurrence Time
   This parameter indicates the raising / clearing time of the alarm. The accuracy should be +/- 1 second.
   Type: value set of the format HH-MM-SS.
   Range: HH represents the hours, MM represents the minutes, SS represents the seconds, leading zeros are not suppressed.
6. almmsg – Alarm Message
   A string describing the alarm of the environmental point.
   Note: This string is configurable by the SET-ATTR-ENV command.
   Type: text string.
   Range: upper and lower case, up to 32 characters.
   Default: Miscellaneous Discrete.

Detailed behavior description

Any environmental alarm reported by an autonomous REPT ALM ENV message, which is active when a RTRV-ALM-ENV message is received, is included in the RTRV-ALM-ENV response message.

Environmental alarms of severity NA (warning (ITU) / not alarmed (Telcordia)) are not included in a RTRV-ALM-ENV response. They are included in the RTRV-COND response.

Example input/output

The following example shows the successful completion of the RTRV-ALM-ENV command by the NE:

```
RTRV-ALM-ENV:LT-UNITE-123::123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
   "MISC_IN7:MJ,MISC,01-01,07-49-23,\"Miscellaneous Discrete #7\""
   "MISC_IN5:MN,MISC,01-01,06-32-25,\"stairway 5 temperature\""
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command error responses section. The error responses listed there also apply to the RTRV-ALM-ENV command.

Related TL1 messages

- "ALW-MSG: Allow message" (p. 4-23)
- "ED-ASAP-PROF: Edit alarm severity assignment profile" (p. 4-206)
- "INH-MSG: Inhibit message" (p. 4-1444)
- "REPT ALM: Report alarm" (p. 4-1509)
- "REPT-ALM-ENV: Report Alarm Environment" (p. 4-1514)
- "REPT EVT: Report event" (p. 4-1520)
- "RTRV-ALM: Retrieve alarm" (p. 4-1599)
- "RTRV-COND: Retrieve condition" (p. 4-1641)
- "SET-ATTR-ENV: Set attribute environment" (p. 4-2299).

References

GR-833-CORE, Issue 4, June 2000, OTGR Section 12.3, Network Maintenance: Network Element and Transport Surveillance Messages.

□

RTRV-AO: Retrieve Autonomous Output

The RTRV-AO command is used to retrieve copies of past REPT DBCHG messages for users in the memory administration user class.

The copies of REPT DBCHG messages available for retrieval include those actually reported to the user as well as those that may not have reached the user due to external (for example, DCN failures) or internal (for example, inhibited autonomous TL1 message reporting) conditions.

If messages are inhibited with the INH-MSG command, the internal buffering of autonomous messages is unaffected.

The system saves a copy of each REPT DBCHG message for users in the memory administration user class (*uidclass*=MEMADMIN). Those copies share one *atag* counter for all users of the memory administration user class. Message is saved even if no user of the memory administration user class is actually logged into the system.

This is in contrast to the autonomous messages which are sent to users of user classes different from memory administration, where the *atag* counter is available per user session.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S1

User Class: The user must belong to the user class *uidclass*=MEMADMIN (see "RTRV-USER: Retrieve user" (p. 4-2236)).

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-AO`:*tid*::*ctag*[:::*spec_block*];

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of *tid* in "RTRV-HDR: Retrieve header" (p. 4-1736).
2. ctag – Correlation Tag
   See definition of *ctag* in "RTRV-HDR: Retrieve header" (p. 4-1736).

Spec block parameters

1. atagseq – ATAG Sequence
   This parameter specifies one or more *atags* for which the REPT DBCHG messages is retrieved from the log.

Examples of ranges that are allowed:

- *atagseq*=10 → Retrieve *atag* message 010
- *atagseq*=10&20 → Retrieve *atag* message 010, 020
- *atagseq*=10&&20 → Retrieve *atag* message 010-020
- *atagseq*=999&&1 → Retrieve *atag* message 999, 000, 001.

If the value is omitted, all messages are retrieved, regardless of *atag*.
Type: (range of) numeric string.

Examples of ranges that are allowed:

- *atagseq*=10 Retrieve REPT DBCHG message with *atag* 010
- *atagseq*=10&20 Retrieve REPT DBCHG message with *atag* s 010, 020
- *atagseq*=10&&20 Retrieve REPT DBCHG message with *atag* s 010-020
- *atagseq*=999&&1 Retrieve REPT DBCHG message with *atag* s 999, 000, 001.

Range: 0 .. 999
Default: *null*, if the value is omitted, all messages are retrieved, regardless of *atag*.

2. msgtype – Message Type
   Retrieve only atag messages of this specific type.
   Type: alphanumeric value set
   Range: DBCHG: Retrieve messages reported by REPT DBCHG.
   Default: *null*, if the value is omitted, only DBCHG messages are retrieved.

Output format

If there are autonomous messages to report, the following response is returned:

```
   sid date time
M  ctag COMPLD
/*
complete autonomous messages without the termination indicator (";")
*/
;
```

Sorting

If more than one REPT DBCHG message is returned, the output is sorted by ascending time order. If the system clock is reset, the output is sorted in the order in which the messages were stored into the log.

For example, if the system originally sent messages 998 through 001, and the user requests those messages, the *atag* numbers in the output will be in the order: 998, 999, 000, 001.

If the *atag* numbers have wrapped and the most recent entry is *atag* 040, and if the user requests *atagseq*=38&&43, the *atag* order in the output will be 041, 042, 043, 038, 039, 040.

Output parameters

The output parameters reflect the autonomous messages that are retrieved from the database change log, see "RTRV-LOG-NTFCN: Retrieve notification Log" (p. 4-1765), in the format of a REPT DBCHG message.

Detailed behavior description

The system returns all REPT DBCHG messages matching the *atag* range of the input parameter *atagseq* to the user.

Update affected entities: Execution of this command does not affect other entities in the system.

Example input/output

The following is an example of the successful execution of a RTRV-AO command:

```
RTRV-AO:LT-UNITE:12:123456;
   LT-UNITE 00-11-01 08:00:00
M  123456 COMPLD
/*
   LT-UNITE 00-11-01 07:50:00
A  012 REPT DBCHG
   "DATE=00-11-01,TIME=07-49-58:ED-NE:::tunstat=ENABLE"
*/
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error Response section. The error responses listed there also apply to the RTRV-AO command.

Validation rule: valid *atagseq*

If the NE receives a RTRV-AO command with an invalid *atagseq* value the command is rejected with

Error code: `IDNV - Input Data Not Valid, invalid atagseg`

Validation rule: user class

If the NE receives a RTRV-AO command from a user that is not in the memory administration user class, i.e. *uidclass*=MEMADMIN, the command is rejected with

Error code: `PICC - Privilege, Illegal Command Code, invalid user class.`

Related TL1 messages

- "RTRV-LOG-NTFCN: Retrieve notification Log" (p. 4-1765)
- "REPT DBCHG: Report data base change" (p. 4-1517)

References

GR-199-CORE

RTRV-ASAP-ASGNMT: Retrieve ASAP assignment

The RTRV-ASAP-ASGNMT command retrieves a list of AIDs that identifies all users of an ASAP of a specific type and a specific name.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M1

Priority: 1

Abortable: Yes.

Input format

Command Syntax: `RTRV-ASAP-ASGNMT`:*tid*:*aid*:*ctag*::*pftype*,*pfname*;

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
3. aid – Access Identifier
   Identifies the entity for which and all contained entities the ASAP assignments will be retrieved. Only for a shelf and all its contained entities all ASAP assignments can be retrieved.
   Type: AID.
   Range: ShelfAID.
4. pftype – Profile Type
   This parameter indicates the type of the ASAP (ASAP type).
   Type: alphanumeric value set. A '-' is also allowed for the values
   Range:
   - DCN: Data Communications Network
   - ENET: Ethernet
   - ENV: Environmental (Miscellaneous Discrete)
   - EQUIP-PROT: Equipment with Protection State Dependence
   - EQUIP-UNPROT: Equipment unprotected
   - MSSPRING-BLSR: MS-SPRing and Bilateral Switched Ring protection switch
   - MSP-APS: Automatic protection switch
   - PATH: Path MSA/NIM related
   - PATHTERM: Path Termination
   - PORT: SDH/SONET ports

- SNCP-UPSR: Sub-Network Connection Protection and Unidirectional Path Switched Ring
- TIMING: System Timing
- TRANSPARENCY: Fully Transparent Service.

Default Value: There is no default value. The *pftype* does not change.

5. pfname – ASAP Profile Name
   This parameter indicates the name of the ASAP. The ASAP name distinguishes ASAPs of the same ASAP type specified by pftype. That means the same name can be used for several ASAP types.
   Type: alphanumeric character string. A hyphen (-) is additionally allowed in the name.
   Range: length 1-24 characters.
   For predefined ASAPs is the value of *pfname* ″DEFAULT″ , but it is no default name in general.

Output format

The following example shows the successful completion of the RTRV-ASAP-ASGNMT command by the NE:

```
   sid date time
M  ctag COMPLD
   ″aid_output:pftype,pfname″
   (0 or more lines)
;
```

Output parameters

Command parameters

1. aid_output – Access Identifier
   Access Identifier of an entity which has an ASAP pointer which points to an ASAP of *pftype*, *pfname*.
   Type: AID.
   Range: All AIDs of entities which contain a ASAP pointer. For entities see in the section ″Entity - ASAP Relation″.
   Default: None.
2. pftype – Profile Type
   This parameter indicates the type of the ASAP (ASAP type).
   Type: alphanumeric value set. A ’-’ is also allowed for the values
   Range:
   - DCN: Data Communications Network
   - ENET: Ethernet
   - ENV: Environmental (Miscellaneous Discrete)
   - EQUIP-PROT: Equipment with Protection State Dependence

- EQUIP-UNPROT: Equipment unprotected
- MSSPRING-BLSR: MS-SPRing and Bilateral Switched Ring protection switch
- MSP-APS: Automatic protection switch
- PATH: Path MSA/NIM related
- PATHTERM: Path Termination
- PORT: SDH/SONET ports
- SNCP-UPSR: Sub-Network Connection Protection and Unidirectional Path Switched Ring
- TIMING: System Timing
- TRANSPARENCY: Fully Transparent Service.

Default Value: There is no default value. The *pftype* does not change.

3. pfname – ASAP Profile Name
   This parameter indicates the name of the ASAP. The ASAP name distinguishes ASAPs of the same ASAP type specified by pftype. That means the same name can be used for several ASAP types.
   Type: alphanumeric character string. A hyphen (-) is additionally allowed in the name.
   Range: length 1-24 characters.
   For predefined ASAPs is the value of *pfname* ″DEFAULT″ , but it is no default name in general.

Detailed behavior description

The RTRV-ASAP-ASGNMT command does not generate a REPT DBCHG message.

Behavior: No matching profile name

If the system receives a command with a *pfname* that does not exist, then the command will successfully complete with an empty reply list. Thus no data will be returned. Note: A wrong pftype is handled by the general error response IDNV (RTRV-HDR).

Behavior with DEFAULT profile

If the system receives a command with pfname = DEFAULT, then the command will successfully complete with an empty reply list.

Example input/output

The following example shows the successful completion of the RTRV-ASAP-ASGNMT command by the NE:

```
RTRV-ASAP-ASGNMT:LT-UNITE-123:1-1:123456::SONET,GTE;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
   ″1-1-#-#-1-2:SONET,GTE″
   ″1-1-#-#-1-3:SONET,GTE″
```

```
   "1-1-#-#-4-1:SONET,GTE"
   "1-1-#-#-4-1:SONET,GTE"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command error responses section. The error responses listed there also apply to the RTRV-ASAP-ASGNMT command.

Related TL1 messages

- "DLT-ASAP-PROF: Delete alarm severity assignment profile" (p. 4-92)
- "ED-ASAP-PROF: Edit alarm severity assignment profile" (p. 4-206)
- "RTRV-ASAP-PROF: Retrieve ASAP profile" (p. 4-1616)
- "ENT-ASAP-PROF: Enter alarm severity assignment profile" (p. 4-1018).

□

RTRV-ASAP-PROF: Retrieve ASAP profile

The RTRV-ASAP-PROF command retrieves information about one or more alarm severity assignment profile(s).

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-ASAP-PROF`:*tid*::*ctag*::*pftype*[,*pfname*];

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
3. pftype – Profile Type
   This parameter indicates the type of the ASAP (ASAP type).
   Type: alphanumeric value set. A '-' is also allowed for the values
   Range:
   - DCN: Data Communications Network
   - ENET: Ethernet
   - ENV: Environmental (Miscellaneous Discrete)
   - EQUIP-PROT: Equipment with Protection State Dependence
   - EQUIP-UNPROT: Equipment unprotected
   - MSSPRING-BLSR: MS-SPRing and Bilateral Switched Ring protection switch
   - MSP-APS: Automatic protection switch
   - PATH: Path MSA/NIM related
   - PATHTERM: Path Termination
   - PORT: SDH/SONET ports
   - SNCP-UPSR: Sub-Network Connection Protection and Unidirectional Path Switched Ring

- TIMING: System Timing
- TRANSPARENCY: Fully Transparent Service.

Default Value: There is no default value. The *pftype* does not change.

4. pfname – ASAP Profile Name
   This parameter indicates the name of the ASAP. The ASAP name distinguishes ASAPs of the same ASAP type specified by pftype. That means the same name can be used for several ASAP types.
   Type: alphanumeric character string. A hyphen (-) is additionally allowed in the name.
   Range: length 1-24 characters.
   For predefined ASAPs is the value of *pfname* ″DEFAULT″ , but it is no default name in general.

Output format

The following example shows the successful completion of the RTRV-ASAP-PROF command by the NE if the *pfname* parameter is omitted:

```
   sid date time
M  ctag COMPLD
   ″pftype=pftype,name=DEFAULT″
   ″pftype=pftype,name=pfname″
   ...
   ″pftype=pftype,name=pfname″
;
```

There may be 0 or more *pfname* lines, where each line gives the name of an ASAP of type *pftype*. Even if ENT-ASAP-PROF has never been used to create a profile for this pftype, RTRV-ASAP-PROF will still return one profile: DEFAULT.

Normal completion response if *pfname* is specified

The following example shows the successful completion of the RTRV-ASAP-PROF command by the NE if the *pfname* parameter is specified:

```
   sid date time
M  ctag COMPLD
   ″pftype=pftype,name=pfname″
   ″spec_block″
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the output parameter section of “RTRV-HDR: Retrieve header” (p. 4-1736) .

Important! Instead of returning an error message the RTRV-ASAP-PROF command returns success with an empty list when the user tries to retrieve non-existing profiles.

Output parameters

Command parameters

1. pftype – Profile Type
   This parameter indicates the type of the ASAP (ASAP type).
   Type: alphanumeric value set. A '-' is also allowed for the values
   Range:
   - DCN: Data Communications Network
   - ENET: Ethernet
   - ENV: Environmental (Miscellaneous Discrete)
   - EQUIP-PROT: Equipment with Protection State Dependence
   - EQUIP-UNPROT: Equipment unprotected
   - MSSPRING-BLSR: MS-SPRing and Bilateral Switched Ring protection switch
   - MSP-APS: Automatic protection switch
   - PATH: Path MSA/NIM related
   - PATHTERM: Path Termination
   - PORT: SDH/SONET ports
   - SNCP-UPSR: Sub-Network Connection Protection and Unidirectional Path Switched Ring
   - TIMING: System Timing
   - TRANSPARENCY: Fully Transparent Service.

   Default Value: There is no default value. The *pftype* does not change.
2. pfname – ASAP Profile Name
   This parameter indicates the name of the ASAP. The ASAP name distinguishes ASAPs of the same ASAP type specified by pftype. That means the same name can be used for several ASAP types.
   Type: alphanumeric character string. A hyphen (-) is additionally allowed in the name.
   Range: length 1-24 characters.
   For predefined ASAPs is the value of *pfname* ″DEFAULT″ , but it is no default name in general.

Spec block parameters

1. Alarm Severity Profile parameters
   The spec block contains ASAP parameters. Each ASAP parameter defines for a probable cause (*condtype*) the assigned severity which will be reported when the alarm appears. If for one specific probable cause a service affecting (sa) or non service affecting (nsa) alarm can be reported then for each the sa-alarm and nsa-alarm an ASAP parameter exists.
   The severity indicates the urgency of an alarm. The severity of a sa-alarm must be

more urgent that of a nsa-alarm for the same *condtype*.
The description of the ASAP parameters, the relation to the profile types and the default values are described in: "Alarms, events, ASAPs" (p. 7-4).
All parameters have the same type and value range.
Type: alphanumeric value set.
Range:

- CR - Critical (ITU / Telcordia)
- MJ - Major (ITU / Telcordia)
- MN - Minor (ITU / Telcordia)
- NA - Warning (ITU) / Not-Alarmed (Telcordia)
- NR - Non-Alarmed (ITU) / Not-Reported (Telcordia).

Example: Concrete ASAP parameters are *sa_eqpt* and *nsa_eqpt*. Both refers to the probable cause (*condtype*) EQPT and ASAP type EQUIPPROT. *sa_eqpt* contains the assigned severity for the service affecting alarm of probable cause EQPT and *nsa_eqpt* for the non service affecting alarm. *sa_eqpt* can have the concrete value CR and *nsa_eqpt* MN.

Detailed behavior description

The sysem returns

- All defined profiles of a specific profile type, if only the profile type is specified
- All profile parameters of a specific profile, if profile type and profile name is specified.

If no profile with the specified name exists, the response shall be empty.

The RTRV-ASAP-PROF command does not generate a REPT DBCHG message.

Example input/output

The following example shows the successful completion of the RTRV-ASAP-PROF command by the NE if *pfname* is omitted:

```
RTRV-ASAP-PROF:LT-UNITE-123::123456::ENV;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
   "Pftype=ENV,Name=DEFAULT"
   "Pftype=ENV,Name=GTE"
;
```

The following example shows the successful completion of the RTRV-ASAP-PROF command by the NE if *pfname* and *pftype* is specified:

```
RTRV-ASAP-PROF:LT-UNITE-123::123456::ENET,GTE;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
   "Pftype=ENET,Name=GTE"
```

```
   "sa_vcg_loa=MJ,nsa_vcg_loa=MN,sa_vcg_ssf=MJ,nsa_vcg_ssf=MN,
sa_vcg_plm=MN,nsa_vcg_plm=NA,sa_gfp_lof=CR,nsa_gfp_lof=MJ,sa_lan_
     los=CR,nsa_lan_los=MJ,sa_lan_anm=MN,nsa_lan_anm=NA"
;
```

Error responses

The RTRV-ASAP-PROF command does not generate any special error responses. The general error responses defined in "RTRV-HDR: Retrieve header" (p. 4-1736) are also valid for this command.

Related TL1 messages

- "DLT-ASAP-PROF: Delete alarm severity assignment profile" (p. 4-92)
- "ED-ASAP-PROF: Edit alarm severity assignment profile" (p. 4-206)
- "ENT-ASAP-PROF: Enter alarm severity assignment profile" (p. 4-1018)
- "RTRV-ASAP-ASGNMT: Retrieve ASAP assignment" (p. 4-1612)

□

RTRV-ATTR-CONT: Retrieve attribute control

The RTRV-ATTR-CONT command can be initiated by users to retrieve the configuration associated with an miscellaneous output control (MDO port / external discrete control). The assigned descriptions are used for information purposes when a user seeks to operate or release external miscellaneous discrete controls.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-ATTR-CONT`:*tid*:[*aid*]:*ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   This is the address of the MDO port entities on which the command operates. If misc_outall is specified the configuration of all MDO's will be retrieved.
   Type: AID
   Range: Miscellaneous_out_discreteAID
   Default: misc_outall (if the *aid* is omitted).
3. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output format

The following example shows the successful completion of the RTRV-ATTR-CONT command by the NE:

```
   sid date time
M  ctag COMPLD
   "aid:contmsg,durmode,initcstat,[asgncond]"
   ...
   "aid:contmsg,durmode,initcstat,[asgncond]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. aid - Access Identifier
   This is the address of the MDO port entity for which the configuration is retrieved or on which an operation is performed.
   Type: AID.
   Range: Miscellaneous_out_discreteAID. misc_outall must not be reported or used.
2. contmsg - Control Message
   This is the name associated to a MDO port (environmental control). It is a description which can be retrieved by the management system.
   Type: inner string.
   Range: string up to 26 characters, any character except ″ and \, upper and lower cases considered. A empty string is allowed. The value would be \″\″.
   Default: MDO port #n. n is the number of the port 1 ... 8.
3. durmode - Duration Mode
   This parameter defines in which mode the device connected to the MDO is expected to be operated. It is a fixed value because this feature will be not supported by the system. This parameter is in for compatibility reason. The system operates only continuous that means if the MDO is operated it is switched on and it is released it is switched off.
   Type: alphanumeric value set.
   Range: CONTS, continuous duration.
4. initcstat - Initial Control State
   This parameter defines the state the MDO must have in order to put the connected device in the ″off″-state. For UNITE it is a fixed value because this feature will be not supported. This parameter is in for compatibility reason.
   Type: alphanumeric value set.
   Range: RLS, release.
5. asgncond - Assigned Condition Type
   This parameter identifies the probable cause (type of alarm indication) which is assigned to an MDO port (external control). If one or more alarm(s) of this probable cause appears then the MDO port (external control) will be switched on.
   Type: alphanumeric value set. Additionally a ″-″ will be allowed (not the first character).
   Range: All defined probable causes and UNDEF: if no probable cause is assigned. For the value range of *asgncond* refer to “Alarm, event, ASAP tables” (p. 7-17).
   Default: UNDEF.

Detailed behavior description

The RTRV-ATTR-CONT command does not generate a REPT DBCHG message.

Example input/output

The following example shows the successful completion of the RTRV-ATTR-CONT command by the NE:

```
RTRV-ATTR-CONT:LT-UNITE-123:MISC_OUT3:123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
   "MISC_OUT3:\"fan 3\",CONTS,RLS,FANF"
;
```

The following example shows the successful completion of the RTRV-ATTR-CONT command by the NE if the aid is omitted:

```
RTRV-ATTR-CONT:LT-UNITE-123::123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
   "MISC_OUT2:\"sprinkler 2\",CONTS,RLS"
   "MISC_OUT3:\"fan 3\",CONTS,OPER,FANF"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command error responses section. The error responses listed there also apply to the RTRV-ATTR-ENV command.

Related TL1 messages

- "OPR-EXT-CONT: Operate External Control" (p. 4-1455)
- "RLS-EXT-CONT: Release external control" (p. 4-1561)
- "RTRV-ALM: Retrieve alarm" (p. 4-1599)
- "RTRV-ACTL-CONT: Retrieve actual condition types" (p. 4-1636)

References

GR-833-CORE, Issue 4, June 2000, OTGR Section 12.3, Network Maintenance: Network Element and Transport Surveillance Messages.

□

RTRV-ATTR-ENV: Retrieve attribute environment

The RTRV-ATTR-ENV command is used to retrieve the alarm message, name and assigned ASAP of a miscellaneous discrete input (MDI/environmental point).

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-ALM-ENV`:*tid*:[*aid*]:*ctag*;

Input parameters

Command parameters

- tid – Target Identifier
  See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
- aid – Access Identifier
  This is the address of the MDI port entities for which an alarm condition or the configuration is being reported. If misc_inall is specified the information for all entities will be retrieved.
  Type: AID.
  Range: Miscellaneous_in_discreteAID.
  Default: misc_inall (if the aid is omitted).
- ctag – Correlation Tag
  See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output format

The following example shows the successful completion of the RTRV-ATTR-ENV command by the NE:

```
   sid date time
M  ctag COMPLD
   "aid:,,envmsg,envname:pfname,enviny"
   (more lines for default AID)
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. aid – Access Identifier
   This is the address of the entity for which an alarm condition is being reported.
   Type: AID.
   Range: Miscellaneous_in_discreteAID. The AID misc_inall must not appear.
2. envinv – Environmental Alarm Inversion
   This parameter indicates for the MDI (environmental point) whether an alarm shall be generated if the port is on or if the port is off.
   Type: alphanumeric value set.
   Range:
   - YES: The alarm will be inverted
   - NO: The alarm will be not inverted.
3. envmsg – Environment Message
   This is the condition description which is associated with the MDI port (environmental point). This description will be sent with the alarm generated from the MDI port.
   Type: inner string.
   Range: a string up to 32 characters, any character except ″ and \, upper and lower cases are considered.
   Default: Miscellaneous Discrete #<N> with N = 1 .. 8 for the different MDI ports.
4. envname – Environmental Point Name
   This is the name associated to a MDI port (environmental point). It is a description which can be retrieved by the management system. It is not to be mixed up with the envmsg parameter. The envname is just a name of the MDI port and not reported via the condition description of an alarm.
   Type: inner string
   Range: a string up to 26 characters, any character except ″ and \, upper and lower cases considered.
   Default: MDI port #n; n is the number of the port 1 ... 8.
5. pfname – Profile Name
   This is the name of the ASAP that is assigned to the MDI port (environmental point). The ASAP must be of the type ENV.
   Type: alphanumeric character string. A hyphen (-) is additional allowed in the name.
   Range: string up to 24 characters.
   Default: DEFAULT.

Detailed behavior description

The RTRV-ATTR-ENV command does not generate a REPT DBCHG message.

Example input/output

The following example shows the successful completion of the RTRV-ATTR-ENV command by the NE:

```
RTRV-ATTR-ENV:LT-UNITE-123:misc_in3:123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
   "MISC_IN3:,,\"smoke detected on detector 3\",\"smoke detector 3\":ENV_
     CR,NO"
;
```

The following example shows the successful completion of the RTRV-ATTR-ENV command by the NE if all MDI's will be retrieved:

```
RTRV-ATTR-ENV:LT-UNITE-123::123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
   "MISC_IN1:,,\"pump on\":ENV_NA,NO"
   "MISC_IN2:,,\"smoke detected on detector 1\",\"smoke detector 1\":ENV_
     CR,NO"
   "MISC_IN3:,,\"smoke detected on detector 2\",\"smoke detector 2\":ENV_
     CR,NO"
   "MISC_IN4:,,\"smoke detected on detector 3\",\"smoke detector 3\::ENV_
     CR,NO"
   "MISC_IN5:,,\"smoke detected on detector 4\",\"smoke detector 4\":ENV_
     CR,NO"
   "MISC_IN6:,,\"fan on\",\"fan\":ENV_NA,YES"
   "MISC_IN7:,,\"open door\",\"door\":DEFAULT,YES"
   "MISC_IN8:,,\"open door\",\"door 2\":DEFAULT,YES"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command error responses section. The error responses listed there also apply to the RTRV-ATTR-ENV command.

Related TL1 messages

- "REPT-ALM-ENV: Report Alarm Environment" (p. 4-1514)
- "RTRV-ALM-ENV: Retrieve alarm environment" (p. 4-1605)
- "SET-ATTR-ENV: Set attribute environment" (p. 4-2299).

References

GR-833-CORE, Issue 4, June 2000, OTGR Section 12.3, Network Maintenance: Network Element and Transport Surveillance Messages.

□

RTRV-ATTR-MSG: Retrieve attribute message

The RTRV-ATTR-MSG is used to retrieve the current status of the autonomous message reporting, which can be controlled via INH-MSG and ALW-MSG.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M1

Priority: 1

Abortable: yes

Input format

Command Syntax: `RTRV-ATTR-MSG`*:tid::ctag;*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

If the RTRV-ATTR-MSG request completes successfully, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
   "sessions:msgstate"
   . . .
;
```

For each value of parameter *sessions* one line is reported.

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

1. sessions – Affected sessions
   This parameter specifies for which sessions the *msgstate* is applied.
   Type: alphanumeric value set.
   Range: CURRENT: affected session is the current session of the user who executed the command.
   Default: CURRENT
2. msgstate – Message status
   The current state of autonomous message reporting for *sessions.*
   Type: alphanumeric value set
   Range:
   - ON: autonomous reporting is enabled for *sessions*
   - OFF: autonomous reporting is disabled for *sessions.*

   Default: ON

Detailed behavior description

The command retrieves the current status of the autonomous message reporting for all values of parameter *sessions.* Control of this state is via the commands INH-MSG and ALW-MSG.

When a user logs into the system via ACT-USER it is recommended to retrieve the status of autonomous reporting to check whether reporting is OFF for *sessions*=ALL.

Example input/output

The following is an example of the RTRV-ATTR-MSG command:

```
RTRV-ATTR-MSG:LT-UNITE::123456;
   LT-UNITE 00-11-15 08:00:00
M  123456 COMPLD
   "ALL:ON"
   "CURRENT:OFF"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the INH-MSG command.

Related TL1 messages

- "ALW-MSG: Allow message" (p. 4-23)
- "INH-MSG: Inhibit message" (p. 4-1444)

References

GR-833-CORE

□

RTRV-AudLog: Retrieve audit result log for ONNS connection data

Overview

The RTRV-AudLog-mod command is used to request information about the last audit result on ONNS data that is stored. Note that this command does not perform the audit operation. See AUD-mod TL1 command for the details of audit operation. The modifier of the RTRV-AudLog-mod command indicates the scope of data that audit operation was performed on.

RTRV-AudLog-LOCAL

RTRV-AudLog-LOCAL shall retrieve the last audit result based on comparison of ONNS data with the master data from local host NE. They are mismatched cross connects and port objects between two sets of data.

RTRV-AudLog-PATHNBR

RTRV-AudLog-PATHNBR shall retrieve the last audit result based on comparison of ONNS path data with neighboring ONNS nodes.

Properties

User Privilege Code (UCFC/UCAL): P1.

Abortable: No

Input format

Command Syntax of RTRV-AudLog-LOCAL: `RTRV-AudLog-LOCAL:`*srcTid:srcAid:ctag;*

Command Syntax of RTRV-AudLog-PATHNBR:
`RTRV-AudLog-PATHNBR:`*srcTid:srcAid:ctag;*

Input parameters

Command parameters

1. srcTid
   Target Identifier of the source node is the logical name of the Host NE. ONNS uses the same *tid* used by Host NE.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: The *srcTid* parameter is a case insensitive ASCII character string of up to 20 characters with the allowed character set as described above.
2. ctag
   This parameter is included in the command by the TL1 user and is repeated by the NE in the response to allow the TL1 user to associate the command and response messages.
   The *ctag* parameter is a character strings of up to 6 ASCII characters. The allowed ASCII character string is comprised of alphanumeric characters beginning with a letter, or decimal numerals (a decimal numeral is a string of decimal digits with an optional non-trailing “.”).
3. srcAid
   Source node ONNS application access identifier of the ONNS controller OS command interface port.
   Range: Source node Access IDentifier parameter of the source node controller ONNS command interface entity has the allowed values shown here: snn.

Output format

If the RTRV-AudLog-LOCAL request completes successfully, the following normal completion response is returned:

```
   srcTid date time
M  ctag COMPLD
   ″ExtraPortIDs=1portID,2portID,...,N1portID″
   ″MissingPortIDs=1portID,2portID,...,N2portID″
   ″ExtraNNXcons=1connPtID1,-X-,1connPtID2,1bandwidth,1pathID
   :2connPtID1,-X-,2connPtID2,2bandwidth,2pathID
   :...
   :N3connPtID1,-X-,N3connPtID2,N3bandwidth,N3pathID″
   ″MissingNNXcons=1connPtID1,-X-,1connPtID2,1bandwidth
   :2connPtID1,-X-,2connPtID2,2bandwidth
   :...
   :N4connPtID1,-X-,N4connPtID2,N4bandwidth″
   ″ExtraNonNNXcons=1connPtID1,-X-,1connPtID2,1bandwidth
   :...
   :N5connPtID1,-X-,N5connPtID2,N5bandwidth″
   ″MissingNonNNXcons=1connPtID1,-X-,1connPtID2,1bandwidth
   :...
   :N6connPtID1,-X-,N6connPtID2,N6bandwidth″
   ″MultipleNNXcons=1pathID,1connPtID1,-X-,1connPtID2,
```

```
   1connPtID3,-X-,1connPtID4, 1bandwidth
   :...
   :N7pathID,N7connPtID1,-X-,N7connPtID2,N7connPtID3,
   -X-,N7connPtID4,N7bandwidth"
;
```

The cases in the response represent the mismatched port objects or mismatched cross-connect information as follows:

- ExtraPortIDs - port object exists only in NN data, but not in host NE data
- MissingPortIDs - port object exists only in host NE data, but not in NN data
- ExtraNNXcons - NN owned cross-connect exists only in NN data, but not in host NE
- MissingNNXcons - NN owned cross-connect exists only in host NE data, but not in NN data
- ExtraNonNNXcons - non-NN owned cross-connect exists only in NN data, but not in host NE
- MissingNonNNXcons - non-NN owned cross-connect exists only in host NE data, but not in NN data.

The symbol (-X-) indicates that a cross connection is present between the connPtIDs on an output line. See Aud-LOCAL for the details of audit operation.

If the RTRV-AudLog-PATHNBR request completes successfully, the following normal completion response is returned:

```
   srcTid date time
M  ctag COMPLD
   "MismatchedPathIDs=1connPtID1,-X-
,1connPtID2,1bandwidth,1localpathID,1nbrnodeID,1nbrpathID
:2onnPtID1,-X-
,2connPtID2,2bandwidth,2localpathID,2nbrnodeId,2nbrpathID
:...
:NconnPtID1,-X-
,NconnPtID2,Nbandwidth,NlocalpathID,NnbrnodeID,NnbrpathID;"
;
```

The output shall show any mismatched path data in comparing path information at a local NN with its neighboring nodes.

The cases in the response represent the mismatched path information as follows:

- When all the parameters have valid values - local node and neighboring node have different pathIDs for the same path.
- When the parameter for pathID at neighboring node (nbrpathID) is empty - local node has a cross-connect that is connected to a neighboring node, but the neighboring node does not have the corresponding cross-connect or path information.
- When the parameter for pathID at local node (localpathID) is empty - neighboring node has a cross-connect that is connected to a local node, but the local node does not have the corresponding cross-connect or path information.

The symbol (-X-) indicates that a cross connection is present between the connPtIDs on an output line.

Output parameters

The output parameters *srcTid*, *date*, *time*, *ctag*, *conpletion code* and their syntax are included in the Output parameters section of the "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)command.

The output parameters *srcTid*, *date*, *time*, and *ctag* and their syntax are included in the Output parameters section of the "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950) command.

1. pathID
   The PathID of the specific path to be reported.
   Type: character string of length up to 20
   Range: nodeID-Index. *nodeID*: four dot separated numeric strings: each string 0..255 *Index*: numeric string.
   Example: 135.13.196.203-432165
2. localpathID
   The PathID of the local node of the specific path to be reported.
   Type: character string of length up to 20
   Range: nodeID-Index. *nodeID*: four dot separated numeric strings: each string 0..255 *Index*: numeric string.
   Example: 135.13.196.203-432165
3. nbrpathID
   The PathID of the neighbor node of the specific path to be reported.
   Type: character string of length up to 20
   Range: nodeID-Index. *nodeID*: four dot separated numeric strings: each string 0..255 *Index*: numeric string.
   Example: 135.13.196.203-432165

4. nbrnodeID
   ONNS node Network Access identifier (nodeID) of the neighbor node. *nodeID* is not changable and may be different from Signaling network IP address.
   Type: Four dot seperated numeric strings
   Range: for each numeric string: 0..255.
5. bandwidth - Requested bandwidth / connection *signalRate*
   ONNS bandwidth is equal to or greater than the minimum cross connect rate (minXCrate) of the port type. Note: Only SONET switching levels in enumeration. For actual cross-connections ONNS adapts to SDH formats automatically if the ingress port is SDH.
   Values: STS1, STS3, STS12, STS48, STS192.
6. connPtID1
   ONNS connPt identifier (connPtID1) for the ingress RX connPt of the cross connection. It consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary #..
   Type: dash-seperated list of 5 numeric strings.
   Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).
   Range: Bay/Frame ## (1), Shelf # (1), Slot/Pack # #, Port # #, Tributary ##. Default tributary AID used for reporting the not existing xcons in the A-node or Z-node for a path associated to a protecting NN connection of an M:N connection group.
7. connPtID2
   ONNS connPt identifier (connPtID2) for the egress TX connPt of the cross connection. It consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary #.
   Type: dash-seperated list of 5 numeric strings.
   Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).
   Range: Bay/Frame # (1), Shelf # (1), Slot/Pack ##, Port ##, Tributary ##. Default tributary AID used for reporting the not existing xcons in the A-node or Z-node for a path associated to a protecting NN connection of an M:N connection group.

Example input/output

The following example shows a successful completion of a RTRV-AudLog command for local ONNS data audit operation by the NE with no data is out-of-sync. The command `RTRV-AudLog-LOCAL:LTONNS789:snn:123456;` produces the result shown below:

```
   LT-ONNS-789 2003-01-01 08:00:00
M  123456 COMPLD
;
```

The following example shows a successful completion of a RTRV-AudLog command for local ONNS data audit operation by the NE:

```
   LT-ONNS-789 2003-01-01 08:00:00
M  123456 COMPLD
```

```
   "ExtraPortIDs=1-1-20-3-5"
   "MissingPortIDs=NONE"
   "ExtraNNXcons=1-6-5-3-1,-X-,1-2-4-3-1,
   sts48,135.13.196.203-43216:1-1-4-4-1,-X-,
   1-2-1-3-1,sts12,135.13.18.23-12345"
   "MissingNNXcons=1-1-8-10-2,-X-,1-1-3-3-4,sts48"
   "ExtraNonNNXcons=NONE"
   "MissingNonNNXcons=NONE"
   "MultipleNNXcons=NONE"
;
```

The symbol (-X-) indicates that a cross connection is present between the *connPtIDs* on an output line.

The following example shows a successful completion of a RTRV-AudLog command for ONNS path neighbor data audit operation by the NE with no data is out-of-sync:

```
   LT-ONNS-789 2003-01-01 08:00:00
M  123456 COMPLD
;
```

The following example shows a successful completion of a RTRV-AudLog command for ONNS path neighbor data audit operation by the NE. The command `RTRV-AudLog-PATHNBR:LTONNS789:snn:123456`; produces the result shown below:

```
   LT-ONNS-789 2003-01-01 08:00:00
M  123456 COMPLD
   "MismatchedPathIDs=1-1-4-4-1,-X-,1-2-1-3-1,sts12,
   135.13.18.23-00000,168.16.29.111,135.14.196.203-32165
   :1-1-7-4-2,-X-,1-1-3-5-1,sts48,,135.13.18.23,
   135.14.196.109-12164"
;
```

The symbol (-X-) indicates that a cross connection is present between the connPtIDs on an output line.

Error responses

The error codes defined in the "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950) command Error responses section also apply to the RTRV-AudLog command.

Related TL1 messages

- "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
- "ED-SYNCDATA: Synchronization of NN data" (p. 4-836)
- "AUD: Perform audit data" (p. 4-32)

□

RTRV-ACTL-CONT: Retrieve actual condition types

The RTRV-ACTL-CONT command can be initiated by users to retrieve the available condition types which can be assigned to an miscellaneous output control (MDO port / external discrete control).

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M1

Priority: 1

Abortable: Yes.

Input format

Command Syntax: `RTRV-ACTL-CONT`:*tid*::*ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output format

The following example shows the successful completion of the RTRV-ACTL-CONT command by the NE:

```
   sid date time
M  ctag COMPLD
   "pftype:condtype:condinfo"
   ...
   "pftype:condtype;condinfo"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. pftype – Profile Type
   This parameter indicates the type of the ASAP (ASAP type).
   Type: alphanumeric value set. A '-' is also allowed for the values

Range:

- DCN: Data Communications Network
- DS3: DS3 asynchronous ports
- ENET: Ethernet
- ENV: Environmental (Miscellaneous Discrete)
- EQUIP-PROT: Equipment with Protection State Dependence
- EQUIP-UNPROT: Equipment unprotected
- MSSPRING-BLSR: MS-SPRing and Bilateral Switched Ring protection switch
- MSP-APS: Automatic protection switch
- PATH: Path MSA/NIM related
- PATHTERM: Path Termination
- PORT: SDH/SONET ports
- SNCP-UPSR: Sub-Network Connection Protection and Unidirectional Path Switched Ring
- TIMING: System Timing.

Default Value: There is no default value. The *pftype* does not change.

2. condtype – Condition Type
   This parameter identifies the type of alarm indication being reported.
   Type: alphanumeric value set.
   Range: ALL, requests all alarms.
   condtype can be omitted. In this case ALL will be set implicit.
3. condinfo - Information Of The Condition
   This is a textual description of the condition.
   Type: inner string of the format: \″<category>, \<description>″
   Range: category: is the category; description: is the alarm description, the string is up to 32 characters.
   For the values of category and description refer to “Alarm, event, ASAP tables” (p. 7-17).

Detailed behavior description

The RTRV-ACTL-CONT command does not generate a REPT DBCHG message.

Example input/output

The following example shows the successful completion of the RTRV-ATCL-CONT command by the NE if the aid is omitted:

```
RTRV-ACTL-CONT:LT-UNITE-123::123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
   ″PORT:OCHLOF: \″Communication-Transport, OCh Loss of Frame\″″
   ″PORT:PREDCMLOS: \″Communication-Transport, Pre DCM Signal Loss\″″
```

. . .

;

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command error responses section. The error responses listed there also apply to the RTRV-ATCL command.

Related TL1 messages

- "RTRV-ATTR-CONT: Retrieve attribute control" (p. 4-1621)
- "SET-ATTR-CONT: Set attribute control" (p. 4-2295)
- "OPR-EXT-CONT: Operate External Control" (p. 4-1455)
- "RLS-EXT-CONT: Release external control" (p. 4-1561)
- "RTRV-ALM: Retrieve alarm" (p. 4-1599).

□

RTRV-BANNER

The RTRV-BANNER command can be initiated by users to retrieve the user-provisioned banner for the System.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S1

Priority: 1

Abortable: No.

Input format

Command Syntax: `RTRV-BANNER`:*tid*::*ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output format

After receiving the RTRV-BANNER command, the following normal completion response shall be returned::

```
   sid date time
M  ctag COMPLD
   "::::spec_block"
   ...
   < 1 lline for each Spec Block parameter to be reported >
   ...
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Spec block parameters

1. line1 - Line 1 of the Customer Provisionable Banner.
   Setting line1 to an empty string will suppress the output of the Customer Provisionable Banner in the resonse to the ACT-USER command.
   Type: text string
   Range: 2 ... 62 characters, case-sensitive. The beginning and ending double quotes are included.
   Default: none. The initial value shall be an empty string.
2. line 2 .... line 11 - Line 2 (....Line 11) of the Customer Provisionable Banner.
   Type: text string
   Range: 2 ... 62 characters, case-sensitive. The beginning and ending double quotes are included.
   Default: none. The initial value shall be an empty string.

Detailed behavior description

The RTRV-BANNER command shall return one line for each provisioned line of the Customer Provisionable Banner. A line of the Customer Provisionable Banner is provisioned, if the corresponding spec block parameter (line1 ... line 11) is not an empty string.

Example input/output

The following example shows the successful completion of the RTRV-BANNER command by the network element:

```
   RTRV-BANNER:LT-UNITE-123::123456;
   LT-UNITE-123 04-12-23 08:00:00
M  123456 COMPLD
   ":::LINE1=\"NOTICE: THIS IS A PRIVATE COMPUTER
   SYSTEM.\""
   ":::LINE2=\"UNAUTHORIZED ACCESS OR USE MAY LEAD
   TO PROSECUTION.\""
;
```

Error responses

The RTRV-BANNER command reports no special error responses. Refer to the RTRV-HDR command ERROR RESPONSES section. The error responses listed there apply to the RTRV-BANNER command.

Related TL1 messages

- "ACT-USER: Activate user" (p. 4-14)
- "ENT-BANNER" (p. 4-1023).

RTRV-COND: Retrieve condition

RTRV-COND command messages can be initiated by the user to retrieve all active alarms of level NA – Not Alarmed (Telcordia) / Warning (ITU).

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-COND`[-*modifier*]:*tid*::*ctag*::[*condtype*],,,[*tmper*];

The last three trailing commas are used to specify that the optional parameters *locn*, *dirn*, *tmper* as defined in GR-833 are omitted since these parameters are not supported as input parameters.

Input parameters

Command parameters

1. modifier – Message Modifier
   This parameter defines for which AID types the conditions will be retrieved. If the value ALL is used, the specified parameter has no impact on the set of retrieved alarms delivered in the retrieve reply.
   Type: alphanumeric value set.
   Range: ALL, this requests all alarms.
   The modifier can be omitted. In this case the ALL modifier will be set implicit.
2. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
3. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
4. condtype – Condition Type
   This parameter identifies the type of alarm indication being reported.
   Type: alphanumeric value set.
   Range: ALL, requests all alarms.
   condtype can be omitted. In this case ALL will be set implicit.
5. tmper – Time Period
   This requests PM data for a specified time interval.
   Type: value set.
   Range:
   - 15-MIN: This requests PM data in 15-minute intervals
   - 1-DAY: This requests daily PM data.

Output format

Normal completion response of successful session termination.

The following example shows the successful completion of the RTRV-COND command by the NE:

```
   sid date time
M  ctag COMPLD
   "aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm
   [,,,,conddescr]"
   (0 or more lines of the above)
;
```

If no alarms are raised only COMPLD will be returned.

Output parameters

Command parameters

1. aid – Access Identifier
   This is the address of the entity for which an alarm condition is being reported.
   Type: AID
   Range: All defined AIDs are allowed. It should be a valid AID for the specified *modifier*. Refer to the definition of AIDs.
2. aidtype – Access Identifier Type
   This parameter defines the AID type to which the alarm belongs.
   Type: alphanumeric value set.
   Range:
   - COM: Common. An alarm/event that applies to the whole NE system; for example, a processing error.
   - EQPT: An equipment-related alarm/event.
   - SYST: An alarm/event related to system timing.
   - OUTT: An alarm/event related to output timing.
   - STM1E: A facility-related alarm/event for synchronous transport mode 1 (electrical).
   - STM1: A facility-related alarm/event for synchronous transport mode 1.
   - STM4: A facility-related alarm/event for synchronous transport mode 4.
   - STM16: A facility-related alarm/event for synchronous transport mode 16.
   - STM16T: A facility-related alarm/event for fully transparent synchronous transport mode 16.
   - STM64: A facility-related alarm/event for synchronous transport mode 64.
   - STM256: A facility-related alarm/event for synchronous transport mode 256.
   - ODU1: A facility-related alarm/event for optical data units of level 1
   - OC3: A facility-related alarm/event at the optical carrier signal level 3.

- OC12: A facility-related alarm/event at the optical carrier signal level 12.
- OC48: A facility-related alarm/event at the optical carrier signal level 48.
- OC48T: A facility-related alarm/event at the fully transparent optical carrier signal level 48.
- OC192: A facility-related alarm/event at the optical carrier signal level 192
- OC768: A facility-related alarm/event at the optical carrier signal level 768.
- T3: A facility-related alarm/event at the DS3 level.
- EC1:A facility-related alarm/event at the EC1 level
- 1GE: A facility-related alarm/event for 1 Gigabit Ethernet.
- VC3: A facility-related alarm/event for virtual container 3.
- VCG: A facility-related alarm/event for virtual concatenation group tributary.
- VC4: A facility-related alarm/event for virtual container 4
- VC44C: A facility-related alarm/event for a signal concatenated at 4 times the VC4 rate.
- VC416C: A facility-related alarm/event for a signal concatenated at 16 times the VC4 rate.
- VC464C: A facility-related alarm/event for a signal concatenated at 64 times the VC4 rate.
- STS1: A facility-related alarm/event at synchronous transport signal level 1.
- STS3C: A facility-related alarm/event at synchronous transport signal level 3.
- STS12C: A facility-related alarm/event at synchronous transport signal level 12.
- STS48C: A facility-related alarm/event at synchronous transport signal level 48.
- STS192C: A facility-related alarm/event at synchronous transport signal level 192.
- HOVC4 : A facility-related alarm/event for virtual container 4 higher-order path termination.
- HOSTS1: A facility-related alarm/event at synchronous transport signal level 1 higher-order path termination.
- LOVC3: A facility-related alarm/event for virtual container 3 (lower-order path).
- LOVC12: A facility-related alarm/event for virtual container 12
- LOVT1: A facility-related alarm/event at transport level VT1.5.

Default: There is no default value.

3. conddescr – Description of the Condition

For events which belong to an ASAP profile:

- This is a textual description of the condition.
- Type: inner string of the format: <caregory>, <entity>, <description>, <additional text>, or <caregory>, <entity>, <description>, <additional text>-cleared (this form is used in REPT ALM/EVT for cleared alarms).
- Range: category: is the category; entity: is the entity for which the alarm is reported; description: is the Alarm description, the string is up to 32 characters; additional text = additional text. If there is no additional text, then the trailing comma may be omitted.

For TCA see definition of *conddescr*

- The general format is: category, entity, description, additional text. If there is no additional text, then the trailing comma may be omitted.
- Type: inner string
- Range for STM<N>, STM<N>T, OC<N>T and OC<N>: Quality of service, rr port, TCA; where rr is equal to the port rate
- Range for ODU<N>: Quality of service, rr path, TCA; where rr is equal to the ODU rate (e.g., ODU1)
- Range for not terminated VC12, VC3, VC4, VC44C, VC416C, VC464C, VT1, STS1, STS3C, STS12C, STS48C and STS192C signals: Quality of service, rr path, TCA; where rr is equal to the signal rate
- Range for terminated VC4 and STS1 signals: Quality of service, rr path, TCA; where rr is equal to the Constituent Signal (CS) rate
- Range for GE port: Quality of service, 1GE, TCA
- Range for VCG port: Quality of service, VCG, TCA
- Range for DS3 port: Quality of service, T3 port, TCA

For ABN conditions see definition of *conddescr*:

- The general format is: category, description
- Type: inner string
- Range, description for a protection group AID: Abnormal condition, forced switch active; Abnormal condition, lockout active
- Range, description for a timing reference AID: Abnormal condition, operate in hold-over; Abnormal condition, operate in free run mode
- Range, description for a port AID: Abnormal condition, facility loopback active
- Range, description for a logical tributary AID: Abnormal condition, cross connect loopback active; Abnormal condition, test access session active
- Range, description for a system AID: - Abnormal condition, System operates in maint. mode

4. condtype – Condition Type

For events which belong to an ASAP profile:

- This parameter identifies the probable cause (type of alarm indication) being reported.
- Type: alphanumeric value set
- Range: all defined probable causes.

For TCA see definition of *condtype*:

- This parameter identifies the type of event indication being reported.
- Type inner string with the Format: T-<montype>
- Range for all OC<N> and EC1 signals: T-CVS, T-ESS, T-SESS, T-SEFS-S, T-CVL, T-ESL, T-SESL, T-UASL, T-CV-LFE, T-ES-LFE, T-SES-LFE, T-UAS-LFE
- Range for all OC<N>T signals: T-CVS, T-ESS, T-SESS, T-SEFS-S, T-CVS-EGR, T-ESS-EGR, T-SESS-EGR, T-SEFS-S-EGR
- Range for OC192 and OC768 signals also: T-FECC-L
- Range for VT1, STS1, STS3C, STS12C, STS48C and STS192C tributaries: T-CVP, T-ESP, T-SESP, T-UASP,T-CV-PFE, T-ES-PFE, T-SES-PFE, T-UAS-PFE
- Range for all STM<N> signals: T-RS-N-ES, T-RS-N-SES, T-RS-N-BBE, T-RS-N-UAS, T-MS-N-ES, T-MS-N-SES, T-MS-N-BBE, T-MS-N-UAS, T-MS-F-ES, T-MS-F-SES, T-MS-F-BBE, T-MS-F-UAS
- Range for all STM<N>T signals: T-RS-N-ES, T-RS-N-SES, T-RS-N-BBE, T-RS-N-UAS, T-RS-N-ES-EGR, T-RS-N-SES-EGR, T-RS-N-BBE-EGR, T-RS-N-UAS-EGR
- The following values are for all ODU<N> signals: T-ODU-N-ES, T-ODU-N-SES, T-ODU-N-BBE, T-ODU-N-UAS, T-ODU-F-ES, T-ODU-F-SES, T-ODU-F-BBE, T-ODU-F-UAS
- Range for STM64 and STM256 signals: T-MS-N-FECC
- Range for T3 modifier: T-CVL, T-ESL, T-ESA-L, T-ESB-L, T-SESL, T-CVP, T-ESP, T-ESA-P, T-ESB-P, T-SESP, T-UASP, T-SAS-P, T-CV-PFE, T-ES-PFE, T-ESA-PFE, T-ESB-PFE, T-SES-PFE, T-UAS-PFE, T-SAS-PFE, T-CVP-EGR, T-ESP-EGR, T-ESA-P-EGR, T-ESB-P-EGR, T-SESP-EGR, T-UASP-EGR, T-SAS-P-EGR, T-CV-PFE-EGR, T-ES-PFE-EGR, T-ESA-PFE-EGR, T-ESB-PFE-EGR, T-SES-PFE-EGR, T-UAS-PFE-EGR, T-SAS-PFE-EGR
- Rangee for VC12, VC3, VC4, VC44C, VC416C and VC464C tributaries: T-VC-N-ES, T-VC-N-SES, T-VC-N-BBE, T-VC-N-UAS, T-VC-F-ES, T-VC-F-SES, T-VC-F-BBE, T-VC-F-UAS
- Range for ENET signals: T-PDE

For ABN conditions see definition of *condtype* :

- This parameter identifies the type of event indication being reported.
- Type inner string with the Format: ABN-<abntype>
- Range: ABN-FORCESW, Forced switch active. ABN-LOCKOUT, Lockout active. ABN-HLDOVRSYNC, Holdover synchronization mode. ABN-FREERUNSYNC, Free-run synchronization mode. ABN-LPBKPORT, Facility Loopback. ABN-LPBKXCON, Cross Connect Loopback. ABN-MAINTENANCE, System operates in maintenance mode. ABN-TESTACC, Test access session has been setup

5. ntfcncde – Notification Code
   This is the alarm level (severity).
   Type: alphanumeric value set.
   Range: NA - Warning (ITU) / Not-Alarmed (Telcordia)
6. ocrdat – Occurrence Date
   This parameter indicates the raising / clearing date of the alarm.
   Type: value set of the format MM-DD.
   Range: MM represents the month, DD represents the day, leading zeros are not suppressed.
7. ocrtm – Occurrence Time
   This parameter indicates the raising / clearing time of the alarm. The accuracy should be +/- 1 second.
   Type: value set of the format HH-MM-SS.
   Range: HH represents the hours, MM represents the minutes, SS represents the seconds, leading zeros are not suppressed.
8. srveff – Service Affect
   This parameter identifies the service affect of alarms being reported.
   Type: alphanumeric value set.
   Range:
   - SA - Service affecting
   - NSA - Non service affecting.
9. tmper – Time Period
   This requests PM data for a specified time interval.
   Type: value set.
   Range:
   - 15-MIN: This requests PM data in 15-minute intervals
   - 1-DAY: This requests daily PM data.

Detailed behavior description

RTRV-COND command messages can be initiated by the user to retrieve all active alarms of level NA – Not Alarmed (Telcordia) / Warning (ITU) from a NE.

RTRV-COND is closely related to REPT EVT which autonomously reports when an persistent alarm of notification code NA either sets or clears or an transient event occurs (like reporting of protection switch states). RTRV-COND retrieves the REPT EVT events that are still set. protection switching events that are reported by REPT EVT are not reported by RTRV-COND (for example, the lockout of a timing reference is not reported by RTRV-COND).

In addition to reporting all active alarms of level NA previously reported by REPT EVT, RTRV-COND retrieves those reported by other autonomous messages.

The RTRV-COND command does not generate a REPT DBCHG message.

The RTRV-COND command will also report the active TCA-events, for port or trib entities, which work in SDH mode and the user has set the TCA mode tcamd of the entity to TR-RTR. By switching to TR-RTR the TCA events are reported as a standing condition, thus the system creates a raise and clear event. If TR-only is selected the TCA events are handled as a transient condition and therefore never reported by RTRV-COND. The SONET standard supports only TR-only mode.

Example input/output

The following example shows the successful completion of the RTRV-COND command by the NE.

```
RTRV-COND:LT-UNITE-123::123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
   "1-1-#-#-6-1,OC48:NA,AIS-L,NSA,01-01,07-59-59,,,,
   \"Communication-Transport, OC48 port, Alarm
   Indication Signal\""
   "MISC_IN3,COM:NA,MISC,NSA,01-01,07-20-15,,,,
   \"Environment, Misc Discrete,door open\""
;
```

The following example shows the successful completion of the RTRV-COND command by the NE if an *aid* is specified:

```
RTRV-COND:LT-UNITE-123:MISC_IN3:123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
   "MISC_IN3,COM:NA,MISC,NSA,01-01,07-20-15,,,,
   \"Environment, Misc Discrete,door open\""
;
```

The following example shows the successful completion of the RTRV-COND command by the NE if no conditions are raised:

```
RTRV-COND:LT-UNITE-123:MISC_IN3:123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
```

;

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command error responses section. The error responses listed there also apply to the RTRV-ALM command.

Related TL1 messages

- "ALW-MSG: Allow message" (p. 4-23)
- "ENT-ASAP-PROF: Enter alarm severity assignment profile" (p. 4-1018)
- "ED-ASAP-PROF: Edit alarm severity assignment profile" (p. 4-206)
- "RTRV-ASAP-PROF: Retrieve ASAP profile" (p. 4-1616)
- "INH-MSG: Inhibit message" (p. 4-1444)
- "REPT ALM: Report alarm" (p. 4-1509)
- "REPT-ALM-ENV: Report Alarm Environment" (p. 4-1514)
- "REPT EVT: Report event" (p. 4-1520)
- "RTRV-ALM: Retrieve alarm" (p. 4-1599)
- "RTRV-ALM-ENV: Retrieve alarm environment" (p. 4-1605)
- "RTRV-HDR: Retrieve header" (p. 4-1736)

References

GR-833-CORE, Issue 4, June 2000, OTGR Section 12.3, Network Maintenance: NE and Transport Surveillance Messages

□

RTRV-CRS: Retrieve cross-connection

The RTRV-CRS-modifier command can be initiated by a user to retrieve information on existing cross-connections in the NE.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-CRS-`*modifier*:*tid*:[*in_aid*]:*ctag*[::*ppgname*];

Either the parameter *in_aid* or *ppgname* must be present – refer to the ″Detailed behavior description″ section for details.

Input parameters

Important! Do not use *ppgname* in RTRV-CRS requests. Just use the *in_aid* parameter in RTRV-CRS requests.

Command parameters

1. modifier
   This parameter indicates the cross-connection rate on which the retrieve cross-connection command acts.
   A distinction of the *modifier* usage has to be made between the retrieval (RTRV-CRS-*modifier*) and the other CRS-related commands (ENT-CRS-*modifier*, DLT-CRS-*modifier*, ED-CRS-*modifier,* ENT-ROLL-*modifier*):
   - The establishment (ENT-CRS-*modifier*), removal (DLT-CRS-*modifier*), modification (ED-CRS-*modifier*) or rolling (ENT-ROLL-mod) of cross-connections is independent of the provisioned port interface-standard. I.e., either the SDH-rates (VC3, VC4 etc.) or the corresponding SONET-rates (STS1, STS3 etc.) can be used as modifier and no command validation between port interface-standard and *modifier* will be performed.
   - For the RTRV-CRS-*modifier* command the following holds:
     Again, no command validation between port interface-standard and *modifier* will be performed. The output parameter *rate,* however, is filled with the rate which was used with the RTRV-CRS-*modifier* command.
     Example: if a cross-connection was entered as ENT-CRS-VC3 then a RTRV-CRS-ALL as well as a RTRV-CRS-VC3 as well as RTRV-CRS-STS1 will return this cross-connection with the *rate* parameter VC3.

   Type: Alphanumeric value set.

Range:

- ALL
- SDH *modifier*: LOVC12, LOVC3, VC3, VC4, VC44C, VC416C, VC464C.
- SONET *modifier*: LOVT1, STS1, STS3, STS12, STS48, STS192.

Note that the modifier value ALL can only be used to retrieve all high-order or to retrieve all low-order cross-connections at once (due to different wildcard AIDs).

2. tid – Target Identifier
   Target Identifier. Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and the description of this parameter.
3. in_aid – Input Access Identifier
   This parameter specifies the source of the cross-connection.
   Each cross-connection can be addressed by its input or output tributary. Each atomic cross-connection associated with that input or output will be returned except for input tributaries being part of a path-protected cross-connection (here only one leg will be reported).
   The specified input value of this parameter may be the in_aid or the out_aid parameter of the response depending on how the cross-connection had been created:
   - for 1WAY/1WAYPROT connections, the replied in_aid is always a source of the cross-connection,
   - for 2WAY cross-connections, the replied in_aid is the same as it has been specified as *in_aid* within the related ENT-CRS command. This overcomes the ambiguity that an input tributary is at the same time the source and sink of the cross-connection.

   Example:
   ENT-CRS-VC4:NEname:1-1-#-#-1-1-1,1-1-#-#-2-1-1:123456:2WAY;
   RTRV-CRS-VC4:NEname:1-1-#-#-2-1-1:123457;
   M 123457 COMPLD ″1-1-#-#-1-1-,1-1-#-#-2-1-1:vc4….. ;
   In case of low-order cross-connections the source of the cross-connection has to be provided logically associated with the I/O pack although the physical cross-connection is only present LOXC pack internally. The NE is in charge to map physical to logical representation.
   Example:
   ENT-CRS-LOVC3:NEname:1-1-#-#-1-1-1-1,1-1-#-#-39-16-1-43:123456:2WAY; M 123456 COMPLD;
   RTRV-CRS-LOVC3:NEname:1-1-#-#-1-1-1-1:123457; M 123457 COMPLD ″1-1-#-#-1-1-1-1,1-1-#-#-39-16-1-43:LOVC3;
   Type: GenTribAID or GenLOTribAID.
   Range: The *all*-parameter shall be accepted for the slot-, port- and high-order and (if applicable) low-order trib-part of the AID. The *usall*-parameter shall be accepted additionally for the slot-part of the AID.

The *vall*-parameter shall be accepted for the port-part of the AID alternatively to the *all*-parameter as long as a virtual concatenated tributary will be addressed. Entities having the *all*-parameter as port-part of the AID reside e.g. on OPn, EPn. Entities having the *vall*-parameter as port-part of the AID reside e.g. on GEn, OPT2G5.

For example the following *in_aids* are valid:

- 1-1-#-#-all-all-all specifying all high-order tribs of all ports in the whole shelf
- 1-1-#-#-2-1-all specifying all tribs of the first port of the pack in slot 2
- 1-1-#-#-3-vall-all specifying all tribs of all port of the (GEn) pack in slot 3
- 1-1-#-#-all-all-all-all specifying all low-order of all high-order tribs for all ports in the shelf

However the following example shows an invalid aid:
1-1-#-#-all-vall-1-1 there is no low-order tributary on e.g. GEn, OPT2G5 packs.

4. ctag – Correlation Tag
   See defintion of *ctag* in "RTRV-HDR: Retrieve header" (p. 4-1736).
5. ppgname – Path protection group name
   This parameter is a user-defined string that identifies a path protection group.
   Note: Storage and retrieval of the *ppgname* is case sensitive, but the actual use of the *ppgname* to determine the corresponding protection group is case insensitive.
   For details please refer to parameter *ppgname* in "RTRV-PROTN-GRP: Retrieve protection group" (p. 4-1997).
   This parameter is applicable to path-protected high order cross-connections only and shall be omitted for non path-protected cross-connections and any low order cross-connection (independent whether unprotected or protected).
   Default: NULL.

Output format

In response to a valid RTRV-CRS-mod command, the following output is returned:

```
   sid date time
M  ctag COMPLD
   "in_aid,out_aid:rate[,,in_aid2]:spec_block"
        ...
        ...
   "in_aid,out_aid:rate[,,in_aid2]:spec_block"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are described in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. in_aid – Input Access Identifier

   Description: The parameter *in_aid* specifies the tributary which is the source of the cross-connection. In detail:

   - In case of a 1-way cross-connection this parameter specifies the source of the cross-connection and is identical to the one used as input parameter
   - In case of a 2-way cross-connection this parameter is identical to the one used as input parameter (Please refer also to the description of the input parameter *in_aid* of the "RTRV-CRS: Retrieve cross-connection" (p. 4-1649) command).
   - In case of a path-protected cross-connection this parameter also is identical to the one used as input and may specify either the source of the working leg or the source of the protection leg – the distinction is made via the spec-block parameter *repleg* (see below). If *in_aid* specifies the working-leg part than *in_aid2* (see below) specifies the protection-leg part and vice versa.

   Type: GenTribAID or GenLOTribAID.
   STS1NumAID are used for high-order tributaries on e.g. OPn, EPn packs;
   VCGNumAID are used for high-order tributaries on e.g. GEn, OPT2G5 packs;
   GenLOTribAID are used for low-order tributaries on I/O packs e.g. OPn, EP155.
   Range: n.a. (*all* or *usall* or *vall* values shall never occur as part of an output parameter).

2. out_aid – Output Identifier
   This parameter specifies the tributary which is the sink of the cross-connection.
   Type: GenTribAID or GenLOTribAID
   STS1NumAID are used for high-order tributaries on e.g. OPn, EPn packs;
   VCGNumAID are used for high-order tributaries on e.g. GEn, OPT2G5 packs;
   GenLOTribAID are used for low-order tributaries on I/O packs e.g. OPn, EP155.
   Range: n.a. (*all* or *usall* or *vall* values shall never occur as part of an output parameter).

3. in_aid2 – Input Access Identifier 2
   This parameter is applicable to and is present for path-protected cross-connections only and specifies either the source of the protection leg or the source of the working leg.

   This depends on the value of the *repleg* parameter:

   - E.g. for the combination: *in_aid*=IN1, *out_aid*=OUT, *in_aid2*=IN2 and *repleg*=1WAYPSW the worker leg is given by IN1 -> OUT and the protection leg is given by IN2 -> OUT;
   - for the combination: *in_aid*=IN1, *out_aid*=OUT,*in_aid2*=IN2 and *repleg*=1WAYPSP the worker leg is given by IN2 -> OUT and the protection leg is given by IN1 -> OUT.

   Thus *in_aid* and *out_aid* specify one leg of the legpair of a path-protected cross-connection, while *in_aid2* and *out_aid* specify the second leg.
   Type: STS1NumAID or GenLOTribAID.

STS1NumAID are used for high-order tributaries on e.g. OPn, EPn packs; GenLOTribAID are used for low-order tributaries on I/O packs e.g. OPn, EP155.
Note: Using VCGNumAID (when using e.g. GEn packs) is NOT applicable as those packs can not be the input to a path-protected cross-connection. Therefore STS1NumAID us mentioned instead of GenTribAID.
Range: n.a. (*all* and *usall* values shall never occur as part of an output parameter).

4. rate
   This parameter indicates the cross-connection rate. For a detailed description please refer to the input parameter *modifier*.
   Type: Alphanumeric value set
   Range:
   - LOVC12
   - LOVC3
   - VC3
   - VC4
   - VC44C
   - VC416C
   - VC464C
   - LOVT1
   - STS1
   - STS3
   - STS12
   - STS48
   - STS192.

Spec block parameters

1. loca – Location-a
   This parameter specifies the TID of the node at which service is added to the BLSR. This parameter is required for BLSR THROUGH, INTER-BLSR and DROP connections only. The *loca* parameter value is an empty string for ADD and non-BLSR connections.
   A 2-way cross-connection is considered to be a DROP if the *out_aid* is a non BLSR tributary.
   The figure in "2-way scenario" (p. 4-1661) depicts the 2-way scenario (the 3 NEs should be seen as part of an BLSR).
   Inter Ring Cross-connections with collapsed node: Note that beside the above described THROUGH case there can be also another situation where both *loca* and *locz* are different from the empty string: If two rings are interconnected in a collapsed node then *loca* refers to the (add-node of the) ring where the signal is dropped from, and *locz* refers to the (drop-node of the) ring where the signal is added to. In such cases the cross-connection cannot be provisioned as bidirectional, thus the information is still unambiguous.

A note to the loca2 parameter: Although *loca2* (Location-a-2) is a parameter which is used in the ENT-CRS command, *loca2* is not retrieved explicitly. This is due to the fact that for path-protected cross-connections – and only for those this *loca2* is applicable – the retrieval will be on a leg-basis and not on a leg-pair basis. In other words: If a path-protected cross-connection is retrieved two entries will be sent, one for the working leg (incl. the *loca* and *locz* parameter) and one for the protection leg (incl. the *loca* parameter and the same *locz* parameter, and in this case the *loca* returned is the *loca2* as entered when establishing the path-protected cross-connection).
loca is also required for EXTRA TRAFFIC connections. (In contrast to incoming references from other commands to this whole chapter it is exclusively applicable for the command RTRV-CRS.). For extra traffic the value will be generated automatically and thus it is only retrievable. For information about the automatic generation of *loca* refer to the parameter *sqfa*.
For lower-order cross-connections the parameter *loca* is the TID of that ring node in the direction towards the specified input tributary (upstream), where the HO path termination source function resides.
If there is no such function in an upstream ring node then *loca* is the TID of the node where the related HO circuit is first added to the ring. The figure "Lower-order cross-connections" (p. 4-1661) shows an example of a LO path through as part of a ring.
The LO path is added to/dropped from the ring in NE-1 and NE-2. 2-way cross-connections are considered to be either an Add or a Drop connection depending whether the input or the output tributary is at the ring port. In NE-3 there is a HO through connection, which contains the LO path. In NE-3 there is no HO path termination. In NE-4 there is a LO through connection. Consequently, there are HO path terminations in NE-4.

The fact that *loca* refers to the HO path terminations has the following consequences:

- All LO cross-connections through the same HO path termination at the MSSPRING port have the same *loca* value.
- Any LO through-connection will be treated as add/drop. loca will identify the node of the through connection, and not the node where the LO service is added to the ring.

Type: TID or empty string.
Range: Please refer to the TID definition in the "RTRV-HDR: Retrieve header" (p. 4-1736) description.
Default: empty string "":
Note: In output direction the empty string appears as \"\".

2. locastate – Squelch Map Data Status for Location a
The parameter *locastate* indicates the validity and the source of the *loca* value.
Type: Alphanumeric value set

Range:

- AUTO-VALID
- AUTO-INVALID
- USER-OVERRIDE
- MANUAL-VALID
- MANUAL-INVALID
- UNKNOWN (default).

3. locz – Location-z
   This parameter specifies the TID of the node at which service is dropped from the BLSR. This parameter is required for BLSR THROUGH, INTER-BLSR and ADD connections. The *locz* parameter value is an empty string for DROP and non-BLSR connections.
   A 2-way cross-connection is considered to be a ADD if the *in_aid* is a non BLSR tributary.
   Refer to the figure in "2-way scenario" (p. 4-1661) for further explanation.
   locz is also required for EXTRA TRAFFIC connections. For extra traffic the value will be generated automatically and thus it is only retrievable. For information about the automatic generation of *locz* refer to the parameter *sqfz*.
   For lower-order cross-connections the parameter *locz* is the TID of that ring node in the direction towards the specified output tributary (downstream), where the HO path termination sink function resides.
   If there is no such function in a downstream ring node then *locz* is the TID of the node, where the related HO circuit is last dropped from the ring. Refer to the figure in "Lower-order cross-connections" (p. 4-1661) for further explanation.
   The fact that locz refers to the HO path terminations has the following consequences:
   - All LO cross connections through the same HO path termination at the MSSPRING port have the same *locz* value.
   - Any LO through-connection will be treated as add/drop. *locz* will identify the node of the through connection, and not the node where the LO service is dropped from the ring.

   Type: TID or empty string.
   Range: Please refer to the TID definition in the "RTRV-HDR: Retrieve header" (p. 4-1736) description.
   Default: empty string ″″:
   Note: In output direction the empty string appears as \″\″.

4. loczstate – Squelch Map Data Status for Location z
   This parameter indicates the validity and the source of the *locz* value.
   Type: Alphanumeric value set
   Range:
   - AUTO-VALID
   - AUTO-INVALID

- USER-OVERRIDE
- MANUAL-VALID
- MANUAL-INVALID
- UNKNOWN (default).

5. lpbkstat – Loopback-Status
   This parameter specifies whether a cross-connection loopback exists on the input tributary or the output tributary of the cross-connection.
   Type: Alphanumeric value set.
   Range: YES, NO (default).
6. omode – Output Mode
   This parameter specifies the output mode of the cross-connection:
   - for a 1-way cross-connection the output is clearly defined by the destination (*out_aid*)
   - for a 2-way cross-connection the output is defined as the source-to-destination direction (*in_aid* to *out_aid*)
   - NORM: this is the normal output i.e. the signal from the *in_aid* is passed through to the *out_aid*;
   - IDLE/UNEQ: this mode outputs an unequipped signal;
   - AIS: this mode outputs an AIS signal.

   omode and adaptive-mode: In case a SONET-port is provisioned to adaptive-mode setting the *omode* to IDLE/UNEQ or AIS will be lead to transmitting the corresponding signal (UNEQ or AIS) on STS1 base for all the STS1 tributary comprising the STS-N signal. Thus for an output of an STS3 cross-connection, if either AIS or IDLE/UNEQ is selected each of the 3 STS1 will output the AIS or IDLE/UNEQ signal. When switching the *omode* back to NORM the original STS3 cross-connection-signal will re-appear again.
   omode in case of path-protected cross-connection: In case of a path-protected cross-connection the *omode* affects the output of the path selector and is thus not setable on a per leg base. In other words the *omode* insertion is done after (downstream direction) the selector function.
   Type: Alphanumeric value set.
   Range:
   - NORM (default)
   - IDLE/UNEQ
   - AIS
7. repleg – Reported Leg Pair

This parameter provides compact information about the leg(s) of cross-connections and is derived, as shown in "Derivation of repleg" (p. 4-1662), from a combination of the following elementary parameter:

- atomic cross-connection topology
- leg status
- path-protected group working leg (if applicable i.e. being part of a protection group).

Atomic cross-connection topology:

Two atomic cross-connection topologies are supported:

- Point to point: The point to point cross-connection consists of one leg only, which is defined by its source-trib (*in_aid*) and its destination-trib (*out_aid*) and its particular transmission rate.
- path-protected: The path-protected cross-connection consists of a path protection group with two legs, a working leg and a protection leg – the declaration of working respectively protection is made when establishing the cross-connection (ENT-CRS command).

  The two legs are defined by two input tributaries and one output tributary – thus one input tributary and the output tributary form the working leg while the other input tributary and the output tributary form the protection leg.

  Note that:

  both input tributaries must belong to ports with the same interface standard (either SONET or SDH), due to different switch criteria;

  both legs must be at the same cross-connection rate.

Leg status:

The leg status indicates whether a leg is monitored and reported as a 1-way cross-connection or a leg pair i.e. a 2-way cross-connection.
1-way: The leg status for a path-protected cross-connection is always defined as 1-way.
2-way: The leg status for a (non path-protected) cross-connection is set to 2-way if all the following conditions are fulfilled: there are 2 cross-connections in opposite direction between the same tributaries; both of these cross-connections have the same rate (independent if the SONET or SDH rate was used when establishing i.e. VC3 is equivalent to STS1, VC4 is equivalent to STS3 etc); the source and destination TIDs do match i.e. the source TID of one leg is the destination TID of the other leg and vice versa (this condition of course holds only in case of BLSR cross-connections).
Note that the criteria for a 2-way leg-pair do not depend on whether the two legs were set up at the same time, nor on whether either leg was set up as part of a 2-way cross-connection topology.

Path Protection leg role:

This indicates if the leg of a path protection group is defined as the working (W) leg or the protection (P) leg.

1WAYPSW and 1WAYPSP stands for 1-way path switched working and 1-way path switched protection respectively.
In "repleg example" (p. 4-1662) examples show the *repleg* parameter for several cross-connection configurations including compound cross-connection.
Type: Alphanumeric value set.
Range

- 1WAY
- 2WAY
- 1WAYPSW
- 1WAYPSP.

The values 1WAYPAP and 1WAYPAW are not supported in the initial release.

8. rtnomode – Return Output Mode

   This parameter specifies the output mode for the return direction of the cross-connection.

   - for a 2-way cross-connection the return output mode is defined as the destination-to-source direction (*out_aid* to *in_aid*) For the meaning of the values please refer to *omode* description.
   - for a 1-way cross-connection and path protected cross-connection this parameter is omitted.

   Type: Alphanumeric value set.
   Range: NORM (default), IDLE/UNEQ, AIS.

9. rtntaccstat – Return Test Access Status
   This parameter indicates indicates whether the input tributary of the return direction (destination-to-source) of a 2-way cross-connection is cross-connected or bridged to a test access tributary of a test session. In the case of a 1-way cross-connection the parameter shall be omitted.
   Type: Alphanumeric value set.
   Range: YES, NO (default).

10. rtnxcappl – Return cross-connection application

    This parameter is a numeric value which indicates the application for which the return cross-connection is used in the context of compound cross-connection topologies.

    - for a 1-way cross-connection this parameter is not applicable and will thus be omitted.
    - for a 2-way cross-connection the parameter is present.

    Type: same as *xcappl.*
    Range: same as *xcappl.*
    Default: The default value is 0.

11. rtnxcnum – Return cross-connection number

This parameter is a multiple-digit number identifying the cross-connection number for the return direction (destination to source i.e. *out_aid* to *in_aid*) of a 2-way cross-connection.

- for a 1-way cross-connection this parameter is not applicable and will thus be omitted.
- for a 2-way cross-connection the parameter is present.

Type: same as *xcnum.*
Range: same as *xcnum.*
Default: same as *xcnum*

12. taccstat – Test Access Status
    This parameter indicates whether the input tributary of a 1-way cross-connection or the input tributary of the source-to-destination direction of a 2-way cross-connection is crossconnected or bridged to a test access tributary of a test session.
    Type: Alphanumeric value set.
    Range: YES, NO (default).
13. xcappl – cross-connection application
    This parameter is a numeric value which indicates the application for which the cross-connection is used in the context of compound cross-connection topologies. The parameter is not further processed in the NE, but only stored (when establishing or modifying the cross-connection) and returned when retrieving the cross-connection.
    The numeric values are assigned to appropriate text strings (see Range below) and the manager should display these value in case of a "RTRV-CRS: Retrieve cross-connection" (p. 4-1649).
    As a possible assignment proposal the following may serve:
    - 0) Unknown
    - 1) 1-Way Point-to-Point
    - 2) 1-Way Path-Protected
    - 3) 1-Way Adjunct Path-Protected
    - 10) 2-Way Point-to-Point
    - 20) UPSR (or SNCP Ring) Add, Drop
    - 21) UPSR (or SNCP) Ring-to-Ring, Single Node Interconnection, Same NE
    - 22) UPSR (or SNCP) Drop, 1-Way Broadcast
    - 30) Logical Ring (or SNCP) Add, Drop
    - 40) Ring Interworking, Drop-and-Continue, BLSR (or MS-SPRing) Primary Node
    - 41) Ring Interworking, Drop-and-Continue, BLSR (or MS-SPRing) Primary Nodes in same NE
    - 42) Ring Interworking, Dual Transmit, BLSR (or MS-SPRing) Terminating Node

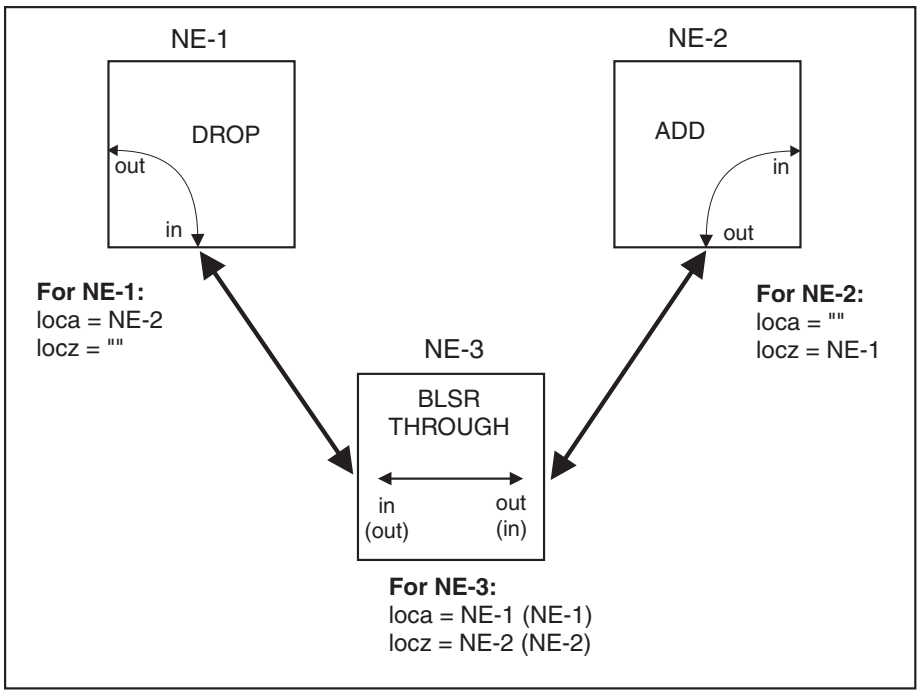
- 50) Ring Interworking, Drop-and-Continue, UPSR (or SNCP Ring)
- 51) Ring Interworking, Drop-and-Continue, UPSR (or SNCP Ring) Nodes in same NE
- 60) 1-Way Broadcast -- note: this is with N greater than or equal to 2.

Type: numerical value set.
Range: {0, 1, 2,..., 255}.
Default: The default value is 0.

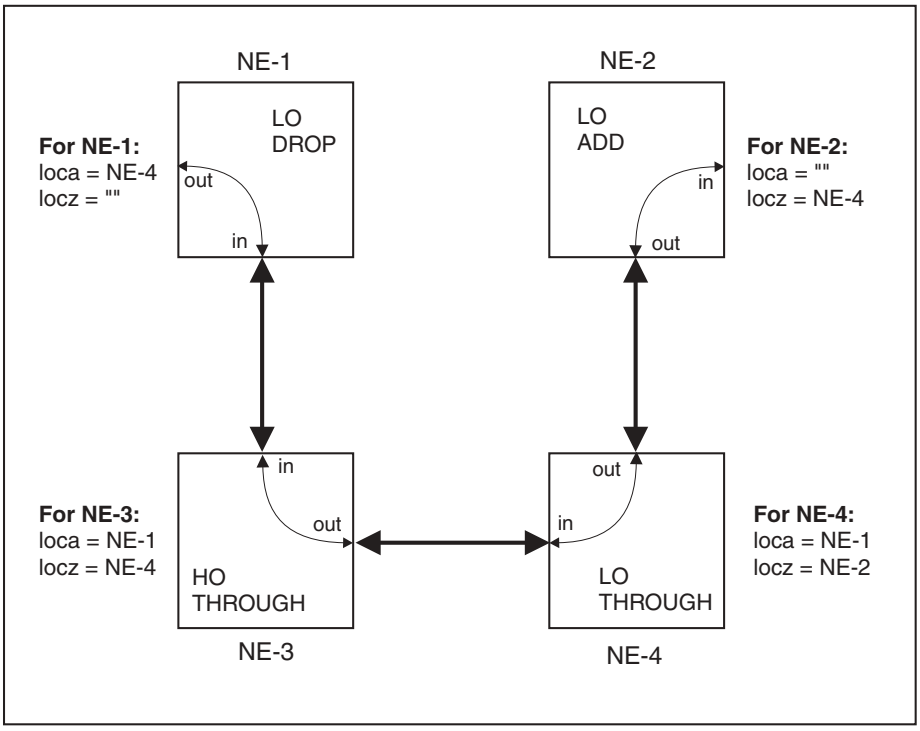
14. xcnum – cross-connection number
    This parameter is a multiple digit number, identifying each leg in a specific compound cross-connection. (Compound cross-connection are a composition of several atomic cross-connection in order to form complex scenarios like e.g. described in ″Example input/output″ section of the RTRV-CRS command like UPSR, DRI etc.).
    Like the *xcappl* parameter the *xcnum* parameter is not further processed in the NE, but only stored (when establishing or modifying the cross-connection) and returned when retrieving the cross-connection. It may be used by a manager to characterize and group cross-connections belonging to complex cross-connection topology (e.g. compound cross-connections as used in ring interworking scenarios).
    The following format for the twelve digits is recommended:
    - two digits for the bay
    - one digit for the shelf
    - two digits for the slot
    - two digits for the port
    - three digits for the high-order tributary
    - two digits for the low-order tributary.

    If a high-order tributary is addressed then the last two digits are set to 00. The digits values pertain to the *out_aid*.
    Type: numeric value set (12 digit).
    Range: 000000000000 .. 999999999999.
    Default: The default value is 000000000000.
15. xconcls – cross-connection class
    This parameter identifies, whether the cross-connection has been setup in the TRADITIONAL way by an operator via the ENT-CRS command or via the NN application as part of an ENT-PATH command. This parameter therefore also indicates who is the owner of the cross-connection and can modify or delete it.
    Note: Refer to the NN TL1 catalogue for the ENT-PATH command.
    Type: alphanumeric value set.
    Range: TRADITIONAL, NN.
    For low order cross-connections, the value range is limited to TRADITIONAL.

2-way scenario



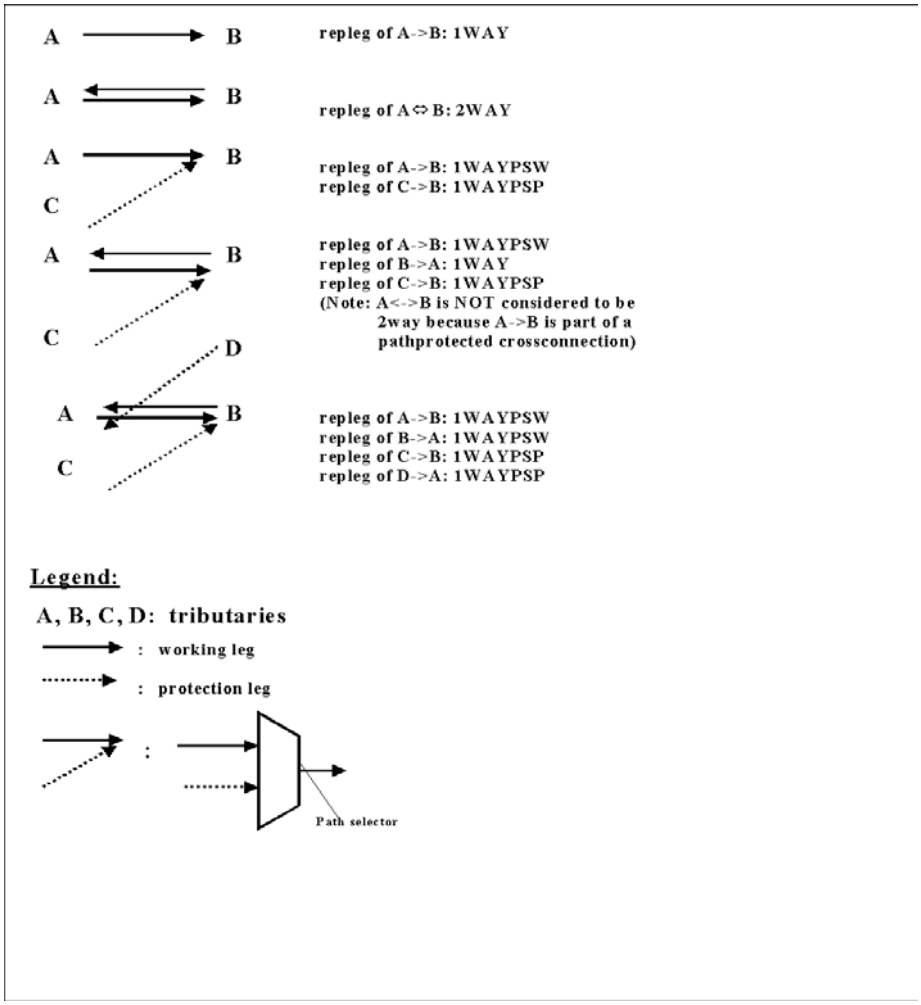
Lower-order cross-connections



Derivation of repleg

Atomic cross-connection Topology	Path Protection Leg Role	Leg Status	Reported Legpair (*repleg*)
point-to-point	n.a.	1-way	1WAY
point-to-point	n.a.	2-way	2WAY
path-protected	W	1-way	1WAYPSW
path-protected	P	1-way	1WAYPSP

repleg example



Detailed behavior description

The RTRV-CRS command allows the retrieval of existing cross-connection according to the following characteristics:

- rate (via the mandatory *modifier* parameter)
- input or output tributary (via the optional/mandatory [in case *ppgname* is omitted] *in_aid* parameter).

For the rate and input/output tributary either concrete value or the ranging via *all* (and *vall* for the port-part of the aid in case of using the GEn and *usall* for the slot-part of the aid) can be used.

The *ppgname* is applicable for high-order cross-connections and is allowed for compatibility reasons only. The parameter *ppgname* is not evaluated during command processing, i.e. the command returns all cross-connections with the specified rate.

The use of *in_aid* AND *ppgname* in one command request is not allowed; i.e. their use is mutually exclusive.

Number of atomic cross-connections in the response

In case the given set of input parameter does not match with any existing crossconnection(s), the command is accepted BUT no information is returned i.e. the output contains the empty string ″″.

In case the given set of input parameters matches to a 1way or 2way crossconnection, a single entry will be returned.

n case the given set of input parameters matches to a pathprotected crossconnection up to two entries will be returned (one entry for the worker-leg and the second one for the protection-leg if the output tributary has been specified as in_aid parameter, otherwise only the addressed leg). This implies that only the legs meeting the characteristics of the request will be in the reply in case of path-protected XC. The NE will only add matching legs which form together with the reported legs a path-protected XC topology.

In the following, examples are given for the number of cross-connections (xc's) to be returned while tributaries A, B, C, D are cross-connected (disconnected if not mentioned in a specific sceanrio):

- A to B 1WAY1100
- A to B 1WAY + B to A 1WAY2200 (not converted to 2WAY)
- A to B 1WAY + B to C 1WAY1210
- A to B 2WAY1100
- B to A and C to A 1WAYPROT2110
- B to A and C to A 1WAYPROT + A to B 1WAY3210
- B to A and C to A 1WAYPROT + A to B 1WAY + A to C 1 WAY4220

- B to A and C to A 1WAYPROT + A to D 1WAY3111
- B to A and C to A 1WAYPROT + A to B 1WAY + A to D 1WAY4211

AID boundary independence

The system shall allow to retrieve a higher order cross connection using the AID of any tributary within the AID boundaries determined by the cross connection rate.

Example: A STS-3c cross connection has been established at the tributary 1-1-#-#-2-1-4.

This cross connection can be retrieved with one of the AIDs

- 1-1-#-#-2-1-4
- 1-1-#-#-2-1-5
- 1-1-#-#-2-1-6

AID boundary and rate dependency for LOVC3 cross-connection retrieval

The system shall return a response with the existing LOVC3 cross-connection if the specified LO tributary is within the boundaries of an existing LOVC3 cross-connection and one of the modifiers LOVC3 or ALL is used in the command.

If other modifiers are used or no LOVC3 cross-connection exists at the tributary, then no LOVC3 cross-connection shall be returned with the response. If no other LO cross-connection exists at the specified tributary, the response will be empty.

If a field of the specified LO tributary AID is set to a value outside the allowed range for this field, then the command shall be denied. In this case, the generic validation rule for unknown AID sall be applied.

Identification of VCG Tributaries

The system shall allow to retrieve cross-connections at VCG Tributaries using the AID format of an AU-3/STS-1 Tributary. I.e. the VCG number specified in the port field of the AID shall be allowed with or without the leading ″v″.

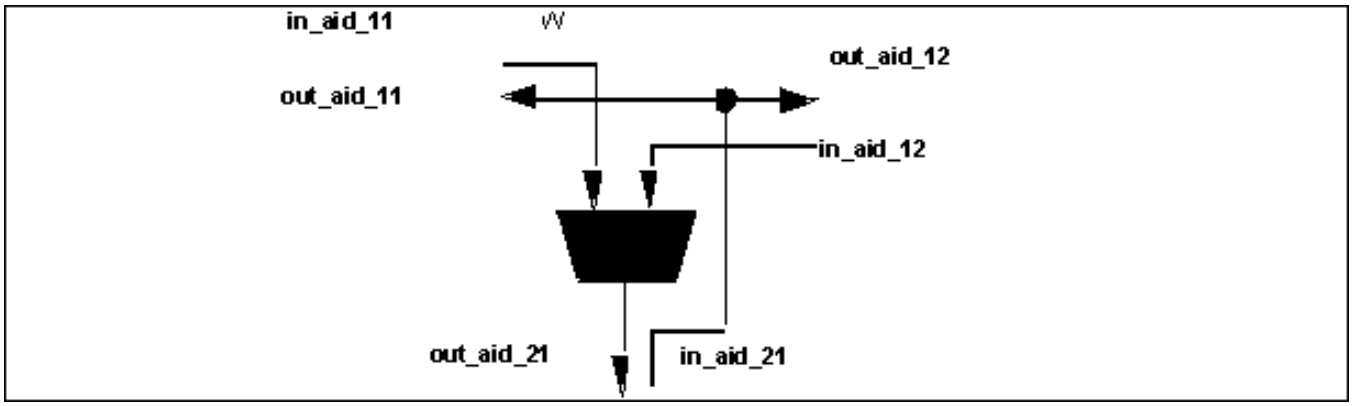
Update affected entities

The RTRV-CRS command does not generate a REPT DBCHG message.

Example input/output

Example 1

Suppose the following compound cross-connection, as used in UPSR application, is given:



RTRV-CRS-all:UNITE-NE:1-1-#-#-all-all-all:123456; will then output (the blank lines are for better reading):

in_aid_11,out_aid_21:vc4,,in_aid_12:lpblstat=NO,omode=NORM,repleg=1WAYPSW, xcappl=20,xcnum=123456789;

in_aid_12,out_aid_21:vc4,,in_aid_11:lpblstat=NO,omode=NORM,repleg=1WAYPSP, xcappl=20,xcnum=123456789;

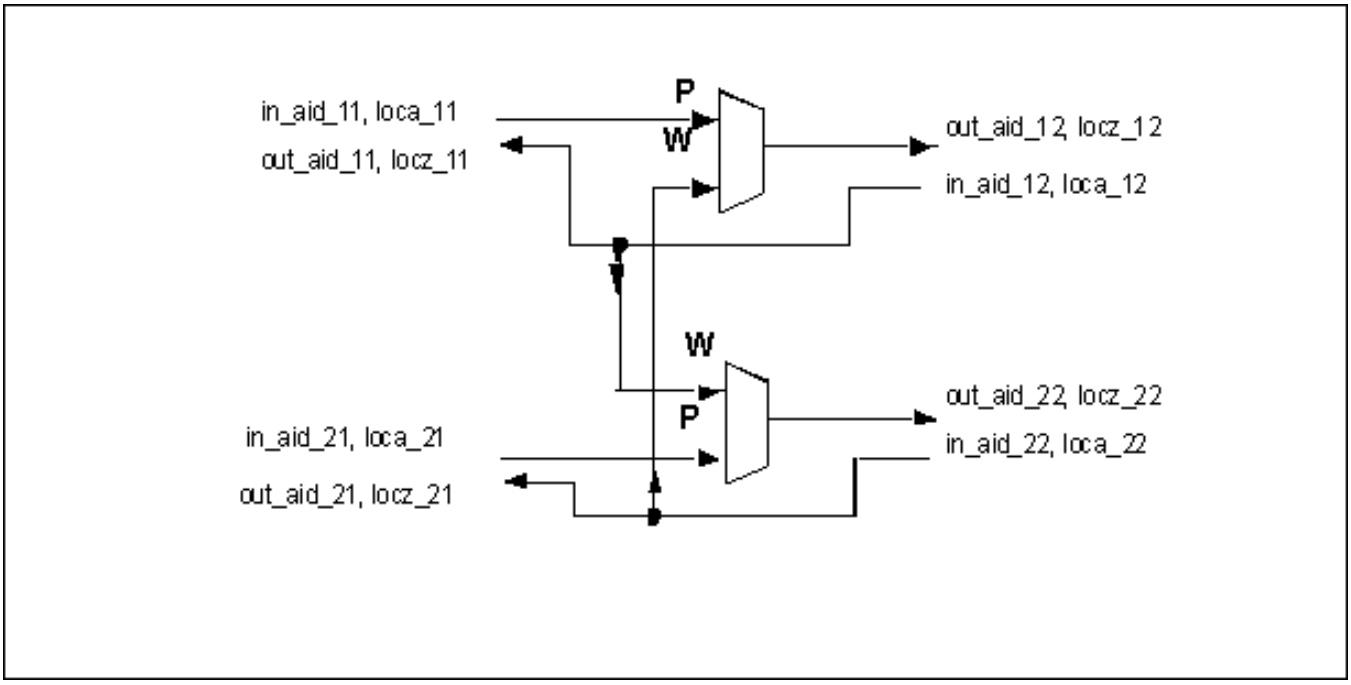
in_aid-21,out_aid_11:vc4:omode=NORM,repleg=1WAY,xcappl=20,xcnum=123456789;

in_aid-21,out_aid_12:vc4:omode=NORM,repleg=1WAY,xcappl=20,xcnum=123456789;

The upper 2 outputs specify the path-protected cross-connection, consisting of 2 legs. The lower 2 outputs specify the 2 legs of the bridge.

Example 2

Suppose the following compound cross-connection configuration is given:



A ring interworking with drop and continue for a BLSR with primary nodes in the same NE. RTRV-CRS-all:UNITE-NE:1-1-#-#-all-all-all:123456; will then output (the blank lines are for better reading):

in_aid_11,out_aid_12:vc4,,in_aid_22:loca=loc_a11,locz=locz_12,lpblstat=NO, omode=NORM,repleg=1WAYPSP,xcappl=41,xcnum=011031111;

in_aid_22,out_aid_12:vc4,,in_aid_11:loca=22,locz_12,lpbkstat=NO,omode=NORM, repleg=1WAYPSW,xcappl=41,xcnum=011031111;

in_aid_12,out_aid_11:vc4:loca=loca_12,locz=locz_11,omode=NORM,repleg=1WAY, xcappl=41,xcnum=011031111;

in_aid_12,out_aid_22:vc4,,in_aid_21:loca=loc_a12,locz=locz_22,lpblstat=NO, omode=NORM,repleg=1WAYPSW,xcappl=41,xcnum=011031111;

in_aid_21,out_aid_22:vc4,,in_aid_12:loca=21,locz_22,lpbkstat=NO,omode=NORM, repleg=1WAYPSP,xcappl=41,xcnum=011031111;

in_aid_22,out_aid_21:vc4:loca=loca_22,locz=locz_21,omode=NORM,repleg=1WAY, xcappl=41,xcnum=011031111;

The first 3 outputs specify the upper part of the configuration while the last 3 outputs specify the lower part.

Example 3

Suppose no cross-connections do exist, or the input data do not match with existing cross-connections, then the output would be an empty string: *""*.

RTRV-CRS for a cross-connection established via ENT-CRS-VC4 with a specified in_aid:

```
RTRV-CRS-VC4:LT-UNITE-123:1-1-#-#-1-1-1:123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
   "1-1-#-#-1-1-1,1-1-#-#-2-1-1:VC4:\
    lpbkstat=NO,omode=NORM,repleg=2WAY,rtnomode=NORM,\
    rtnxcappl=20,rtnxcnum=123456789012,xconcls=TRADITIONAL,\
    xcappl=20,xcnum=123456789012"
;
```

RTRV-CRS for a cross-connection established via ENT-CRS-STS1 at a BLSR port where the Automatic Squelch Map Calculation is enabled:

```
RTRV-CRS-VC4:LT-UNITE-123:1-1-#-#-1-1-1:123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
   "1-1-#-#-1-1-1,1-1-#-#-2-1-1:STS1:\
    loca=\"LT-UNITE-124\",locastate=AUTO-VALID,\
    locz=\"LT-UNITE-124\",loczstate=AUTO-VALID,lpbkstat=NO,\
    omode=NORM,repleg=2WAY,rtnomode=NORM,rtnxcappl=20,\
    rtnxcnum=123456789012,xconcls=TRADITIONAL,xcappl=20,\
    xcnum=123456789012"
;
```

RTRV-CRS for a cross-connection established via ENT-PATH with a specified in_aid:

```
RTRV-CRS-VC4:LT-UNITE-123:1-1-#-#-1-1-1:123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
   "1-1-#-#-1-1-1,1-1-#-#-2-1-1:VC4:\
    lpbkstat=NO,omode=NORM,repleg=2WAY,rtnomode=NORM,\
    rtnxcappl=0,rtnxcnum=000000000000,xconcls=NN,xcappl=0,\
    xcnum=000000000000"
;
```

Error responses

Validation rule: *in_aid* or *ppgname* existence

RTRV command processing verifies that either *in_aid* is or *ppgname* is present.

Error code: `IDNC - Input Data Not Consistent, in_aid or ppgname needed`

Related TL1 messages

- "DLT-CRS: Delete cross-connection" (p. 4-97)
- "ED-CRS: Edit cross-connection" (p. 4-213)
- "ENT-CRS: Enter cross-connection" (p. 4-1026)

References

GR-199-CORE

□

RTRV-CRS-FECOM: Retrieve transparent DCC cross-connection

The RTRV-CRS-FECOM can be initiated by the users to retrieve the established transparent DCC cross-connections.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M1

Priority: 1

Abortable: Yes.

Input format

Command Syntax: `RTRV-CRS-FECOM`*:tid:[port_aid][,dcctype]:ctag;*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
3. port_aid – DCC port
   This parameter indicates the port AID of a circuit pack which is used together with *dcctype* to identify the DCC channel which is involved in a transparent DCC cross-connection. If this field is omitted, the report will include the DCC parameters of all ports belonging to the NE and being provisioned with transparent DCC.
   Type: AID
   Range: SPortAID, the keyword ″all″ shall be allowed on slot and port level.
4. dcctype
   This parameter specifies whether the LINE/MS or SECTION/RS transparent DCC cross-connection parameters of the OPn port shall be reported by the command. If this parameter is omitted, LINE and SECTION DCC parameters will be considered for the output.
   Type: alphanumeric value set
   Range: LINE, SECTION.

Output format

In response to a valid RTRV-CRS-FECOM command, the following output is returned:

```
    sid date time
 M  ctag COMPLD
    "port_aid1,port_aid2,dcctype"
      .....
    "port_aid1,port_aid2,dcctype"
;
```

The output will not be sorted.

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736) .

Important! The NE responses partially with duplicate lines, if the user retrieves transparent DCC connections by specifing an AID range. The NE lists every port with transparent DCC connections in this AID range. Thus, if both connected DCC ports are in the range, the connection is listed two times. The duplicate lines should be ignored.

Output parameters

Command parameters

1. port_aid1 – DCC port 1
   This parameter indicates one (first) optical port AID of an OPn circuit pack which is used together with dcctype to identify the DCC channel which is involved in a transparent DCC cross-connection.
   Type: AID
   Range: SPortAID. The keyword "all" shall be allowed not.
2. port_aid2 – DCC port 2
   This parameter indicates one (second) optical port AID of an OPn circuit pack which is used together with dcctype to identify the DCC channel which is involved in a transparent DCC cross-connection.
   Type: AID.
   Range: SPortAID. The keyword "all" shall be allowed not.
3. dcctype
   This parameter specifies whether the LINE/MS or SECTION/RS transparent DCC cross-connection parameters of the OPn port is reported by the command.
   Type: alphanumeric value set.
   Range: LINE, SECTION.

Detailed behavior description

The System supports only bidirectional transparent DCC cross-connections. Each reported transparent DCC cross-connection is bidirectional.

The command reports all transparent DCC cross-connections. That means only DCC channels are shown with *dccstat* = TRANSPARENT or *scn_dccstat* = TRANSPARENT.

If an AID range is specified, then the DCC cross-connections shall be reported for all ports in the AID range, i.e. a DCC cross-connection will be reported twice, if both involved ports are in the AID range.

Update affected entities

The RTRV-CRS-FECOM command does not generate a REPT DBCHG message.

Example input/output

The following example shows a RTRV-CRS-FECOM command there two transparent DCC cross-connections are reported one for *dcctype* = SECTION and one for *dcctype* = LINE:

```
RTRV-CRS-FECOM:LUCENT-UNITE-NE:1-1-#-#-2-1:12345;
    NE-UNITE 00-12-24 11:00:00
 M  123456 COMPLD
    "1-1-#-#-1-1,1-1-#-#-2-1,LINE"
    "1-1-#-#-1-1,1-1-#-#-2-1,SECTION"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the RTRV-CRS-FECOM command.

Related TL1 messages

- "ENT-CRS-FECOM: Enter transparent DCC cross-connection" (p. 4-1062)
- "DLT-CRS-FECOM: Delete transparent DCC cross-connection" (p. 4-107)
- "RTRV-FECOM: Retrieve DCC related parameters" (p. 4-1727)
- "ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)

□

RTRV-EC1: Retrieve EC1 port

The RTRV-EC1 command shall be used to retrieve all parameters related to the electrical EC1 port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes.

Input format

Command Syntax:

`RTRV-EC1:`*tid:aid:ctag;*

Input parameters

Command parameters

1. tid – Target Identifier
   See definition in "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   Access Identifier of a EC1 port.
   Type: AID
   Range: SPortAID of EC1 port. The keyword ″all″ shall be allowed up to shelf level.
3. ctag – Correlation Tag
   See definition in "RTRV-HDR: Retrieve header" (p. 4-1736).

Output format

In response to a valid RTRV-EC1 command, the following output report shall be returned:

```
      sid date time
M  ctag COMPLD
   ″aid[:spec_block]″
        ...
        ...
   ″aid[:spec_block]″
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section for the RTRV-HDR command.

Output parameters

Command parameters

1. aid – access identifier
   Type: AID
   Range: EC1 port AID

Spec block parameters

1. crstat - Constituent Rates Status list
   This parameter shows the rates of the port signal.
   Type: numeric value set
   Range: 11, (1 x STS1).
2. eif - Electrical Interface Type
   The parameter eif indicates the type of input the port has been provisioned to receive.
   Type: alphanumeric string.
   Range: EC1
3. felpm - Far-end Line PM Enable
   Enable or disable of the performance monitoring of the multiplex section/line.
   Type: alphanumeric value set.
   Range: ENABLE, DISABLE (default)
4. frcdus - Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message “do not use” will be transmitted from that optical interface.
   Type: alphanumeric value set
   Range:
   - ENABLE: (set a forced DUS/DNU)
   - DISABLe (default): (clear a forced DUS/DNU)
5. fsflpbkstat - Far Side Facility Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output *aid*. A far-side loopback means that the signal on the outgoing port is looped to the incoming port - this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed - if NO then there is no (far-side) loopback exististing for the aid.
   Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time
   Type: alphanumeric value set
   Range: YES, NO (default)
6. inputsig - Tributary Input Signal Rate List
   This parameter shall be a list of STSn rates across the port’s bandwidth.
   Type: numeric value set.
   Range: 11 (default), (1 x STS1).

7. istd - Interface Standard
   Interface standard of the synchronous EC1 interface.
   Type: alphanumeric value set.
   Range: SONET
8. lbo - Line Build Out
   This parameter defines the cable length applicable for the EC1 port.
   Type: alphanumeric value set.
   Range:
   - SHORT (default): 0 ... 68.5 m (0 ... 225 ft)
   - LONG: 68.5 ... 137 m (225 ... 450 ft).
9. lpbk - Loopback
   This parameter specifies the current near-side loopback status of the considered output *aid*.
   A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).
10. nelpm - Near-End Line PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range: ENABLE, DISABLE (default).
11. pmmsfeses - Performance Monitoring Line Far-End SES Threshold
    This parameter describes the Line Far-End SES threshold value. It indicates the number of code violations per second to declare a second as severly errored.
    Type: alphanumeric value set
    Range: 1 - 64000; default = 51
12. pmmsneses - Performance Monitoring Line Near-End SES Threshold
    This parameter describes the Line Far-End SES threshold value. It indicates the number of code violations per second to declare a second as severly errored.
    Type: numeric value set
    Range: 1 - 64000; default = 51
13. pmode - Port Mode
    This parameter sets the mode of the port. In the case of AUTO the *pmode* state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range: AUTO (default): indicates that, when a signal is detected at the port, then alarm monitoring will start. MON: indicates that alarm monitoring is taking place on the port. NMON: means that alarm monitoring is not occurring on the port.

14. pmrsneses - Performance Monitoring Section Near-End SES Threshold
    This parameter describes the Section Near-End SES threshold value. It indicates the number of code violations per second to declare a second as severly errored.
    Type: numeric value set.
    Range: 1 ... 64000
    Default: 52
15. portClass - Port Class
    This identifies the port class of the AID.
    Type: alphanumeric value set.
    Range: TRADITIONAL
16. portControl - Port Control
    This identifies the administrative mode of the EC1 port. This parameter is not relevant for EC1 ports, because the portClass is always TRADITIONAL. The parameter can only be retrieved but not changed.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT
17. ptype - Port Type
    This identifies the port type of the AID.
    Type: alphanumeric value set.
    Range: EC1
18. sdthr - Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applys when sdsfmode=POISSON.
    Type: numeric value set.
    Range: (as exponents of 10): -5 -6 (default), -7, -8, -9
19. servcond - Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
20. sfthr - Signal Failure Threshold
    Retrieving of the excessive degrade/signal failure threshold in exponent of 10. This parameter is available when sdsfmode=POISSON
    Type: numeric value set
    Range: (as exponents of 10): -3 efault), -4, -5
21. sltca - Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string
    Range: String with maximum of 24 characters
    Default: DEFAULT0

22. sonet - SONET ASAP
    SONET Alarm Severity Assignment Profile. This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH Alarm Severity Assignment Profile for SDH ports of corresponding line rate (see RTRV-STM4, output parameter sdhpn) to be compatible with current generation applications.
    Type: alphanumeric string
    Range: String with a maximum of 24 characters. A hyphen (-) is additionally allowed in the name.
    Default: DEFAULT
23. spm - Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set
    RANGE: ENABLE, DISABLE (default)
24. strc - Value of incoming J0
    This parameter shows the value of the Section Trace Identifier on the incoming section overhead J0 byte of a port. The length of the string depends on the value of the parameter *strcfmt*. The status of this value is contained in parameter *strcst*. If strcst indicates NORMAL, then strc contains a valid value. If *strcst* indicates UNAVAILABLE or AIS, then no incoming section trace identifier could be obtained by the system, e.g. due to a signal-fail condition, and the output parameter strc is omitted from the response.
    Type: hexadecimal (each byte is expressed as two hexadecimal digits. An example of a byte is 6D)
    Range: 1 byte string
25. strcfmt - Format of incoming J0
    The read format of J0, the incoming section trace (strc).
    Type: numeric string
    Range: 1 (default) for specific repeating byte (SONET)
26. strcout - Value of outgoing J0
    This identifies the section trace message to be transmitted.
    Type: Hexadecimal digits
    Range: 1 byte string. One byte shall be expressed as two hexadecimal digits (example value: 6D).
    Default: 01Hex
27. strcst - Status of incoming J0
    This parameter shows the status of the value of the incoming RS/Section Trace Identifier which is available with parameter *strc*.
    Type: alphanumeric value set
    Range:
    - NORMAL: strc contains a valid value
    - UNAVAILABLE: no value for strc could be obtained by the system
    - AIS: no value for strc due to an SF condition.

28. strcwfmt - Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout).
    Type: numeric string
    Range: 1 (default) for specific repeating byte (SONET)
29. trbmd - Tributary mode
    The parameter trbmd indicates the tributary mode of the port. In the case of EC1 port, the only possible value is FIXED.
    Type: alphanumeric value set
    Range: FIXED
30. unequiposig - Unequipped Output Signal List
    Tributary Unequipped Output Signal Rate List. This parameter is a list of STSn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross connection.
    Type: numeric value set
    Range: 11 (default), 1 xSTS1)

Detailed behavior description

The command shall retrieve the parameters as described above. The RTRV-EC1 command do not generate a REPT DBCHG message.

Example input/output

The following example shows the successful execution of a RTRV-EC1 command. Not all output parameters are listed (missing ones indicated by ...).

```
   RTRV-EC1:LT-UNITE:1-1-#-#-1-36:123456;
   LT-UNITE 04-12-23 08:00:00
M  123456 COMPLD
   "1-1-#-#-1-36:eif=EC1,ptype=EC1,sfthr=-3,sdthr=-6,
   pmode=MON,..... pmmsneses=51,pmrsneses=52"
;
```

Error responses

See definition in "RTRV-HDR: Retrieve header" (p. 4-1736) command error responses section for general validation rules. The error responses listed there also apply to the RTRV-EC1 command.

Validation rule: Check CCB against *ptype* and *eif*

Check wether the CCB fits to *ptype* and *eif*.

```
Error Code: IENE - Input, Entity Not Exists
```

Releated TL1 messages

- "ED-EC1: Edit EC1 port" (p. 4-231)
- "ED-EC1 notification" (p. 4-238)
- "ENT-EC1 notification" (p. 4-1067)
- "DLT-EC1 notification" (p. 4-114)

References

GR-199-CORE (RTRV-*rr*)

□

RTRV-EPM: Ethernet performance monitoring

The RTRV-EPM command is initiated by a user to request the NE to send the current and/or historical Performance Monitoring (PM) data associated with one or more Ethernet ports. For each value in the *emontype* parameter of the RTRV-EPM Input Parameters section PM counter values will be stored in the current 15-minute period, the 32 previous 15-minute periods (past 8 hours worth of data), current day, and previous day periods.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): PM1

Priority: 1

Abortable: Yes.

Input format

Command Syntax:

`RTRV-EPM-`*modifier*:*tid*:*aid*:*ctag*::[*emontype*], [*monlev*],*tmper*, [*mondat*], [*montm*];

Input parameters

Command parameters

1. modifier
   This parameter indicates the Ethernet port on which the RTRV-EPM command is to act on.
   Type: alphanumeric value set
   Range: ENET.
2. tid – Target Identifier
   See definition in "RTRV-HDR: Retrieve header" (p. 4-1736).
3. aid – Access Identifier
   Type: AID.
   Range: EPortAID, VCGAID.
   Range is supported up to shelf level or system level; i.e.
   ALL-ALL-#-#-ALL-ALL (range over EPortAID)
   ALL-ALL-#-#-ALL-vALL (range over VCGAID).
4. ctag – Correlation Tag
   See definition in "RTRV-HDR: Retrieve header" (p. 4-1736) in the input parameters section.

5. emontype – Monitored parameter type
   This is the monitored parameter type for which data is requested. If the value is omitted, this parameter defaults to ALL.
   Type: value set.
   Range: CBR, CBS, PDE.
   The following value is for input monitored type only: ALL.
   Default: ALL.
6. monlev – Monitored Level
   This parameter provides the level for the monitored PM parameter. The parameter is only evaluated if the value of *montype* parameter is ALL.
   Type: value set.
   Range:
   - 1-UP: Means the NE will report, non-zero data only.
   - 0-UP: Means the NE will report zero and all positive data.

   If *monlev* is 0-UP, AID ranging must be below slot level.
   Default: 1-UP.
7. tmper – Time Period
   This requests PM data for a specified time interval.
   Type: value set.
   Range:
   - 15-MIN: This requests PM data in 15-minute intervals
   - 1-DAY: This requests daily PM data.
8. mondat – Monitored Date
   This requests the beginning date of the interval for which the PM data is to be reported. For both values of tmper parameter, the maximum allowable range of valid dates includes the current and previous one day.
   Type: value set.
   Range:
   - MM-DD: Month-Day. A leading zero (first M or first D) is optional and may be omitted.
   - ALL: Current and previous day.

   Default: Current date
9. montm – Monitored Time

This parameter specifies the beginning time of day of the requested PM period that was set by *tmper* parameter. The user is able to specify a monitored time in three modes:

a. A monitored time interval (i.e., from hour-minutes to hour-minutes: HOD-MOH&&THOD-TMOH).

b. A single time interval (i.e., the hour and minutes for the appropriate 15 minute data: HOD-MOH).

c. All applicable beginning times for the given *mondat* value (i.e., all).

Where HOD-MOH represents the start of the requested PM retrieval period (hours and minutes) and THOD-TMOH represents the end of the requested PM retrieval period. The value ALL must be used if the *mondat* value provided is ALL.
Type: character string.
Range:

- HOD-MOH: This specifies the beginning time of day of the requested PM period that was set by *tmper* parameter. This parameter may be omitted or have one of the following values: Hour Of Day- Minute Of Hour, where HOD ranges from 0 to 23 and MOH is 0, 15, 30 and 45. A leading zero is optional. For example, 00 means 0.
- THOD-TMOH: To Hour Of Day-To Minute Of Hour, where THOD ranges from 0 to 23 and TMOH is 0, 15, 30 and 45. A leading zero is optional. For example, 00 means 0. Parameter grouping is used when specifying THOD-TMOH. For example, 08-15&&09-00 specifies the HOD-MOH and THOD-TMOH of 08-15 and 09-00, respectively. THOD-TMOH of $$-$$indicates the current Hour Of Day-Minute Of Hour. THOD-TMOH of ##-##indicates the previous 15-min interval.
- ALL: All applicable beginning times for the given *mondat* value.

If the *tmper* value is 1-DAY, the *montm* parameter will not be used.
Default:
If THOD-TMOH is not specified, only the PM data for the retrieval period specified by HOD-MOH will be retrieved.
If HOD-MOH is omitted, the PM period for the current time will be reported.

Output format

Normal completion message

If the NE fully complies with the RTRV-PM request, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
   "aid,aidtype:emontype,monval,[validity],[tca],tmper,
   [mondat],[montm]"
;
```

The output parameters *sid, date, time* and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Normal completion message – empty reply

If there is no PM data stored within the NE, then the following response is returned:

```
   sid date time
M  ctag COMPLD
;
```

Output parameters

1. aid – Access Identifier
   Description: Access identifier.
   Type: AID.
   Range: EPortAID, VCGAID.
2. aidtype - Aid type
   Type: value set.
   Range: ENET
3. emontype – Monitored parameter type
   See definition in "RTRV-HDR: Retrieve header" (p. 4-1736) in the input parameters section.
4. monval – Monitored Value
   This parameter contains the measured value of the parameter specified in *montype*.
   Type: integer.
   Range: 0-4294967295
   The specified range is the maximal range taking all PM parameters into consideration. Specific PM parameters may have a smaller range.
   W.r.t. value range for the specific PM parameters see
   - PM parameter introduction section (if thresholding is not applicable for that parameter).
5. validity – validity indicator
   This parameter indicates the validity of the PM data.
   Type: integer.
   Range: 1: valid; (omitted): non-valid.
6. tca – Threshold Crossing Alert
   Type: value set.
   Range for the current interval:
   - in TCA mode TR, that the current value exceeds the provisioned threshold
   - in TCA mode TR-RTR, that a *tca* occurred since the beginning of this; interval or that the tca reset condition was not fulfilled in any previous; interval since the last tca occurred

f the value is omitted, it indicates

- in TCA mode TR, that the current value is below the provisioned threshold
- in TCA mode TR-RTR, that no tca occurred since the beginning of this; interval and that the tca reset condition was fulfilled at least in one previous , interval

For previous intervals, the tca parameter indicates the state at the end of the interval.

7. tmper – Time Period
   This requests PM data for a specified time interval.
   Type: value set.
   Range:
   - 15-MIN: This requests PM data in 15-minute intervals
   - 1-DAY: This requests daily PM data.
8. mondat – Monitored Date
   This parameter specifies the beginning date of the interval for which the PM data is reported. The parameter can be omitted in case of current date.
   Type: value set.
   Range: MM-DD: Month-Day
   Default: Current date
9. montm – Monitored Time
   This parameter specifies the beginning time of day for the reported pm register. The parameter is optional and may be omitted for the reporting of current bins (registers).
   Type: character string.
   Range: HOD-MOH: HOD ranges from 0 to 23; MOH is 0, 15, 30 and 45. A leading zero is optional. For example, 00 means 0.

Example input/output

The following example shows the successful completion of a RTRV-EPM command by the NE:

```
RTRV-EPM-ENET:UNITE-NE:1-1-#-#-01-1:123456::PDE,,
15-MIN,01-01,08-00;
   UNITE-NE 00-01-01 08:00:00
M  123456 COMPLD
   "1-1-#-#-01-1,ENET:PDE,2,,,15-MIN,01-01,08-00"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-EPM command.

Related TL1 messages

- "RTRV-PM: Retrieve performance monitoring" (p. 4-1970)
- "DLT-TCA-PROF: Delete TCA Profile" (p. 4-186)
- "ED-TCA-PROF: Edit TCA profile" (p. 4-852)
- "ENT-TCA-PROF: Enter TCA Profile" (p. 4-1345)
- "RTRV-TCA-PROF: Retrieve TCA Profile" (p. 4-2184)

References

GR-833-CORE

□

RTRV-EPORT: Retrieve Ethernet port

The RTRV-EPORT command retrieves the attributes of one or more Ethernet ports.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-EPORT-`*modifier:tid*:*aid*:*ctag[:::spec_block]*;

Input parameters

Command parameters

1. modifier
   This parameter specifies the type of the ethernet port at the LAN side of the unit.
   Type: alphanumeric value set.
   Range: 1GE.
2. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
3. aid – Access Identifier
   This parameter specifies the ethernet port to be operated on.
   Type: AID
   Range: EPortAID as defined in AID structure. The values
   - *all* for Simple_EPortAID and
   - *usall* for Simple_UnivSlotAID

   are accepted.
4. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the network element in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters Note: Current implementation also allows ’0’ as valid CTAG, which is an extension to GR-831.

Spec block parameter

1. dyn - Retrieve Dynamic Parameters
   This parameter controls whether dynamic parameters shall be reported with the command reply or not. It shall be given only when using any of the wildcard values *all* or *usall* at the appropriate positions of the input AID. For input AIDs not using *all* or *usall* this parameter shall not be allowed. This implies that with such input AIDs the dynamic parameters are always returned.
   The following output parameters of an ethernet port are affected:
   - anegst
   - fcmdo
   - macaddr
   - rfltst
   - stmd
   - stpop
   - stpid
   - stprole
   - vss
   - vvidlsd.

   Type: alphanumeric value set
   Range: YES: Report dynamic parameters in the reply as well; NO (default): Do not report dynamic parameters in the reply.

Output format

After receiving the RTRV-EPORT command, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
   "aid,modifier::spec_block"
        ...
        ...
   "aid,modifier::spec_block"
;
```

The output parameters *sid*, *date*, *time* and *ctag* included in the normal completion response are specified in the Output Parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter specifies the ethernet port to be operated on.
   Type: AID.
   Range: EPortAID as defined in AID structure with the exception of the value all.
2. modifier
   This parameter specifies the type of the ethernet port at the LAN side of the unit.
   Type: alphanumeric value set
   Range: 1GE

Spec block parameters

1. anegst – Auto Negotiation Status
   This parameter reports the result of the autonegotiation process (e.g. flow control) of this port with its link partner.
   Type: alphanumeric value set.
   Range:
   - ANER, for auto negotiation error
   - CFG, for configuring
   - CPL, for complete
   - UNAVAILABLE, for not available/unavailable.
2. cnprole – Customer/Network Port Role
   This parameter specifies whether the addressed port is used as a customer LAN port or a network LAN port.
   Type: alphanumeric value set.
   Range: CUSTOMER (default), for a customer LAN port; NETWORK, for a network LAN port.
3. dftpri – Default User Priority
   This parameter specifies the default user priority acc. the IEEE 802.1Q tagging scheme.
   Type: alphanumeric value set.
   Range:
   - HIGH
   - LOW (default).
4. dftvlan – Default VLAN Identifier
   This parameter specifies the value of the VLAN identifier which is applied to frames (tagging) at LAN ingress (i.e. from LAN into the Ethernet-port). This only applies to frames carrying no VLAN identifier, yet. This parameter is also used to provision the customer tag (CID) to be used in transparent tagging mode.
   Type: alphanumeric value set.

Range:

- 1, 2, 3, ... 4092, 4093
- UNAVAILABLE (default).

To express the state UNAVAILABLE system internally the invalid VLAN ID 4094 is used.

5. enetpn – Ethernet Alarm Severity Assignment Profile Name
   This parameter points to a tributary ASAP profile name of type ENET for the designated AID.
   Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: 1 ... 24 characters length.
   Default: DEFAULT.
6. enettca – Ethernet TCA Profile Name
   This parameter specifies the name of the threshold crossing alert (TCA) profile used for Ethernet ports.
   Type: alphanumeric string.
   Range: 1 ... 24 characters length.
   Default: DEFAULT0.
7. epmode – Ethernet Port Monitoring Mode
   This parameter specifies the monitoring mode of the Ethernet port. Alarms for this port will be reported if in state MON otherwise not. The configuration of epmode will change from AUTO to MON if a valid signal is applied to that port.
   Type: alphanumeric value set.
   Range:
   - AUTO (default), for automatic
   - MON, for monitored
   - NMON, for not monitored.
8. eppm – Ethernet Port Performance Monitoring
   This parameter specifies whether the performance monitoring is enabled or disabled for this port.
   Type: alphanumeric value set.
   Range:
   - DISABLE (default)
   - ENABLE
9. fcmd – Flow Control Mode
   This parameter specifies the configuration for the pause operation of this port. This parameter is applicable only if the bridge operates in backward-compatible mode (*vlantagmd* = BCMD). If not in this mode this parameter has no effect. However, changes shall be stored in the database.
   Type: alphanumeric value set.

Range:

- AUTO (default), for auto-negotiate
- DISABLE, for pause mode disabled.

10. fcmdo – Flow Control Mode Operation
    This parameter reports the status of the pause operation at this port. This parameter is meaningful only if the bridge operates in backward-compatible mode (*vlantagmd* = BCMD).
    Type: alphanumeric value set.
    Range:
    - DISABLE, for Transmit and Receive Disabled
    - ENABLE, for Transmit and Receive Enabled
    - ENXDISR, for Transmit Enabled, Receive Disabled
    - DISXENR, for Transmit Disabled, Receive Enabled
    - UNAVAILABLE, for anegst equal ANER or CFG or if the value can not be retrieved.
11. fsflpbkstat – Far Side Facility Loopback Status
    This parameter reports the configuration of the far-side facility loopback of this port. A far-side loopback means that the signal on the outgoing port is looped to the incoming port (Tx -> Rx). For GE1 there is only this type of facility loopback. For changing the loopback operation refer to OPR-LPBK of section Transmission and Cross-Connection Handling, Port
    Type: alphanumeric value set.
    Range:
    - YES, for enabled loopback
    - NO (default), for disabled loopback.
12. macaddr – Port MAC Address
    This parameter specifies the MAC address of the port.
    Type: alphanumeric value set.
    Range: 000000000000 to FFFFFFFFFFFF or UNAVAILABLE if the value can not be retrieved.
13. rfltst – Remote Fault Status
    This parameter reports the fault status of the remote link partner.
    Type: alphanumeric value set.
    Range:
    - ANER, for auto negotiation error
    - LNKFL, for link failure
    - UNAVAILABLE, for not available/unavailable
    - NOER, for no error
    - OFFL, for offline.

14. rptmode – Repeater Mode
    This parameter sets the bridge device for this LAN port into the repeater mode (promiscuous mode), valid for a point to point connection between one LAN and one WAN port. Operating in repeater mode imposes some restrictions. See detailed behaviour section. Option: This parameter is meaningful only if the bridge operates in backward-compatible mode (vlantagmd == BCMD).
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
15. servcond – Service Condition
    This parameter specifies the service condition for this port. Some configuration possibilities like loopbacks may be dependent on the state of *servcond*.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default)
    - OUTOFSERVICE.
16. stdis – Spanning Tree Protocol Disable
    This parameter allows to enable or disable the Spanning Tree Protocol for the given port. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: alphanumeric value set.
    Range:
    - DISABLE, STP is disabled, i.e. the port is not used in the spanning tree protocol
    - ENABLE (default), STP is enabled, i.e. the port is used in the spanning tree protocol.
17. stmd – Spanning Tree Protocol Mode
    This parameter returns whether the normal STP according to IEEE802.1D or the rapid spanning tree protocol rSTP according to IEEE802.1w is used on the given port. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: alphanumeric value set.
    Range:
    - 802.1D, for the normal ST
    - 802.1W, for rSTP
    - UNAVAILABLE if the value can not be retrieved.

    Default: There is no default value.

18. stpcost – Spanning Tree Path Cost
    This parameter specifies the STP-related cost of the path egressing the given port. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: integer.
    Range: 1 to 200000000.
    Default: 20000.
19. stpid – Spanning Tree Port Identifier
    The port identifier is a 16 bit parameter consisting of the port priority (high-order bits) and the port number (low-order bits). The port number is assigned by the system to a port and is not provisionable. This parameter is applicable only if the port is a network port (cnprole == NETWORK). For customer ports (cnprole == CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: alphanumeric value set.
    Range: 0 to 65535 and UNAVAILABLE if the value can not be retrieved.
20. stpop – Spanning Tree Protocol Operational
    This parameter indicates whether the Spanning Tree Protocol is operational or not. This parameter is applicable only if the port is a network port (cnprole == NETWORK). For customer ports (cnprole == CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: alphanumeric value set.
    Range: YES, operational; NO, not operational, UNAVAILABLE if the value can not be retrieved.
21. stpp – Spanning Tree Port Priority
    This parameter specifies the priority of the given port for the Spanning Tree Protocol. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: integer.
    Range: 0 to 255.
    The stepping as recommended by the standard (steps of 16 starting at 0) should be implemented by the management system. The NE will accept any value in the range described above. This has the consequence, that also the range restriction ″0 to 240″ is not done by the NE.
    Default: 128.
22. stprole – Spanning Tree Protocol Role
    This parameter reports the role of the given port in rSTP. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK) and operates in rSTP mode (*stmd* = 802.1W). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: alphanumeric value set.

Range:

- ROOT, root
- DESG, designated
- ALT, alternative
- BACKUP, backup
- UNAVAILABLE if the value can not be retrieved.

23. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding. Two thresholding methods are applicable: TR-only. (also known as the implicit reset method), TR-RTR. (also known as the explicit reset method).
    Type: alphanumeric value set.
    Range: TR, TRRTR (default).
24. vrtswid – Virtual Switch Identifier
    This parameter identifiers the instance of the virtual switch.
    - A Virtual Switch ID is unique within a single circuit pack. When creating a new Virtual Switch, the system automatically assigns a unique ID to it.
    - There will be one virtual switch per physical switch, implicitly all LAN ports and all WAN ports on the physical switch are part of the single virtual switch. The ID of this virtual switch is fixed to 1. A future release may support multiple virtual switches per physical switch.

    Type: integer.
    Range: 1 - Currently this is the only allowed value.
    Default: 1.
    Option: This parameter is reported only if the virtual switch entity exists (i.e. the VLAN tagging mode vlantagmd of the slot the addressed EPort belongs to is set to 802.1TAG).
25. vss – Spanning Tree Status
    This parameter returns the status of the spanning tree protocol for the given port. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    The name of this parameter originally stands for VCG STP status which is somewhat misleading for an EPORT but is kept for consistency reasons with other products. (When using an EPORT as a network port it participates in STP and therefore also has status information.)
    Type: alphanumeric value set.
    Range:
    - FWG, Forwarding
    - LRG, Learning
    - LIS, Listening (IEEE8102.D/STP only)
    - BLK, Blocking (IEEE8102.D/STP only)

- DISF, Disabled due to a failure (IEEE8102.D/STP only)
- DISA, Disabled via provisioning
- BRK, Broken (IEEE8102.w/rSTP only)
- DCD, Discarding (IEEE8102.w/rSTP only)
- UNAVAILABLE if the value can not be retrieved.

26. vvidls – Valid VLAN Identifier List (static)
    This parameter specifies a list of all static VLAN identifiers allowed for this port. The list shall be ampersand grouped (& and &&). The list shall be packed by the NE and the management systems as good as possible by using '&' and '&&' . The vlan identifier of an incoming frame must be a member of this static VLAN Id list or the dynamic VLAN Id list *vvidlsd*. Frames tagged by a vlan identifier not member of these lists will be discarded. The port VLAN identifier (refer to parameter dftvlan of RTRV-EPORT Output Parameters) is not part of this list. This parameter is also used in transparent tagging mode to specify the list of valid customer tags (CIDs) for network ports (cnprole == NETWORK).
    Type: alphanumeric string and the character '&'.
    Range:
    - Value of each single member (valid VLAN identifier) in the list 1, 2, ..., 4092, 4093
    - In case the list has no members (empty list) -1.

    The length of the list is limited by the usual system limitations like e.g. TL1 line length and some NE internal restrictions as described below. The number of entries in this list is limited to 64 by some NE-internal restrictions. Ranging and grouping by using the operators '&' and '&&' has no impact on the number of entries, it only reduces the length of the list being transported to/from CIT/EMS.
    Default: -1.
    Example 1:
    vvidls=-1. The list has no members (empty list).
    Example 2:
    vvidls=3&5&40&&45. This list has the members 3, 5, 40, 41, 42, 43, 44 and 45.
    Example 3:
    vvidls=1&&4093 This list has the members 1,2, 3, ..., 4092, 4093.
27. vvidlsd - Valid VLAN Identifier List (dynamic)
    This parameter gives the list of all dynamic VLAN identifiers allowed for this port as gathered autonomously via GVRP. The list is ampersand grouped (& and &&). The vlan identifier of an incoming frame must be a member of this dynamic VLAN Id list or the static VLAN Id list vvidls. Frames tagged by a vlan identifier not member of these lists will be discarded. This parameter is also used in transparent tagging mode to report the list of valid customer tags (CIDs) for network ports (cnprole == NETWORK) collected by GVRP.

Option: This parameter is reported only if

- the virtual switch entity exists (i.e. the VLAN tagging mode vlantagmd of the slot the addressed EPort belongs to is set to 802.1TAG) AND
- GVRP is enabled on the virtual switch (*gvrpmode* = ENABLED)
- the port is a NETWORK port (*cnprole* = NETWORK).

Type: alphanumeric string and the character '&'.

Range:

- Value of each single member (valid VLAN identifier) in the list 1, 2, ..., 4092, 4093
- In case the list has no members (empty list) -1.

The length of the list is limited by the usual system limitations like e.g. TL1 line length and some NE internal restrictions as described below. The number of entries in this list is limited to 247 by some NE-internal restrictions. Ranging and grouping by using the operators '&' and '&&' has no impact on the number of entries, it only reduces the length of the list being transported to/from CIT/EMS.

Default: There is no default value.-1

Example 1:

vvidlsd=-1 The list has no members (empty list).

Example 2:

vvidlsd=3&5&40&&45 This list has the members 3, 5, 40, 41, 42, 43, 44 and 45.

Detailed behaviour description

The values of the following parameters are directly requested form the hardware:

- anegst
- fcmdo
- macaddr
- rfltst
- stmd
- stpop
- stpid
- stprole
- vss
- vvidlsd.

Thus the value ″UNAVAILABLE″ is reported, if the CP HW is not available in the system.

Example input/output

```
RTRV-EPORT-1GE:LT-UNITE:1-1-#-#-1-1:123456;
   LT-UNITE 02-05-21 11:11:00
M  123456 COMPLD
```

```
   "1-1-#-#-1-1,1GE::anegst=UNAVAILABLE,
   cnprole=CUSTOMER,dftpri=LOW,dftvlan=UNAVAILABLE,
   enetpn=DEFAULT,enettca=DEFAULT,epmode=AUTO,
   eppm=DISABLE,fcmd=AUTO,fcmdo=UNAVAILABLE,
   fsflpbkstat=NO,macaddr=112233445566,
   rfltst=UNAVAILABLE,rptmode=DISABLE,rstpmd=ENABLE,
   servcond=INSERVICE,stdis=DISABLE,stmd=802.1D,
   stpcost=20000,stpp=128,stprole=ROOT,tcamd=TR,
   vrtswid=1,vvidls=-1,vvidlsd=-1"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the "RTRV-EPORT: Retrieve Ethernet port" (p. 4-1685) command.

Related TL1 messages

- "ED-EPORT: Edit Ethernet port" (p. 4-242)
- "OPR-LPBK: Operate loopback (here facility loopback)" (p. 4-1465)
- "RTRV-LPBK: Retrieve loopback (here facility loopback)" (p. 4-1804)
- "RLS-LPBK: Release loopback (here facility loopback)" (p. 4-1569)

□

RTRV-EQPT (bay): Retrieve Equipment (bay)

The RTRV-EQPT command retrieves information associated with the bay level.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-EQPT`*:tid:aid:ctag;*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   Description: The AID of the bay/rack.
   Type: AID.
   Range: BayAID. The keyword `all` is allowed.
   Default: 1.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

In response to a valid RTRV-EQPT command, the following output report is returned:

```
   sid date time
M  ctag COMPLD
   "aid"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

aid – Access Identifier

Description: The AID of the bay/rack.

Type: AID

Range: BayAID. The keyword `all` is not allowed as output parameter.

Default: 1

Detailed behavior description

The system supplies a normal completion response with the AID of the bay/subrack.

Example input/output

```
RTRV-EQPT:UNITE-NE:1:123456;
   UNITE-NE 00-11-03 08:00:00
M  123456 COMPLD
   "1"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to RTRV-EQPT (bay) command.

References

GR-199-CORE

□

RTRV-EQPT (CP): Retrieve equipment (circuit pack)

The RTRV-EQPT command retrieves the provisioning information associated with a circuit pack. The RTRV-EQPT command retrieves the inventory information associated with other replaceable units.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-EQPT`*:tid:aid:ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   The AID of a circuit pack, the backplane or another replaceable unit (e.g. user panel or fan unit).
   Type: AID
   Range:
   - CpAID ::= UnivSlotAID-cp for universal circuit packs
   - CpAID ::= XCSlotAID-cp for cross-connect circuit packs
   - CpAID ::= CTLSlotAID-cp for controller circuit packs
   - CpAID ::= SlotAID-cp for any circuit pack
   - LoxcAID::=UnivSlotAID-loxc for LOXC packs in universal slots
   - CpAllAID::= UnivSlotAID-cpall for any circuit pack in universal slots
   - CpAllAID::=SlotAID-cpall for any circuit pack in any slot
     The keyword `xcall` is allowed for Simple_XCSlotAID.
     The keyword `ctlall` is allowed for Simple_CTLSlotAID.
     The keyword `all` is allowed for Simple_SlotAID
   - BackplaneAID for backplane. The keyword `all` is not allowed for the backplane AID.
   - UserPanelAID for user panel. The keyword `all` is not allowed for the user panel AID.
   - FanAID for fan. The keyword `fanall` is not allowed for FanAID.

- TimingInterfaceAID for TI Interface board. The keyword `tiall` is allowed for TimingInterfaceAID.
- CiCtlAID for CI-CTL Interface board. The keyword `all` is not allowed for the CiCtl AID
- PowerAID for power interface The keyword `piall` is allowed for PowerAID.
- EciAID for Electrical Connector interface The keyword `eciall` shall be allowed for EciAID.

The keyword ″all″ shall not be allowed on bay/shelf level.

3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

In response to a valid RTRV-EQPT command, the following output report is returned:

```
   sid date time
M  ctag COMPLD
   ″aid[:spec_block]″
        ...
        ...
   ″aid[:spec_block]″
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

1. aid – Access Identifier
   The AID of a circuit pack, the backplane or another replaceable unit (e.g. user panel or fan unit).
   Type: AID
   Range:
   - CpAID ::= SlotAID-cp for any slot
   - LoxcAID ::= UnivSlotAID loxc for LOXC pack in universal slots
     The keyword `usall` is allowed for Simple_UnivSlotAID.
     The keyword `xcall` is allowed for Simple_XCSlotAID.
     The keyword `ctlall` is allowed for Simple_CTLSlotAID.
     The keyword `all` is allowed for Simple_SlotAID
   - BackplaneAID for backplane. The keyword `all` is not allowed for the backplane AID.
   - UserPanelAID for user panel. The keyword `all` is not allowed for the user panel AID.

- FanAID for fan. The keyword `fanall` is not allowed for FanAID.
- TimingInterfaceAID for TI Interface board. The keyword `tiall` is allowed for TimingInterfaceAID.
- CiCtlAID for CI-CTL Interface board. The keyword `all` is not allowed for the CiCtl AID
- PowerAID for power interface The keyword `piall` is allowed for PowerAID.
- EciAID for Electrical Connector interface The keyword `eciall` shall be allowed for EciAID.

Refer to the AID syntax description.

Spec block parameters

1. name – Circuit Pack Name
   Circuit Pack Name as stored in the EEPROM of the replaceable unit.
   This parameter should be reported for the AID for the backplane, AID for the user panel , AID for CI-CTL, AID for TI-Interface, AID for the fan, AID for power interface, AID for ECI, if equipped and supported.
   This parameter is not reported for a CpAID. The *name* parameter shall not be reported for a LoxcAID.
   Type: value set.
   Range: up to 12 characters.
2. qual – Circuit Pack Qualifier
   Circuit Pack Qualifier as stored in the EEPROM of the replaceable unit.
   This parameter should be reported for the AID for the backplane, AID for the user panel , AID for CI-CTL, AID for TI-Interface, AID for the fan, AID for power interface, if equipped and supported.
   This parameter is not reported for a CpAID. The *qual* parameter shall not be reported for a LoxcAID.
   Type: value set.
   Range: up to 7 characters.
   Note: The TL1-representation of the functional qualifier follows the rules as defined in SRD_ConfigurationManagement:
   - alphanumeric characters or the special character ’-’ only
   - special characters like ’/’ and ’.’ to be omitted.
3. app – Apparatus Code
   Apparatus code as stored in the EEPROM of the replaceable unit.
   This parameter should be reported for the AID for the backplane, AID for the user panel , AID for CI-CTL, AID for TI-Interface, AID for the fan, AID for power interface, AID for ECI, if equipped and supported.
   This parameter is not reported for a CpAID. The *app* parameter shall not be reported for a LoxcAID.
   Type: alphanumeric string.
   Range: up to 9 characters.

4. ssn – Series Number
   Series number as stored in the EEPROM of the replaceable unit.
   This parameter should be reported for the AID for the backplane, AID for the user panel , AID for CI-CTL, AID for TI-Interface, AID for the fan, AID for power interface, AID for ECI, if equipped and supported.
   This parameter is not reported for a CpAID. The *ssn* parameter shall not be reported for a LoxcAID.
   Type: value set.
   Range: up to 6 characters.
   Note: A dash (-) is used instead of a colon (:) for the series number in TL1.
5. clei – Common Language Equipment
   Common Language Equipment as stored in the EEPROM of the replaceable unit.
   This parameter should be reported for the AID for the backplane, AID for the user-panel , AID for CI-CTL, AID for TI-Interface, AID for the fan, AID for power interface, AID for ECI, if equipped and supported.
   This parameter is not reported for a CpAID. The *clei* parameter shall not be reported for a LoxcAID.
   Type: value set.
   Range: 10 characters.
6. eci – Equipment Catalog Item
   Equipment Catalog Item as stored in the EEPROM of the replaceable unit.
   This parameter should be reported for the AID for the backplane, AID for the user panel , AID for CI-CTL, AID for TI-Interface, AID for the fan, AID for power interface, AID for ECI, if equipped and supported.
   This parameter is not reported for a CpAID. The *eci* parameter shall not be reported for a LoxcAID.
   Type: value set.
   Range: 6 digits.
7. sln – Serial Number
   Serial number as stored in the EEPROM on the circuit pack to identify the replaceable unit and indicate the date and place of manufacture.
   This parameter should be reported for the AID for the backplane, AID for the user panel , AID for CI-CTL, AID for TI-Interface, AID for the fan, AID for power interface, AID for ECI, if equipped and supported.
   This parameter is not reported for a CpAID. The *sln* parameter shall not be reported for a LoxcAID.
   Type: Alphanumeric string.
   Range: 12 characters.

8. eqptpn – Equipment ASAP Profile Name
   The name of the current ASAP profile of type EQUIP-UNPROT of the circuit pack. This parameter is reported for a CpAID , PowerAID, EciAID, imingInterfaceAID and LoxcAID.
   Type: Alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: up to 24 characters.
   Default: DEFAULT.
9. eqptprotpn – Protected Equipment ASAP Profile Name
   The name of the current ASAP profile of type EQUIP-PROT for the equipment.
   Option: This parameter is only reported for a CpAID, LoxcAID or PowerAID.
   Type: Alphanumeric string.
   Range: up to 24 characters. A hyphen (-) is additionally allowed in the name.
   Default: DEFAULT
10. vlantgmd – VLAN Tagging Mode
    VLAN tagging mode of the circuit pack. This parameter is relevant only for circuit packs of type GE1 (i.e. nvmname = GE1).
    Type: value set.
    Range:
    - BCMD (default), for the backward compatible mode
    - 802.1tag, for the VLAN tag based mode according to IEEE802.1Q.
11. loswcap – LOXC switch capacity
    Switch capacity of the LOXC pack. This parameter is relevant only for circuit packs of type LOXC (i.e. nvmname = LOXC).
    Type: value set.
    Range:
    - 0 (default): LOXC in suspended state, initial value after LOXC CP creation
    - 15: LOXC active or member of equipment protection group, switch capacity 15 Gbit/s.
12. lostd – LO tributary standard
    LO tributary standard supported by the LOXC pack. This parameter is relevant only for circuit packs of type LOXC (i.e. nvmname = LOXC).
    Type: value set.
    Range:
    - SDH: LOXC supports SDH LO tributaries (VC3, VC12)
    - SONET: LOXC supports SONET LO tributaries (VT1.5)
    - UNDEFINED (default): no LO tributaries (loswcap = 0).

Detailed behaviour description

Omit Inventory Data parameters if not accessible

If the system cannot access inventory data of a circuit pack, e.g. due to a missing or defect pack or a system-internal communication outage, the following parameters shall be omitted from the command response:

- app
- clei
- eci
- name
- qual
- sln
- ssn.

Example input/output

The following shows the successful execution of the command for a replaceable unit (non CpAID):

```
RTRV-EQPT:UNITE-NE:1-1-usrpnl:123456;
   UNITE-NE 00-11-03 08:00:00
M  123456 COMPLD
   "1-1-usrpnl:name=UPL,qual=-"
   "1-1-usrpnl:app=XYZ,ssn=S1-3,clei=WMMYABJDAA"
   "1-1-usrpnl:eci=437442,sln=00NB02160832
;
```

The following shows the successful execution of the command for a circuit pack (CpAID):

```
RTRV-EQPT:UNITE-NE:1-1-#-#-5-cp:123456;
   UNITE-NE 00-11-03 08:00:00
M  123456 COMPLD
   "1-1-#-#-5-cp:eqptpn=DEFAULT,eqptprotpn=DEFAULT"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-EQPT command.

Related TL1 messages

- "ENT-EQPT (slot): Enter equipment (slot)" (p. 4-1079)
- "ED-EQPT (CP): Edit equipment (circuit pack)" (p. 4-255)
- "DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116)
- "RTRV-STATE-EQPT (CP): Retrieve equipment state (circuit pack)" (p. 4-2050)

References

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□

RTRV-EQPT (shelf): Retrieve Equipment (shelf)

The RTRV-EQPT command retrieves the provisioning information associated with the shelf level.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-EQPT`*:tid:aid:ctag;*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   The AID of the shelf/subrack.
   Type: AID
   Range: ShelfAID. The keyword `all` is allowed on bay AID and shelf AID level.
   Default: 1-1.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

In response to a valid RTRV-EQPT command, the following output report is returned:

```
   sid date time
M  ctag COMPLD
   "1-1[:spec_block]"
        ...
        ...
   "1-1[:spec_block]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

1. aid – Access Identifier
   The AID of the shelf/subrack.
   Type: AID
   Range: ShelfAID. The keyword `all` is not allowed on bay AID and shelf AID level.
   Default: 1-1.

Spec block parameters

1. eqptpn – Equipment ASAP Profile Name
   The name of the current ASAP profile of type EQUIP-UNPROT of the shelf level.
   Type: Alphanumeric string.
   Range: up to 24 characters. A hyphen (-) is additionally allowed in the name.
   Default: DEFAULT.
2. eqptprotpn – Protected Equipment ASAP Profile Name
   The name of the current ASAP profile of type EQUIP-PROT of the shelf level.
   Type: Alphanumeric string.
   Range: up to 24 characters. A hyphen (-) is additionally allowed in the name.
   Default: DEFAULT.
3. shlftp – Shelf Type
   The shelf type of the addressed NE is provided.
   Type: alphanumeric value set
   Range: LXC40.
   Default: none.
4. ssoride - SS Bits Overrides
   This parameter determines the value to be inserted into the SS bits of the pointer of every AU-N or STS-N signal in the output direction of every SDH or SONET port in the shelf.
   The terms *override*, *enable* and *disable* are used since:
   - the default value of the SS bits in 00
   - the parameter allows you to diverge from that default.

   Type: alphanumeric value set.
   Range: ENABLE insert value 00 into SS bits, DISABLE insert value 10 into SS bits.
   Default: DISABLE.

Detailed behavior description

The system retrieves the output parameters as described above.

The shelf type is derived from the inventory data of the subrack.

Example input/output

```
RTRV-EQPT:UNITE-NE:1-1:123456;
   UNITE-NE 00-11-03 08:00:00
```

```
M  123456 COMPLD
   "1-1:eqptpn=DEFAULT,eqptprotpn=DEFAULT,shlftp=LXC40"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to RTRV-EQPT (shelf) command.

Related TL1 messages

- "ENT-EQPT (slot): Enter equipment (slot)" (p. 4-1079)
- "ED-EQPT (shelf): Edit equipment (shelf)" (p. 4-262)
- "DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116)
- "RTRV-STATE-EQPT (system): Retrieve equipment state" (p. 4-2059)

References

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□

RTRV-EQPT (slot): Retrieve Equipment (slot)

The RTRV-EQPT command retrieves the provisioning information associated with slot.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes.

Input format

Command Syntax: `RTRV-EQPT`*:tid:aid:ctag;*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   The AID of a slot.
   Type: AID
   Range:
   - SlotAID
   - UnivSlotAID
   - XCSlotAID
   - CTLSlotAID.

   The keyword `usall` is allowed for Simple_UnivSlotAID.
   The keyword `xcall` is allowed for Simple_XCSlotAID.
   The keyword `ctlall` is allowed for Simple_CTLSlotAID.
   The keyword `all` is allowed for Simple_SlotAID.
   The keyword `all` is not allowed on bay/shelf level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

In response to a valid RTRV-EQPT command, the following output report is returned:

```
   sid date time
M  ctag COMPLD
   "aid[:spec_block]"
        ...
```

```
        ...
    "aid[:spec_block]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

The output actlname is an attribute list per slot and nvmname/nvmqual is an optional pair of attributes per slot.

1. aid – Access Identifier
   Description: The AID of a slot.
   Type: AID
   Range: SlotAID
   The keyword `usall` is not allowed for Simple_UnivSlotAID.
   The keyword `xcall` is not allowed for Simple_XCSlotAID.
   The keyword `ctlall` is not allowed for Simple_CTLSlotAID.
   The keyword `all` is not allowed for Simple_SlotAID, Simple_UnivSlotAID, Simple_XCSlotAID, Simple_CTLSlotAID.
   The keyword `all` is not allowed on bay/shelf level.

Spec block parameters

1. actlname – Acceptable Circuit Pack Name
   This parameter is reported by itself The line is repeated for all groups of acceptable circuit packs in the slot. This list specifies the groups of circuit packs which can be provisioned for that slot. The detailed information about the groups can be requested via RTRV-ACTLCP.
   Type: value set.
   Range: 12 character.
2. app – Apparatus Code
   Apparatus Code as stored in the EEPROM on the circuit pack.
   This parameter should be reported for a SlotAID, if the value of *holdst* is VALID or UNEXPECTED.
   Type: alphanumeric string.
   Range: up to 9 characters.
3. clei – Common Language Equipment
   Common Language Equipment as stored in the EEPROM on the circuit pack.
   This parameter should be reported for a SlotAID, if the value of *holdst* is VALID or UNEXPECTED.
   Type: value set
   Range: 10 characters

4. eci – Equipment Catalog Item
   Equipment Catalog Item as stored in the EEPROM on the circuit pack.
   This parameter should be reported for a SlotAID, if the value of *holdst* is VALID or UNEXPECTED.
   Type: value set.
   Range: 6 digits.
   Default: none.
5. eqptpn – Equipment ASAP Profile Name
   The name of the current ASAP profile of type EQUIP-PROT on slot level
   Type: Alphanumeric string
   Range: up to 24 characters. A hyphen (-) is additionally allowed in the name.
   Default: DEFAULT.
   Note: *eqptpn* is used on system, shelf and circuit pack level for a profile of type EQUIP-UNPROT.
6. name – Circuit Pack Name
   Circuit Pack Name as stored in the EEPROM on the circuit pack.
   This parameter should be reported for a SlotAID, if the value of *holdst* is VALID or UNEXPECTED.
   Type: value set.
   Range: up to 12 characters.
7. nvmname – Circuit Pack Name
   This parameter specifies the name of the provisioned circuit pack of the slot. If no circuit pack is provisioned the default value is reported.
   Type: value set.
   Range: 12 character.
   Default: UNDEFINED.
8. nvmqual – Circuit Pack Qualifier
   This parameter specifies the qualifier of the provisioned circuit pack of the slot. If no circuit pack is provisioned the value UNDEF is reported.
   Type: value set.
   Range: 7 characters.
   The allowed values are:
   - UNDEF (default)
   - EXTD
   - all values as defined in SRD_ConfigurationManagement

   Note: The TL1-representation of the functional qualifier follows the following rules:
   - alphanumeric characters or the special character ’-’ only
   - special characters like ’/’ and ’.’ to be omitted.

9. qual – Circuit Pack Qualifier
   Circuit Pack Qualifier as stored in the EEPROM on the circuit pack.
   This parameter should be reported for a SlotAID, if the value of *holdst* is VALID or UNEXPECTED.
   Type: value set.
   Range: up to 7 characters.
   Note: The TL1-representation of the functional qualifier follows the following rules:
   - alphanumeric characters or the special character '-' only
   - special characters like '/' and '.' to be omitted.
10. sln – Serial Number
    Serial number as stored in the EEPROM on the circuit pack to identify each circuit pack and indicate the date and place of manufacture.
    This parameter should be reported for a SlotAID, if the value of *holdst* is VALID or UNEXPECTED.
    Type: Alphanumeric string.
    Range: 12 characters.
11. ssn – Series Number
    Series Number as stored in the EEPROM on the circuit pack.
    This parameter should be reported for a SlotAID, if the value of *holdst* is VALID or UNEXPECTED.
    Type: value set.
    Range: up to 6 characters.
    Note: A dash (-) is used instead of a colon (:) for the series number in TL1.

Example input/output

```
RTRV-EQPT:UNITE-NE:1-1-#-#-5:123456;
   UNITE-NE 00-11-03 08:00:00
M  123456 COMPLD
   "1-1-#-#-5:actlname=OP2G5"
   "1-1-#-#-5:actlname=OP10"
    ...
   "1-1-#-#-5:nvmname=OP2G5,nvmqual=13SR4,eqptpn=DEFAULT"
   "1-1-#-#-5:name=OP2G5,qual=13SR4,app=KFA12"
   "1-1-#-#-5:clei=SN49CRTBAB,eci=255694"
   "1-1-#-#-5:sln=00NB01002333,ssn=1-1"
;
```

The following example shows the case when it is not possible to provision slot 5, because *actlname* is empty:

```
RTRV-EQPT:UNITE-NE:1-1-#-#-5:123456;
   UNITE-NE 00-11-03 08:00:00
M  123456 COMPLD
   "1-1-#-#-5:actlname=\"\""
    ...
```

```
   "1-1-#-#-5:nvmname=OP40,nvmqual=EXTD,eqptpn=DEFAULT"
   "1-1-#-#-5:name=\"\",qual=\"\",app=\"\""
   "1-1-#-#-5:clei=\"\",eci=\"\""
   "1-1-#-#-5:sln=\"\",ssn=\"\""
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command in the Error responses section. The error responses listed there also pertain to the RTRV-EQPT command.

Related TL1 messages

- "ENT-EQPT (slot): Enter equipment (slot)" (p. 4-1079)
- "ED-EQPT (slot): Edit equipment (slot)" (p. 4-267)
- "DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116)
- "RTRV-STATE-EQPT (slot): Retrieve equipment state (slot)" (p. 4-2053)
- "RTRV-ACTLCP: Retrieve acceptable circuit pack list" (p. 4-1590).

References

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□

RTRV-EQPT (Socket): Retrieve equipment

The RTRV-EQPT command shall retrieve the provisioning information associated with socket.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes.

Input format

Command Syntax: `RTRV-EQPT:`*tid:aid:ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   The AID of a socket.
   Type: AID.
   Range: SocketAID. The keyword *usall* or *all* shall be allowed for Simple_UnivSlotAID. The keyword *scall* shall be allowed for Simple_SocketAID. The keyword *all* is not allowed on bay/shelf level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

In response to a valid RTRV-EQPT command, the following output report is returned:

```
   sid date time
M  ctag COMPLD
   "aid[:spec_ block]"
   ... ...
   "aid[:spec_ block]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

The output *actlname/actlqual* is a list of attribute pairs per socket and *nvmname/nvmqual* is an optional pair of attributes per socket.

1. aid – Access Identifier
   The AID of a socket.
   Type: AID.
   Range: SocketAID. The keywords *all* / *usall* / *scall* shall are not allowed on any level.

Spec block parameters

1. actlname – Acceptable Module Name
   This parameter shall be reported by itself together with actlmodqual. The line shall be repeated for all acceptable modules in the socket. This list specifies the modules which can be provisioned for that socket.
   Type: value set.
   Range: 12 characters.
2. actlqual – Acceptable Module Qualifier
   This parameter shall be reported by itself together with actlmodname. The line shall be repeated for all acceptable modules in the socket. This list specifies the modules which can be provisioned for that socket.
   Type: value set.
   Range: 7 characters.

   Note: The TL1-representation of the functional qualifier shall follow the rules as defined in SRD_ConfigurationManagement:

   - alphanumeric characters or the special character ’-’ only
   - special characters like ’/’ and ’.’ to be omitted
3. app - Apparatus Code
   Apparatus Code as stored in the EEPROM. This parameter shall be reported for a SocketAID, if the value of holdst is VALID or UNEXPECTED and the data in the EEPROM is stored according to the Small EEPROM Format.
   Type: alphanumeric string.
   Range: up to 9 characters.
4. ccode - Commercial Code
   Commercial code + suffix as stored in the EEPROM on the module. This parameter shall be reported for a SocketAID, if the value of holdst is VALID or UNEXPECTED and the data in the EEPROM is stored according to the SFP EEPROM Format.
   Type: numeric string.
   Range: up to 12 digits.

5. clei – Common Language Equipment
   Common Language Equipment as stored in the EEPROM on the module.
   This parameter should be reported for a SocketAID, if the value of holdst is VALID or UNEXPECTED.
   Type: value set.
   Range: 10 characters.
6. datecde - Date Code
   Vendor Date Code as stored in the EEPROM on the module.
   his parameter shall be reported for a SocketAID, if the value of holdst is VALID or UNEXPECTED and the data in the EEPROM is stored according to the SFP EEPROM Format.
   Type: Text string.
   Range: 8 characters.
7. eci – Equipment Catalog Item
   Equipment Catalog Item as stored in the EEPROM on the module.
   This parameter should be reported for a SocketAID, if the value of holdst is VALID or UNEXPECTED.
   Type: value set.
   Range: 6 digits.
8. eqptpn – Equipment ASAP Profile Name
   The name of the current ASAP profile of type EQUIP-PROT on socket level.
   Type: Alphanumeric string.
   Range: up to 24 characters. A hyphen (-) is additionally allowed in the name.
   Default: DEFAULT.
9. name – Module Name
   Circuit Pack Name as stored in the EEPROM on the module.
   This parameter should be reported for a SocketAID, if the value of holdst is VALID or UNEXPECTED.
   Type: value set.
   Range: up to 12 characters.
10. nvmname – Provisioned Module Name
    This parameter shall specify the name of the provisioned module of the socket. If no module is provisioned the default value is reported.
    Type: value set.
    Range: 12 character.
    Default: UNDEFINED.
11. nvmqual – Provisioned Module Qualifier
    This parameter shall specify the qualifier of the provisioned module of the slot. If no module is provisioned the default value is reported..
    Type: value set.
    Range: 7 characters.
    Default: UNDEF.

Note: The TL1-representation of the functional qualifier shall follow the rules as defined in SRD_ConfigurationManagement:

- alphanumeric characters or the special character ’-’ only
- special characters like ’/’ and ’.’ to be omitted.

12. prodid - Product Line Id
    Binary Compatibility + LUCENT Unique Number as stored in the EEPROM on the module. This parameter shall be reported for a SocketAID, if the value of holdst is VALID or UNEXPECTED and the data in the EEPROM is stored according to the SFP EEPROM Format.
    Type: Hexadecimal number.
    Range: 5 bytes where each byte shall be represented as 2 hexadecimal digits.
13. qual – Module Qualifier
    Circuit Pack Qualifier as stored in the EEPROM on the module.
    This parameter should be reported for a SocketAID, if the value of holdst is VALID or UNEXPECTED.
    Type: value set.
    Range: up to 7 characters.
    Note: The TL1-representation of the functional qualifier shall follow the rules as defined in SRD_ConfigurationManagement:
    - Alphanumeric characters or the special character ’-’ only
    - Special characters like ’/’ and ’.’ to be omitted.
14. sln – Serial Number
    Serial number as stored in the EEPROM on the module to identify each module and indicate the date and place of manufacture.
    This parameter should be reported for a SocketAID, if the value of holdst is VALID or UNEXPECTED.
    Type: Alphanumeric string
    Range: 12 characters.
15. ssn – Series Number
    Series Number as stored in the EEPROM on the module.
    This parameter shall be reported for a SocketAID, if the value of holdst is VALID or UNEXPECTED and the data in the EEPROM is stored according to the Small EEPROM Format.
    Type: value set.
    Range: up to 6 characters.
    Note: A dash (-) is used instead of a colon (:) for the series number in TL1.
16. vendorname - Vendor Name
    Vendor Name as stored in the EEPROM on the module. This parameter shall be reported for a SocketAID, if the value of holdst is VALID or UNEXPECTED and the data in the EEPROM is stored according to the SFP EEPROM Format.
    Type: Text string
    Range: 16 characters.

17. vendoroui - Vendor Company Identifier
    Vendor Company Identifier as stored in the EEPROM on the module. This parameter shall be reported for a SocketAID, if the value of holdst is VALID or UNEXPECTED and the data in the EEPROM is stored according to the SFP EEPROM Format.
    Type: Hexadecimal number
    Range: 3 bytes where each byte shall be represented as 2 hexadecimal digits.
18. vendorpartno - Vendor Part Number
    Vendor Part Number as stored in the EEPROM on the module. This parameter shall be reported for a SocketAID, if the value of holdst is VALID or UNEXPECTED and the data in the EEPROM is stored according to the SFP EEPROM Format.
    Type: Text string
    Range: 16 characters.
19. vendorrevlvl - Vendor Revision Level
    Vendor Revision Level as stored in the EEPROM on the module. This parameter shall be reported for a SocketAID, if the value of holdst is VALID or UNEXPECTED and the data in the EEPROM is stored according to the SFP EEPROM Format.
    Type: Text string.
    Range: 4 characters.
20. vendorsln - Vendor Serial Number
    Vendor Serial Number + WES Vendor Identifier as stored in the EEPROM on the module. This parameter shall be reported for a SocketAID, if the value of holdst is VALID or UNEXPECTED and the data in the EEPROM is stored according to the SFP EEPROM Format.
    Type: Text string.
    Range: 20 characters.

Detailed behavior description

Omit inventory data parameters if not accessible.

If the system cannot access inventory data related to the addressed socket, e.g. due to a missing or defect pack or a system-internal communication outage, the following parameters shall be omitted from the command response:

- *clei*
- *ccode*
- *eci*
- *name*
- *prodid*
- *qual*
- *sln*
- *ssn*

- *vendorname*
- *vendoroui*
- *vendorpartno*
- *vendorrevlvl*
- *vendorsln*.

Reporting of tnventory data for different module types

Different module types will support a different set of inventory data.

Modules with a LUCENT specific specification will support following parameters:

- *clei*
- *eci*
- *name*
- *qual*
- *sln*
- *ssn*.

For SFP modules following parameters will be supported:

- *ccode*
- *clei*
- *datecde*
- *name*
- *prodid*
- *qual*
- *vendorname*
- *vendoroui*
- *vendorpartno*
- *vendorrevlvl*
- *vendorsln*.

Reporting of inventory data based on defined format of EEPROM content

As long as the Inventory Data on the Optical Modules is accessible and readable, the parameters shall be reported as they are extracted from the EEPROM according to the format definitions. If the data in the EEPROM is not according to the defined format, then for each parameter the defined number of bytes is taken from the defined location in the EEPROM without any check of the extracted data.

Example input/output

The following exampleb shows a normal response for RTRV-EQPT for one socket when a module is plugged in:

```
RTRV-EQPT:UNITE-NE:1-1-#-#-5-sc2:123456;
   UNITE- NE 00-11-03 08:00:00
M  123456 COMPLD
   "1- 1-#-#-5-sc2:actlname=OM2G5,actlqual=13LR1"
   "1- 1-#-#-5-sc2:actlname=OM2G5,actlqual=15LR1"
   "1- 1-#-#-5-sc2:nvmname=OP2G5,nvmqual=13SR4,
   eqptpn=DEFAULT"
   "1- 1-#-#-5:name=OM2G5,qual=15LR1,comcde=109192278000,
   clei=WM3ILPEDAA,eci=255694,sln=00NB01002333,ssn=1-1"
;
```

The following example shows a response if a module is not plugged into a socket:

```
RTRV-EQPT:UNITE-NE:1-1-#-#-5-sc2:123456;
   UNITE- NE 00-11-03 08:00:00
M  123456 COMPLD
   "1- 1-#-#-5-sc2:actlname=OM2G5,actlqual=13LR1"
   "1- 1-#-#-5-sc2:actlname=OM2G5,actlqual=15LR1"
   "1- 1-#-#-5-sc2:nvmname=OP2G5,nvmqual=13SR4,
   eqptpn=DEFAULT"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-EQPT command.

□

RTRV-EQPT (system): Retrieve Equipment (system)

The RTRV-EQPT command retrieves the provisioning information on system (NE) level.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-EQPT:`*tid:aid:ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   The aid of the system itself.
   Type: AID
   Range: system. The usage of the keyword `all` on system level is not allowed.
   Default: system
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

In response to a valid RTRV-EQPT command, the following output report is returned:

```
   sid date time
M  ctag COMPLD
   "system:spec_block"
        ...
        ...
   "system:spec_block"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

1. aid – Access Identifier
   The aid of the system itself.
   Type: AID
   Range: system. The usage of the keyword `all` on system level is not allowed.
   Default: system

Spec block parameters

1. eqptpn – Equipment ASAP Profile Name
   The name of the current ASAP profile on the system level
   Type: Alphanumeric string
   Range: up to 24 characters. A hyphen (-) is additionally allowed in the name.
   Default: DEFAULT
2. istddflt – Interface Standard Default
   Defining the predominantly used interface standard for a port.
   Type: alphanumeric value set
   Range:
   - SONET
   - SDH

   Default: SDH
3. mondelay – Port Auto to Mon Delay
   The switch of the port mode from the value AUTO to the value MON shall be delayed by this timer. It requires that a valid signal is present for the set timer period prior to the port transitioning to monitored. If during the timer period the signal is interrupted, the time should reset and begin another period when a valid signal is once again presented.
   Type: numeric string
   Range:
   - 0 = no timer will be started
   - 1...480 = in steps of 1 representing a switch delay of the port mode in minutes.

   Default: 0
4. portclassdflt – Port Class Default
   Defines the default port class, which is used when a new port is created and xcsetup=SWISS. When xcsetup=TRADITIONAL this parameter is not evaluated.
   Type: alphanumeric value set.
   Range:
   - TRADITIONAL
   - EDGE

   Default: TRADITIONAL.
5. trbmddflt – Tributary Mode Default
   Defining the predominantly used tributary mode for a port.
   Type: alphanumeric value set.

Range:

- FIXED
- ADAPTIVE

Default: FIXED.

6. swmaxcap – Maximum Switch Capacity
   This parameter indicates the maximum switch capacity of the system that the user intends to use.
   Type: value set.
   Range:
   - LXC160 (default), 160 GBit/s switch capacity
   - LXC320, 320 GBit/s switch capacity
   - LXC640, 640 GBit/s switch capacity.
7. synccrtc – System Synchronization Characteristic
   This parameter specifies whether the NE uses the SDH or SONET timing function for synchronization.
   Type: alphanumeric value set.
   Range:
   - SONET
   - SDH.

   Default: SDH.
8. systype – System Type
   This parameter specifies the type of NE.
   Type: alphanumeric value set.
   Range: WaveStar_UNITE.
   Default: WaveStar_UNITE
9. upsrportalarming – Enh. SA/NSA Detection for UPSR
   The parameter specifies whether the Enhanced SA/NSA Detection for UPSR Rings is switched on or off.
   Type: alphanumeric value set
   Range: ENABLE, DISABLE (default).

10. xcsetup – Cross Connect Setup
    This parameter indicates whether the system supports the set-up of cross-connections via the ONNS application.
    Type: value set.
    Range: SWISS ONNS application is enabled; TRADITIONAL ONNS application is disabled.
    Default: TRADITIONAL.
11. ASTNNodeID – ASTN node ID
    This parameter shows the unique identification of the NE as used by the ONNS application. The value will be read from backplane, if DB is empty.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.

Detailed behavior description

The command retrieves the parameters as indicated in the output parameter section from the system.

Example input/output

```
RTRV-EQPT:UNITE-NE:system:123456;
   UNITE-NE 00-11-03 08:00:00
M  123456 COMPLD
   "system:systype=WaveStar_UNITE"
   "system:istddflt=SDH"
   "system:trbmddflt=FIXED"
   "system:synccrtc=SDH"
   "system:eqptpn=DEFAULT"
;
```

Error responses

Refer to "RTRV-HDR: Retrieve header" (p. 4-1736) command Error Response section. The generic error responses listed there also apply to the RTRV-EQPT command.

Related TL1 messages

- "ENT-EQPT (slot): Enter equipment (slot)" (p. 4-1079)
- "ED-EQPT (system): Edit equipment (system)" (p. 4-285)
- "DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116)
- "RTRV-STATE-EQPT (system): Retrieve equipment state" (p. 4-2059)

References

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□

RTRV-EXT-CONT: Retrieve external control

The RTRV-EXT-CONT command instructs an NE to send the control state of MDO ports (external controls). The command can be used to audit the result of an OPR-EXT-CONT or a RLS-EXT-CONT command.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M1

Priority: 1

Abortable: Yes.

Input format

Command Syntax: `RTRV-EXT-CONT`:*tid*:[*aid*]:*ctag*;

Input prameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   This is the address of the MDO port entities on which the command operates. If misc_outall is specified the configuration of all MDO's will be retrieved.
   Type: AID
   Range: Miscellaneous_out_discreteAID
   Default: misc_outall (if the *aid* is omitted).
3. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output format

The following example shows the successful completion of the RTRV-EXT-CONT command by the NE:

```
   sid date time
M  ctag COMPLD
   "aid:,dur,contstate"
   ...
   "aid:,dur,contstate"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. aid - Access Identifier
   This is the address of the MDO port entity for which the configuration is retrieved or on which an operation is performed.
   Type: AID.
   Range: Miscellaneous_out_discreteAID. misc_outall must not be reported or used.
2. dur – Duration
   This parameter defines in which mode the device connected to the MDO is expected to be operated. It is a fixed value because this feature will be not supported by the system. This parameter is in for compatibility reason. The system operates only continuous that means if the MDO is operated it is switched on and it is released it is switched off.
   Type: alphanumeric value set.
   Range: CONTS, continuous duration.
3. contstate – Control State
   This is the state of the MDO (external control)
   Type: alphanumeric value set.
   Range:
   - OPER - Operated, that means the MDO is switched on
   - RLS - Released (default), that means the MDO is switched off.

Detailed behavior description

The RTRV-EXT-CONT command does not generate a REPT DBCHG message.

Example input/output

The following example shows the successful completion of the RTRV-EXT-CONT command by the NE:

```
RTRV-EXT-CONT:LT-UNITE-123:MISC_OUT3:123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
   "MISC_OUT3:,CONTS,RLS"
;
```

The following example shows the successful completion of the RTRV-EXT-CONT command by the NE if the aid is omitted:

```
RTRV-EXT-CONT:LT-UNITE-123::123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
   "MISC_OUT1:,CONTS,RLS"
   "MISC_OUT2:,CONTS,OPER"
   "MISC_OUT3:,CONTS,OPER"
   "MISC_OUT4:,CONTS,RLS"
```

```
   "MISC_OUT5:,CONTS,RLS"
   "MISC_OUT6:,CONTS,OPER"
   "MISC_OUT7:,CONTS,RLS"
   "MISC_OUT8:,CONTS,RLS"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command error responses section. The error responses listed there also apply to the RTRV-EXT-CONT command.

Related TL1 messages

- "OPR-EXT-CONT: Operate External Control" (p. 4-1455)
- "RLS-EXT-CONT: Release external control" (p. 4-1561).

References

GR-833-CORE, Issue 4, June 2000, OTGR Section 12.3, Network Maintenance: Network Element and Transport Surveillance Messages.

□

RTRV-FECOM: Retrieve DCC related parameters

The RTRV-FECOM command can be initiated by a user to retrieve parameters of Data Communication Channels (DCC) and its attachment to specific OSI nodes.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M1

Priority: 1

Abortable: Yes.

Input format

Command Syntax: `RTRV-FECOM`*:tid::ctag::[port],[dcctype],[networktype];*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
3. port – DCC port
   This parameter indicates the port AID of a circuit pack which is used together with *dcctype* to identify the DCC channel.
   Type: AID.
   Range: SPortAID.
   Default: If this field is omitted, the report will include the DCC parameters of all transmission ports belonging to the NE.

4. dcctype
   This parameter specifies whether the LINE/MS or SECTION/RS DCC parameters of the *port* shall be reported by the command.
   Type: Alphanumeric value set.
   Range: LINE, SECTION.
   Default: If this parameter is omitted, LINE and SECTION DCC parameters will be considered for the output.
5. networktype – Network Type
   This parameter specifies whether the MCN or SCN related DCC parameters of the port shall be reported by the command.
   Type: Alphanumeric value set.
   Range: MCN, SCN.
   Default: If this parameter is omitted, MCN and SCN related parameters will be considered for the output.

Output format

If the RTRV-FECOM is successful, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
   "port,dcctype:spec_block"
        ...
        ...
        ...
   "port,dcctype:spec_block"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736) .

Output parameters

Command parameters

1. port – DCC port
   This parameter indicates the port AID of a circuit pack which is used together with *dcctype* to identify the DCC channel.
   Type: AID.
   Range: SPortAID.
   Default: If this field is omitted, the report will include the DCC parameters of all transmission ports belonging to the NE.
2. dcctype
   This parameter specifies whether the LINE/MS or SECTION/RS DCC parameters of the *port* shall be reported by the command.
   Type: Alphanumeric value set.
   Range: LINE, SECTION.
   Default: If this parameter is omitted, LINE and SECTION DCC parameters will be considered for the output.

Spec block parameters

1. dccprottp
   This parameter reports the protection type of the DCC channel. 0X1 means the port is not involved in a protection group or DCC protection switching is disabled. 1+1 means DCC protection switching is enabled: In these case only the active worker line is shown.
   Type: Alphanumeric value set.
   Range: 0X1 (default), 1+1.
2. dccstat
   This parameter indicates whether MCN communication over the DCC channel is enabled or if it is used in a Transparent DCC Cross Connection.
   Type: Alphanumeric value set.
   Range: DISABLE, ENABLE (default), TRANSPARENT.
   Note: Output responses with dccstat=DISABLE will only sent when scn_dccstat=ENABLE, see also Detailed behaviour description below.
3. lapdmode
   This parameter indicates the type of LAPD service. Modes are AITS and UITS. Starting with R2.0 this parameter is also used to determine the service for the LinkID protocol.
   If dccstat = TRANSPARENT, scn_dccstat = TRANSPARENT, or scn_dccstat = ENABLE this parameter has no meaning and will not be reported.
   Type: Alphanumeric value set..
   Range:
   - UITS (default)
   - AITS.

4. lapdrl
   This parameter indicates the LAPD role. This parameter is also used to determine the service for the LinkID protocol. If *dccstat* = TRANSPARENT, *scn_dccstat* = TRANSPARENT, or *scn_dccstat* = ENABLE this parameter has no meaning and will not be reported.
   Type: Alphanumeric value set.
   Range:
   - USER-SIDE (default)
   - NETWORK-SIDE.
5. osinode
   Assignment of a DCC channel to an MCN node in the NE. The parameter is omitted when *dccstat* = ENABLE.
   An NE can have up to 8 instances of the OSI stack. Node-1 is default and has a NSAP. Nodes 2-8 have a NET and no SEL (NSAP = NET + SEL, for NET: SEL=00). Nodes 2-8 can be created and configured, see command ENT-ULSDCC-L3.
   Type: AID.
   Range: osinode{1-8}
6. scn_dccstat
   This parameter indicates whether the DCC channel is used for communication over the SCN or is involved in a transparent DCC cross-connection.
   Type: Alphanumeric value set.
   Range: DISABLE (default), ENABLE, TRANSPARENT.
   Note: Output responses with *scn_dccstat*=DISABLE will only sent when *dccstat*=ENABLE, see also Detailed behaviour description below.

Detailed behavior description

The command retrieves the system parameter as described in the Output Parameter Section.

Output responses will only be delivered for DCC channels with *dccstat*=ENABLED.

The command shall return an empty response, if there is no data matching the criteria given by the input parameters of the command.

The command processing uses the input parameters as filter criteria to search for data to be retrieved. If no data is found, an empty response is returned. Error messages are only returned for general syntax and range errors.

The command shall not be able to retrieve DCC characteristics parameters from the protecting port of a 1+1 MSP group, if DCC protection switching is enabled.

Example input/output

The following example shows the result of RTRV-FECOM:

```
RTRV-FECOM:NE-UNITE::123456::1-1-#-#-5-all,line;
   NE-UNITE 00-12-24 11:00:00
M  123456 COMPLD
   "1-1-#-#-5-1,LINE:dccstat=ENABLE,lapdmode=UITS,
   osinode=osinode1,dccprottp=0X1,"
;
```

The following example shows the result of RTRV-FECOM for a port which is used by the SCN:

```
RTRV-FECOM:NE-UNITE::123456::1-1-#-#-5-all,line;
   NE-UNITE 00-12-24 11:00:00
M  123456 COMPLD
   "1-1-#-#-5-1,LINE:dccstat=DISABLE,dccprottp=0X1,scn_dccstat=ENABLE"
;
```

The following example shows the result of RTRV-FECOM for a port which is involved in a transparent DCC cross-connection:

```
RTRV-FECOM:NE-UNITE::123456::1-1-#-#-5-all,line;
   NE-UNITE 00-12-24 11:00:00
M  123456 COMPLD
   "1-1-#-#-5-1,LINE:dccstat=TRANSPARENT,dccprottp=0X1,scn_dccstat=TRANSPARENT"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the RTRV-FECOM command.

Related TL1 messages

- "ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)
"RTRV-CRS-FECOM: Retrieve transparent DCC cross-connection" (p. 4-1669)

□

RTRV-FECOM-LAN: Retrieve LAN channel related parameters

The RTRV-FECOM-LAN command can be initiated by users to retrieve the provisioned state of the LAN ports (LAN1, LAN2 and LAN3).

Properties

Priority: S1

Abortable: Yes

Input format

Command Syntax: `RTRV-FECOM-LAN`*:tid:[aid]:ctag;*

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   This parameter indicates the LAN port AID.
   Type: AID.
   Range: LanPort AID.
   Default: If this field is omitted, the report will display the status of all lan ports belonging to the *tid.*
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.

Output format

If the RTRV-FECOM-LAN is successful, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
   "aid:spec_block"
       ...
   "aid:spec_block"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output Parameter section for the "RTRV-HDR: Retrieve header" (p. 4-1736) command.

Output parameters

Command parameters

1. aid – Target Identifier
   This parameter indicates the LAN port AID. The value *lanall* is not allowed.
   Type: AID.
   Range: LanPort AID.

Spec block parameters

1. ip_ad - IP Address
   This parameter indicates the assigned IP address for the LAN interface. The IP-address includes both, a router address and a HOST address. The HOST address that will be used for FTP depends on the LAN interface where the related TCP connection request originates.
   The CIT is expected to use the HOST address of LAN1. The *Navis*® Optical EMS is expected to use the HOST address of LAN2 (or LAN3 in later releases).
   Type: 32-bit IPv4 address: Four dot separated numeric strings OR empty string The empty string value is used as indication for an invalid/undefined IP address.
   Range: For first numeric string: 0 .. 223; for second to fourth numeric string: 0 .. 255
   Default: For LAN1, LAN2 and LAN3: empty string.
2. ip_lanstat - IP-LAN Status
   This parameter indicates whether IP communication over the external LAN channel is enabled or disabled. Note: Enabling has no effect if *lanstat* is disabled for that interface.
   Type: Alphanumeric value set
   Range: ENABLE or DISABLE for LAN1, LAN2, LAN3
   Default: DISABLE for LAN1, LAN2, LAN3.
3. ip_snm - IP Subnet Mask
   This parameter indicates the assigned IP subnet mask (32-bit IPv4) for the LAN interface. The full IP-address is needed as host-address. Each LAN needs its own IP-address and IP-mask, indicating that all IP-addresses that match the prefix (Unmasked part) are grouped as the subnet-ID for this LAN-subnet.
   Type: 32-bit IPv4 address: Four dot separated numeric strings or empty string. The empty string value is used as indication for an invalid/undefined IP subnet mask.
   Range: For each numeric string: 0 .. 255.
   Default: For LAN1, LAN2 and LAN3: empty string.
4. isis_stat – (I) IS-IS Status
   This parameter indicates whether (integrated) IS-IS is enabled or disabled on the LAN port specified by the input *aid*.
   Note: Enabling has no effect if lanstat is disabled for that interface.
   Type: Alphanumeric value set.
   Range: ENABLE (default), DISABLE.

5. lanrpri – LAN Designated Router Priority
   This parameter sets the relative priority for the node in the election for designed router on this LAN. There is a separate election for each separate LAN to which the node is connected. A higher value indicates a higher probability to be selected as designated router. A designated router is selected per area (between the nodes on that LAN with the same area address) and for the Level-2 nodes on the LAN.
   Note: When osinode=scnnode modification of this parameter has no effect.
   Type: numeric string.
   Range: 1 – 127.
   Default: 64.
6. lanstat – LAN Status
   This parameter indicates whether physical communication over the external channel is enabled or disabled.
   Note: Disabling of an interface also affects usage of protocols over this interface, see *lan_stat* and *osi_stat.*
   Type: Alphanumeric value set.
   Range: ENABLE for lan1; ENABLE, DISABLE for lan2, lan3:
   Default: ENABLE for lan1 and lan2; DISABLE for lan3.
7. lantlss – LAN TARP Storm Suppression
   This parameter indicates the enhanced TARP propagation rules that suppress TARP LAN storms.
   Type: Alphanumeric value set.
   Range:
   - ENABLE (default)
   - DISABLE.
8. osinode
   Assignment of LAN port to an OSI-node or the SCN node in the NE. A UNITE NE can have up to 8 instances of the OSI stack and has one SCN node. Node-1 is the default and has a NSAP. Nodes 2-8 have a NET and no SEL (NSAP = NET + SEL, for NET: SEL=00). Node 1 is always present, the SCN node is created when the ASTN IP address is configured. Node 2-8 can be created and configured, see command ENT-ULSDCC-L3.
   Type: AID.
   Range: For LAN1: osinode1 (fixed value).
   For LAN2 and LAN3: osinode{1-8} | scnnode.
   Note: If this parameter is set to scnnode lanstat and ip_lanstat must be ENABLED.
   Default: osinode1.
9. osi_lanstat - OSI LAN Status
   This parameter indicates whether OSI communication over the external channel is enabled or disabled.
   Type: Alphanumeric value set.
   Range: ENABLE for LAN1, LAN2, LAN3

Detailed behavior description

The command retrieves system parameter as described in the Output parameter section.

Example input/output

The following example shows the result of RTRV-FECOM-LAN:

```
RTRV-FECOM-LAN:NE-UNITE:1-1-lan1:123456;
   NE-UNITE 00-12-24 11:01:00
M  123456 COMPLD
   "1-1-lan1:ip_lanstat=ENABLE,ip_ad=135.248.206.72,
   ip_snm=255.255.0.0,lanstat=ENABLE,lanrpri=64,
   lantlss=ENABLE,osinode=osinode1,osi_lanstat=ENABLE"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the RTRV-FECOM-LAN command.

Related TL1 messages

- "ENT-FECOM-LAN: Enter LAN related parameters" (p. 4-1105)

□

RTRV-HDR: Retrieve header

Description

The RTRV-HDR command can be initiated by a user to request that the NE returns a normal completion response.

Parameters

In TL1 terminology, a parameter block always follows a colon ':'. Any trailing colons at the end of a command line may be omitted if they do not contain any parameters. A parameter block can be either a block of position-defined parameters or it can be a spec_block (a block of name-defined parameters). In a block of position-defined parameters, the parameter values are supplied at predefined positions within the parameter block. Two parameter values are separated by a comma. If the default value for a parameter is to be used, a null value is placed in the command line and the position of the parameter is maintained by keeping the comma. When default values are used for parameters at the end of the parameter block, it is not necessary to include all the trailing commas. In all the TL1 command pages, for position-defined parameter blocks, simplified notation such as: [d],[e],[f],[g] is used to represent the following format: [d][,[e][,[f][,g]]]. The following notation is also equivalent: [d],[e],[f][,g]. In a specification block (spec_block), every parameter name is followed by an equal sign and the parameter value. The command line does not have to use all of the spec_block parameters. Also, spec_block parameters can appear in any order.

NULL parameter value

The word NULL is used for some of the parameter values in TL1 messages. For both input and output parameters, NULL means that the parameter is omitted.

Quoted text strings

Some string-valued parameters, like NENAME, allow any printable character within the double-quoted string (""). On output (RTRV and REPT DBCHG), the string is surrounded by escaped quotes \"\". Those parameters can contain any printable characters, including the TL1 parse characters (; : , "). Spaces and upper/lowercase are also preserved. Using two double-quotes "" will set the parameter to an empty string. But according to GR-831, within a quoted string, a double-quote character is escaped as \" and the backslash is escaped as \\. Within a backslash-quoted string (\"\"), the double-quote character is escaped as "" and the backslash is escaped as \\. Another caveat is that while that parameter can contain any printable character, in networks using a Telcordia OS, the TL1 parse characters (; : , ") should not be used. Particularly, the semicolon (;), less-than (<), and greater-than (>) characters must not be used in the string.

Other notational conventions

The following conventions are used in the description of RTRV-HDR itself to visualize non-printable characters (in all other commands those characters are indicated by a blank).

<cr>

A carriage return in ASCII

<lf>

A line feed in ASCII

<>

The brackets are used to enclose one or more information items, e.g., <date>, <time>, <source identifier>, etc. The brackets are not transmitted.

^

The character ^ indicates a blank that must appear in the message.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): Any

Priority: 1

Abortable: Yes

Input format

Syntax: `RTRV-HDR`*:tid::ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   This is the currently active name of the NE to which the command is addressed. The *tid* is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
2. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the NE in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string.
   Range: non-zero decimal number or identifier of up to 6 characters.
   Note: Current implementation also allows ’0’ as valid CTAG, which is an extension to GR-831.

Output format

Normal system response

After receiving the RTRV-HDR command, the following normal completion response is returned:

```
IP^ctag<cr><lf>
<cr><lf><lf><lf>
^^^sid^date^time<cr><lf>
M^^ctag^COMPLD<cr><lf>
;
```

The format definition shows only the minimum of <CR> characters needed for the response. The response may contain additional <CR> characters at the beginning or end of lines. These <CR> characters have no effect on the visible formatting of the response message.

RL Acknowledgment

If a command cannot be executed at the present time, the following RL (Repeat Later) Acknowledgment is returned:

```
RL^ctag<cr><lf>
<cr><lf><lf>
```

Continuation responses and IP acknowledgments

For commands that generate output, if the output response is less than or equal to 4096 bytes, the response will be terminated by the semicolon (;) character. If the output response is greater than 4096 bytes, the response lines will be partitioned into multiple responses. The continuation response will have another set of header lines with the same ctag, along with additional output response lines. Each response will be terminated with the greater than (>) character, except the last one which will be terminated by the semicolon (;) character.

Output parameters

1. sid – Source Identifier
   This is the currently active name of the NE to which responses to the command. See definition of *tid* input parameter in "RTRV-HDR: Retrieve header" (p. 4-1736).
2. date – Date
   Date when output message is generated. This has the format YY-MM-DD (year-month-day).
   Type: value set.

Range:

- for YY: 00 to 99
- for MM: 01 to 12
- for DD: 01 to 31

2-digit years
TL1 messages use YY-MM-DD for the format of a date, meaning that the year only has two digits. This is consistent with Telcordia requirements. Internally, however, the system does use a 4-digit year. When the year appears in a response, the internal 4-digit year is truncated to two digits. When the year appears as an input parameter, for example in the ED-DAT command, years in the range 90-99 will represent 1990-1999, and years in the range 00-37 will represent 2000-2037.
Default: 00-01-01

3. time – Time
   Time when output message is generated. This has the format HH:MM:SS (hours:minutes:seconds).
   Type: value set
   Range:
   - for HH: 00 to 23
   - for MM: 00 to 59
   - for SS: 00 to 59

   Default: 00:00:00
4. M – Message
   This parameter indicates that the output message is generated in response to a manual command.
   Type: value set
   Range: M
5. ctag – Correlation Tag
   See definition of *ctag* input parameter in "RTRV-HDR: Retrieve header" (p. 4-1736).
6. IP – In Progress
   IP is sent in response to all commands with the exception of commands that result in error code output.
   Type: value set.
   Range: IP

7. RL – Repeat Later
   The requested command cannot be executed due to unavailable system resources. The command may be entered again later.
   Type: value set.
   Range: RL.
8. COMPLD – Completion Code
   This parameter indicates that the command has been completed.
   COMPLD for successful command execution For a command that is decomposed into a set of atomic commands a COMPLD completion code means that the command was successful for all atomic commands (e.g. AID ranges, group alias).
   COMPLD for no changes If a parameter has a current value, and a provisioning command attempts to reprovision the parameter with a value that is the same as its current value, the command will return a COMPLD completion code.
   Type: value set.
   Range: COMPLD.

Detailed behavior description

The RTRV-HDR command returns a normal completion response with *sid*, *date* and *time* output parameter as described above.

Example input/output

```
RTRV-HDR:LT-UNITE::123456;
IP 123456
<
   LT-UNITE 00-11-03 08:00:00
M  123456 COMPLD
;
```

Error responses

The following error conditions are not unique to the RTRV-HDR command but may apply to any TL1 command. Other commands will use the defined command specific error codes with additional error texts.

If there is a specific error behaviour defined for another command, e.g. other error code or the suppression of error responses in some cases, then the specific error behaviour, which is defined together with the command, shall overrule the generic behaviour defined in this chapter.

There is no implied priority order of error checking suggested by this list of error responses.

In general the *sid* value in the error responses is that of the addressed NE. This is true even if a TL1-GNE sends an error message on behalf of an RNE. Some exceptions are noted for some error codes below (e.g. IITA). If the TL1-GNE forwards a command to

a remote NE and a communication failure occurs before the remote NE is able to respond, it is understood that no response may be returned.

When an error response is returned, there may not be an in-progress (IP) acknowledgment in the response.

Note, that validation rules for the generic error conditions described below are not repeated for each specific command in the Error response section.

General format

The general output format is shown below, where <error code> is a 4-character code and <error text> is a text string.

```
<cr><lf><lf>
   sid date time<cr><lf>
M  ctag^DENY<cr><lf>
   <error code><cr><lf>
   /*<error text[, additional command specific error text]>*/<cr><lf>
;
```

Input failure (ICNV)

If there was an input failure because the command cannot be processed, the following error response is returned:

Error code: `ICNV - Input, Command Not Valid`

Input failure for omitted TID

If a *tid* value is required but no *tid* value is included, the following error response is returned, using the *sid* of the system that detected the error:

Error code: `ICNV - Input, Command Not Valid, missing TID`

Command not recognized (SCNF)

If the command is not recognized or command parameters are not valid, the following error response is returned:

Error code: `SCNF - Status, Command Not Found, command not recognized or command parameters not valid`

Syntax or Punctuation Error (IISP)

If the command cannot be parsed due to a syntax or punctuation error, the following error response is returned. If the command cannot be parsed for at least 3 colons, and no more than the maximum number of colons allowed before the TL1 end-of-message semicolon, the following error response is returned:

Error code: `IISP - Input, Invalid Syntax or Punctuation`

Command too long

If the command is longer than 4096 characters, the following error response is returned:

Error code: `IISP - Input, Invalid Syntax or Punctuation, command too long`

Parameter Input Failure (INUP)

If there is an input failure due to the parameter types, the following error response is returned:

Error code: `INUP - Input, Non-null Unimplemented Parameter`

Parameter Missing (IPMS)

If an input parameter value is missing, the following error response is returned .This is the preferred error response:

Error code: `IPMS - Input, Parameter MiSsing,<parameter_name> is missing`

Any Input Parameter not valid (IDNV)

If any one or more of the input parameter values are not valid, the following error response is returned:

Error code: `IDNV - Input, Data Not Valid`

Input Parameter not valid (IDNV)

If an input parameter value is not valid, the following error response is returned. This is the preferred error response.

Error code: `IDNV - Input, Data Not Valid, invalid <parameter_name>`

Invalid Entity (IENE)

If there is an input failure due to an invalid entity, the following error response is returned:

Error code: `IENE - Input, Entity Not Exists`

Invalid Command Qualifier (IPNC)

If there is an input failure due to an invalid command qualifier, the following error response is returned:

Error code. `IPNC - Input, Parameter Not Consistent`

Invalid Instance (SDNC)

If there is an input failure due to an invalid instance of an entity, the following error response is returned:

Error code: `SDNC - Status, Data Not Consistent, invalid instance of entity`

Incorrect TID (IITA)

If the command has a syntactically incorrect *tid*, the following error response is returned, using the *sid* of the system that detected the error:

Error code: `IITA - Input, Invalid TArget identifier, incorrect syntax`

Unknown TID (IITA)

If a command contains an unknown tid value (a *tid* value that does not exist in the network), the following error response is returned, using the *sid* of the system that detected the error:

Error code: `IITA - Input, Invalid TID, Unknown TID`

Not reachable TID (IITA)

If a command has a valid *tid* value but the addressed remote NE is temporarily unable to communicate with the TL1-GNE, the following error response is returned, using the *sid* of the addressed system:

Error code: `IITA - Input, Invalid TID, Communications Failure`

Too much AID parameters (ICNV)

If the command line has more aid parameters in the *aid* block than are allowed for that command, the following error response is returned:

Error code: `ICNV - Input, Command Not Valid, extra AID`

Missing AID (ICNV)

If the command line has fewer aid parameters in the *aid* block than are required for the command, the following error response is returned:

Error code: `ICNV - Input, Command Not Valid, required AID missing`

Incorrect AID Syntax (IIAC)

For commands that have aid input parameters in the *aid* block, if the aid is syntactically incorrect, the following error response is returned:

Error code: `IIAC - Input, Invalid ACcess identifier, incorrect syntax`

Unknown AID (IIAC)

For commands that have aid input parameters in the *aid* block, if the aid is valid syntactically but has an unknown value, the following error response is returned:

Error code: `IIAC - Input, Invalid ACcess identifier, unknown AID`

Missing CTAG (ICNV)

If the *ctag* value is missing, the following error response is returned. Note that the *ctag* value is 0 in the error response:

Error code: `ICNV - Input, Command Not Valid,missing CTAG`

Invalid CTAG (IICT)

If the *ctag* value is non-NULL but invalid, the following error response is returned. Note that the same invalid *ctag* value is used for the *ctag* field in the error response:

Error code: `IICT - Input, Invalid Correlation Tag (CTAG), incorrect syntax`

Input Parameter Range Incorrect (IDRG)

If an input parameter accepts a range but the given range is incorrect, the following error response is returned:

Error code: `IDRG - Input, Data Range Error`

Invalid File or Directory Name (SDNC)

If the command failed due to an invalid file or directory name, the following error response is returned:

Error code: `SDNC - Status, Data Not Consistent, invalid file or directory`

Invalid Input Parameter Value Combination (IDNC)

If a command has more than one input parameter, but the combination of values is not valid, the following error response is returned:

Error code `IDNC - Input, Data Not Consistent`

Missing Equipage (ENEQ)

If the command failed due to equipage that is missing, the following error response is returned:

Error code: `ENEQ - Equipage, Not EQuipped`

Insufficient File Space (ENEQ)

If the command failed due to insufficient file space, the following error response is returned:

Error code: `ENEQ - Equipage, Not EQuipped, insufficient file space`

Incorrect Equipage (EATN)

If the command failed due to incorrect equipage, the following error response is returned:

Error code: `EATN - Equipage, not valid for Access Type, incorrect equipage`

TID Mismatch in retrieved File (EATN)

If the command failed due to a TID mismatch in a retrieved file, the following error response is returned:

Error code: `EATN - Equipage, Not Valid for Access Type, retrieved file TID mismatch`

Product Mismatch (SRAC)

If the command failed due to a product mismatch in the retrieved file, the following error response is returned:

Error code: `SRAC - Status, Requested Access Configuration is invalid, retrieved file NE mismatch`

Failed Target Hardware (SSTP)

If the command failed due to failed target hardware, the following error response is returned:

Error code: `SSTP - Status, Stopped, failed target hardware`

Command denied based on Mode, State or Status (SNVS)

If the command is denied based on mode, state, or status, the following error response is returned:

Error code: `SNVS - Status, Not in Valid State`

Command denied based on Maintenance Condition (SNVS)

If the command is denied based on the maintenance condition, the following error response is returned:

Error code: `SNVS - Status, Not in Valid State, maintenance condition`

Entity already exists (IEAE)

If an entity already exists, the following error response is returned:

Error code: `IEAE - Input, Entity Already Exists`

Session is not initiated (PLNA)

If a user issues a command before a session is initiated with ACT-USER, the following error response is returned:

Error code: `PLNA - Privilege, Login Not Active`

Command requires higher privilege (PICC)

If a command requires a privilege higher than that of the user issuing the command, or for any other security-related problems, the following error response is returned:

Error code: `PICC - Privilege, Illegal Command Code`

System Initializing not completed (SNVS)

If a command is not allowed because the system has not completed initializing, the following error response is returned:

Error code: `SNVS - Status, Not in Valid State, system initializing`

System Limit exceeded (SARB)

If the system is experiencing temporary exhaustion of allocated resources, the following error response is returned:

Error code: `SARB - Status, All Resources Busy, system limit exceeded`

System Busy with SW Generic Installation (SARB)

If the command cannot be executed because the system is prepared for a SW Generic installation with fall-back option, the following error response is returned:

Error code: `SARB - Status, All Resources Busy`

Internal Limit exceeded (SSRE)

If a command attempts to exceed an internal limit, the following error response is returned:

Error code: `SSRE - Status, System Resources Exceeded, allowed limit exceeded`

Operation Failed (SROF)

If the command cannot be completed due to system difficulties other than hardware or equipment, the following error response is returned:

Error code: `SROF - Status, Requested Operation Failed`

Processing Failed (SROF)

If the command cannot be completed due to internal system processing problems, the following error response is returned:

Error code: `SROF - Status, Requested Operation Failed, processing failure`

Hardware Failed (SWFA)

If the command failed because the control hardware is failed, missing, or initializing, the following error response is returned:

Error code: `SWFA - Status, Working unit Failed, control hardware failed, missing or initializing`

Communication Failure (SROF)

If the command failed due to an external communications failure, the following error response is returned:

Error code: `SROF - Status, Requested Operation Failed, external communications failure`

Generic not available (ENSG)

If the command failed because the generic is not available, the following error response is returned:

Error code: `ENSG - Equipage, Not Software Generic, generic not available`

Command Aborted (SABT)

If a user or outside agent has aborted the command, the following error response is returned:

Error code: `SABT - Status, Aborted`

Partial successful completion of a set of atomic commands

For provisioning commands (non-RTRV commands) that operate on a range of entities (e.g. AID range, or via an group alias) range as input, if the command succeeded on only a non-empty subset of the AIDs or another set of atomic commands, the following error response is returned for the AIDs or atomic commands that were not completed successfully. Note that the completion code is PRTL, not DENY.

```
   sid date time
M  ctag PRTL
   "aid"
   <error code>
   /* <error text> */
   "aid"
   <error code>
   /* <error text> */
   ...
   "aid"
   <error code>
   /* <error text> */
;
```

The error codes and error text fields are as defined in the other error responses above. If the command failed on all the AIDs, the completion code will be DENY, and there will only be a single error code and error text in the response.

Partial completion on RTRV commands

For RTRV commands that take an AID range as input, if the command fails on a non-empty subset of the AIDs, and the failure is not related to filtering, the entire command will fail and one error response is returned. If the error is related to filtering, the command completes successfully but only the data that matches is returned.

If there is no data matching the filter criteria, the NE just responds with an empty reply.

For example, RTRV-OC48 with an `all` AID range for all the ports on a shelf will return the data for the existing OP2G5 circuit packs. RTRV-OC48 with a single AID of a non-OC48 port will fail.

If during the processing of a RTRV command which reports output responses for a number of AIDs an internal error occurs while the system has already started to send response data, the system does not terminate the output response with the ″;″ character.

This behavior will lead to a time-out of the manager and cause him to abort the command.

Related TL1 messages

All other TL1 commands refer to the “RTRV-HDR: Retrieve header” (p. 4-1736) command for common requirements.

Additional notes

Compliance of output parameter blocks with GR-833

For commands that have output parameter blocks, like the following one. The block may have optional trailing commas on a line.

```
   sid date time
M  ctag COMPLD
   ″aid:<parameter block>″
   ...
;
```

AID grouping of output lines

For commands where the output has the AID prepended to each line, like this:

```
   sid date time
M  ctag COMPLD
   ″aid:block″
   ...
;
```

If the parameters for the same AID value are on separate lines, those lines are grouped together.

spec_blocks continued on another line

For commands that have spec_blocks in the output, like this:

```
   sid date time
M  ctag COMPLD
   ″aid:spec_block″
   ...
;
```

If the output line becomes too long, the keywords may be continued on another line, but the AID is repeated on the continuation line. In addition, the output lines are not limited to 80 characters, and there are no requirements as to how many parameters appear on a line.

Refer to the following example

```
RTRV-EQPT:UNITE-NE:system:123456;
   UNITE-NE 00-11-03 08:00:00
M  123456 COMPLD
   "system:systype=LXC40"
   "system:istddflt=SDH"
   "system:trbmddflt=FIXED"
   "system:synccrtc=SDH"
;
```

References

GR-833-CORE

□

RTRV-IP-MAP: Retrieve TCP/IP map

The RTRV-IP-MAP command retrieves the entries from the IP map.

The *tl1tcpipgw* parameter in the RTRV-NE command indicates whether or not the mapping feature is enabled.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S1

Priority: 1

Abortable: Yes.

Input format

Command Syntax: **RTRV-IP-MAP**:tid*::ctag;*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.

Output format

If the RTRV-IP-MAP request is successful, the following normal completion message shall be returned:

```
   sid date time
M  ctag COMPLD
   "system::spec_block"
   ...
   "system::spec_block"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of the "RTRV-HDR: Retrieve header" (p. 4-1736) command.

Output parameters

1. system – system AID
   This parameter shall denote the system AID of the NE.
   Type: AID
   Range: system (default).
2. ip – IP Address
   This parameter shall be used to set or retrieve the IP address(es) of the manager(s) of the NE.
   Type: IPv4 address: four dot separated numeric strings.
   Values: IPv4 address: Each numeric string: 0 .. 255. Number of entries: Mmaximum of 20 entries allowed.
   Default: null.
3. acid – Application Context ID
   This parameter shall be used to set or retrieve the application context ID to be assigned to a particular manager IP address.
   Type: Alphanumeric string of length 0 .. 23.
   Range: TL1MAINTENANCE, TL1MEMORYADMINISTRATION, TL1TEST, TL1OTHER1, TL1PEERCOMM.
   Default: TL1PEERCOMM.
   Although acid is a mandatory parameter it will not be evaluated in the NE. The parameter is present for backward compatibility.

Detailed behavior description

The command shall retrieve the spec_block parameters as described in the Output parameter section.

Sorting: If several managers are entered, the system shall respond with one line per *ip* parameter and sort the output according the *ip* parameter.

Example input/output

The following example shows the result of a RTRV-IP-MAP command with one manager entered:

```
RTRV-IP-MAP:LT-UNITE::123456;
   LT-UNITE 00-11-01 08:00:00
M  123456 COMPLD
      "system::ip=198.78.46.8,acid=TL1MAINTENANCE"
      "system::ip=198.78.46.13,acid=TL1TEST"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the RTRV-NE-IP-MAP command.

Related TL1 Messages

- "DLT-IP-MAP: Delete TCP/IP map" (p. 4-134)
- "ENT-IP-MAP: Enter TCP/IP map" (p. 4-1116)

□

RTRV-LOG-ALM: Retrieve log alarm

The RTRV-LOG-ALM command retrieves the alarm log.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-LOG-ALM:`*tid*::*ctag*::[*startdate*],[*starttime*],[*replytype*];

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
3. startdate – Start Date
   The date for the starting point of the report. If both startdate and starttime are omitted, the entire log is retrieved. Both startdate and starttime must be specified, or both must be omitted.
   Type: value set of the format YY-MM-DD.
   Range: Y, M, D are digits. Leading zeros are not suppressed. YY represents the last two digits of the year, MM the month, DD the day.
4. starttime – Start Time
   The time for the starting point of the report. If both startdate and starttime are omitted, the entire log is retrieved. Both startdate and starttime must be specified, or both must be omitted.
   Type: value set of the format HH-MM-SS.
   Range: H, M, S are digits. Leading zeros are not suppressed. HH represents the hours, MM the minutes, SS the seconds.
5. replytype – Type of Reply
   This parameter defines the kind of log retrieving.
   Type: alphanumeric value set.
   Range:
   - BROWSE (User Browsing) - If the requested *startdate* and *starttime* is in the log, those entries and any subsequent log entries are returned. If the requested *startdate* and *starttime* is NOT in the log, the first log entry in the log with a timestamp later than the *startdate* and *starttime* plus subsequent log entries will be returned.

Important: If there are no alarm entries in the specified interval the system returns with the error code `SNVS /* Status, Not in Valid State, no matching log entry */` . Instead of this an empty log with a COMPLD message should be returned.

- DBSYNC - This value provides the same function as BROWSE. The value DBSYNC is allowed for compatibility reasons.

Default: BROWSE, if the parameter is omitted.

Output format

Normal completion response of successful session termination

The following example shows the successful completion of the RTRV-LOG-ALM command by the NE:

```
   sid date time
M  ctag COMPLD
   "aid,aidtype:[ntfcncde],condtype,[srveff],
   ocrdat,ocrtm,[condeff][:conddescr]"
        ...
   "aid,aidtype:[ntfcncde],condtype,[srveff],
   ocrdat,ocrtm,[condeff][:conddescr]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. aid – Access Identifier
   This is the address of the entity for which an alarm condition is being reported.
   Type: AID.
   Range: All defined AIDs are allowed. It should be a valid AID for the specified *modifier*. Refer to the definition of AIDs.
2. aidtype – Access Identifier Type
   This parameter defines the AID type to which the alarm belongs.
   Type: alphanumeric value set.
   Range:
   - COM: Common. An alarm/event that applies to the whole NE system; for example, a processing error.
   - EQPT: An equipment-related alarm/event.
   - SYST: An alarm/event related to system timing.
   - ENV: An alarm/event related to an environmental point.
   - SYST: An alarm/event related to system timing.

- OUTT: An alarm/event related to output timing.
- STM1E: A facility-related alarm/event for synchronous transport mode 1 (electrical).
- STM1: A facility-related alarm/event for synchronous transport mode 1.
- STM4: A facility-related alarm/event for synchronous transport mode 4.
- STM16: A facility-related alarm/event for synchronous transport mode 16.
- STM16T: A facility-related alarm/event for fully transparent synchronous transport mode 16.
- STM64: A facility-related alarm/event for synchronous transport mode 64.
- STM256: A facility-related alarm/event for synchronous transport mode 256.
- OC3: A facility-related alarm/event at the optical carrier signal level 3.
- OC12: A facility-related alarm/event at the optical carrier signal level 12.
- OC48: A facility-related alarm/event at the optical carrier signal level 48.
- OC48T: A facility-related alarm/event at the fully transparent optical carrier signal level 48.
- OC192: A facility-related alarm/event at the optical carrier signal level 192
- OC768: A facility-related alarm/event at the optical carrier signal level 768.
- 1GE: A facility-related alarm/event for 1 Gigabit Ethernet.
- VC3: A facility-related alarm/event for virtual container 3.
- VCG: A facility-related alarm/event for virtual concatenation group tributary.
- VC4: A facility-related alarm/event for virtual container 4
- VC44C: A facility-related alarm/event for a signal concatenated at 4 times the VC4 rate.
- VC416C: A facility-related alarm/event for a signal concatenated at 16 times the VC4 rate.
- VC464C: A facility-related alarm/event for a signal concatenated at 64 times the VC4 rate.
- STS1: A facility-related alarm/event at synchronous transport signal level 1.
- STS3C: A facility-related alarm/event at synchronous transport signal level 3.
- STS12C: A facility-related alarm/event at synchronous transport signal level 12.
- STS48C: A facility-related alarm/event at synchronous transport signal level 48.
- STS192C: A facility-related alarm/event at synchronous transport signal level 192.

Default: There is no default value.

3. ntfcncde – Notification Code
   This is the alarm severity (alarm level).
   Type: alphanumeric value set.

Range:

- CR - Critical (ITU / Telcordia)
- MJ - Major (ITU / Telcordia)
- MN - Minor (ITU / Telcordia)
- SC - Standing condition – Warning (ITU) / not alarmed (Telcordia)
- CL - Cleared

The abnormal condition is always a standing condition, this means it has a beginning and an end (SC and CL). The severity of a abnormal condition is not provisionable. It is always NA - warning (ITU) / not alarmed (Telcordia) which implies ABN messages are always reported via REPT EVT.

4. condtype – Condition Type
   This parameter identifies the probable cause (type of alarm indication) being reported.
   Type: alphanumeric value set.
   Range: All defined probable causes. For the values of *condtypr*, refer to "Alarm, event, ASAP tables" (p. 7-17).
   For ABN conditions see definition of *condtype* in the output parameters section of "REPT EVT: Report event" (p. 4-1520).
5. srveff – Service Effect
   This parameter identifies the service affect of alarms being reported. It presents the "best guess" from a local system point of view.
   Type: alphanumeric value set.
   Range:
   - SA: Service-Affecting alarm condition
   - NSA: Non-Service-Affecting alarm condition.

   Abnormal condition event messages are always handled as NSA.
6. ocrdat – Occurrence Date
   This parameter indicates the raising / clearing date of the alarm.
   Type: value set of the format MM-DD.
   Range: MM represents the month, DD represents the day, leading zeros are not suppressed.
7. ocrtm – Occurrence Time
   This parameter indicates the raising / clearing time of the alarm. The accuracy should be +/- 1 second.
   Type: value set of the format HH-MM-SS.
   Range: HH represents the hours, MM represents the minutes, SS represents the seconds, leading zeros are not suppressed.
8. conddescr – Description of the Condition

Refer to the definition of the *conddescr*:

- This is a textual description of the condition.
- Type: inner string of the format: category>, <entity>, <description>, <additional text> or category>, <entity>, <description>, <additional text>-cleared (this form is used in REPT ALM/EVT for cleared alarms)
- Range: category, is the category; entity, is the entity for which the alarm is reported; description, is the Alarm description, the string is up to 32 characters; additional text is additional text. If there is no additional text, then the trailing comma may be omitted.

For ABN conditions see definition of *conddescr*:

- The general format is: category, description
- Type: inner string
- Range for a protection group AID: Abnormal condition, forced switch active. Abnormal condition, lockout active
- Range for a timing reference AID: Abnormal condition, operate in hold-over. Abnormal condition, operate in free run mode
- Range for a port AID: Abnormal condition, facility loopback active
- Range for a logical tributary AID: Abnormal condition, cross-connect loopback active. Abnormal condition, test access session active
- Range for a system AID: Abnormal condition, System operates in maintenance mode.

Detailed behavior description

This log gives the user a history and time sequence of all of the most recent alarm detected by the system regarding equipment or facilities attached to the system.

TCAs are not stored within the alarm log.

Storage Order Dependency: If the storage order of entries in the alarm log is not in line with the occurrence date and time, then the command may retrieve entries which are older than the specified date and time. A storage order, which is not in line with the date and time of the entries can occur after setting the system date and time.

The RTRV-LOG-ALM command does not generate a REPT DBCHG message.

Example input/output

The following example shows the successful completion of the RTRV-LOG-ALM command by the NE:

```
RTRV-LOG-ALM:LT-UNITE-123::123456::;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
   "1-1-#-#-3-1,OC48:CR,LOS,SA,01-01,07-29-13:
   \"Communication-Transport, OC48 port, LOS of Signal\""
```

;

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command error responses section. The error responses listed there also apply to the RTRV-LOG-ALM command.

Related TL1 messages

- "RTRV-ALM: Retrieve alarm" (p. 4-1599)
- "RTRV-LOG-NTFCN: Retrieve notification Log" (p. 4-1765)

References

GR-833-CORE, Issue 4, June 2000, OTGR Section 12.3, Network Maintenance: NE and Transport Surveillance Messages.

□

RTRV-LOG-ERROR: Retrieve Error Log

General

The RTRV-LOG-ERROR command retrieves the error log, which is used to store the most recent errors collected and stored by application SW in non-volatile memory. The data being retrieved with this command is intended for internal purposes only, e.g. service personnel could retrieve this log and forward it to product development for analysis and product SW improvement activities.

This commend should be made available via cut-through interface only. The management systems should not support it. It should not become part of customer documentation.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-LOG-ERROR:`*tid*`::`*ctag*`::[`*startdate*`,`*starttime*`]`;

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).

Spec block parameters

1. startdate – Date for the Starting point
   The format is YY-MM-DD. If both *startdate* and *starttime* are omitted, the entire log is retrieved. Both *startdate* and *starttime* must be specified, or both must be omitted.
   Type: value set.

Range:

- for YY: 00 to 99
- for MM: 01 to 12
- for DD: 01 to 31.

2. starttime – Time for the Starting point
   The format is HH-MM-SS. If both *startdate* and *starttime* are omitted, the entire log is retrieved. Both *startdate* and *starttime* must be specified, or both must be omitted.
   Type: value set.
   Range:
   - for HH: 00 to 23
   - for MM: 00 to 59
   - for SS: 00 to 59.

Output format

If the RTRV-LOG-ERROR request completes successfully, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
   "Time=time,Date=date:errdescr"
    ...
   "Time=time,Date=date:errdescr"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

1. date – Date
   This parameter shows the occurrence date of the error. For syntactical details see definition of *chgdat* parameter in "REPT DBCHG: Report data base change" (p. 4-1517).
2. time – Time
   This parameter shows the occurrence time of the error. For syntactical details see definition of *chgdat* parameter in "REPT DBCHG: Report data base change" (p. 4-1517).
3. errdescr – Error Description
   This parameter provides the error as recorded in non-volatile memory of the system.
   The string value may depend on the actual class of error and is not further specified:
   Type: inner string.
   Range: a string of arbitrary length, any character except ″ and \, upper and lower cases are considered.

Detailed behavior description

If the error log of the system does not contain any records at all or no records exist matching the specified startdate and starttime an empty reply is returned.

Example input/output

The following is an example of the RTRV-LOG-ERROR command:

```
RTRV-LOG-ERROR:LT-UNITE::123456:::;
   LT-UNITE 02-02-05 08:00:00
M  123456 COMPLD
   ″TIME=07-59-59,DATE=02-01-15:\″<some text>\″″
   . . .
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-LOG-ERROR command.

□

RTRV-LOG-NNEVT: Retrieve NN Event Log

The RTRV-LOG-NNEVT command retrieves the NN event log which is used to store the most recent NN events non volatile.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S1

Priority: 1

Abortable: Yes.

Input format

Command Syntax: `RTRV-LOG-NNEVT:`*tid::ctag::[startdate],[starttime];*

Input parameters

Command parameters

1. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters.
   Default: LUCENT-UNITE-NE
2. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the network element in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters.
   Note: Current implementation also allows ’0’ as valid *ctag*, which is an extension to GR-831.
3. startdate – Date for the Starting point
   The format is YY-MM-DD. If both *startdate* and *starttime* are omitted, the entire log is retrieved. Both *startdate* and *starttime* must be specified, or both must be omitted.
   Type: value set.
   Range:
   - for YY: 00 to 99
   - for MM: 01 to 12
   - for DD: 01 to 31.

4. starttime – Time for the Starting point
   The format is HH-MM-SS. If both *startdate* and *starttime* are omitted, the entire log is retrieved. Both *startdate* and *starttime* must be specified, or both must be omitted.
   Type: value set.
   Range:
   - for HH: 00 to 23
   - for MM: 00 to 59
   - for SS: 00 to 59.

Output format

If the RTRV-LOG-NNEVT request completes successfully, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
   "Time=time,Date=date:nnevt"
    ...
   "Time=time,Date=date:nnevt"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

1. date – Date
   This parameter shows the occurrence date of the NN event. .
   Type: value set
   Range: YY-MM-DD
2. time – Time
   This parameter shows the occurrence time of the NN event. .
   Type: value set.
   Range: HH-MM-SS.
3. nnevt – NN Event
   This parameter shall provide the details of the ONNS event. It consists of the text block without the date/time information of the ONNS event enclosed in double quotes (").
   Note: The following NN event types are stored in this log: REPT PTHCHG, REPT PTHEVT, REPT NNCHG, REPT NNEVT. The detailed TL1 specification can be found on the ONNS TL1 page.
   Type: inner string.
   Range: a string of arbitrary length, any character except " and \, upper and lower cases are considered.

Detailed behavior description

If the error log of the system does not contain any records at all or no records exist matching the specified startdate and starttime an empty reply is returned. Note: The log shall contain the last 1000 ONNS events.

Example input/output

The following is an example of the RTRV-LOG-NNEVT command:

```
RTRV-LOG-NNEVT:LT-UNITE::123456:::;
   LT-UNITE 02-02-05 08:00:00
M  123456 COMPLD
   "TIME=07-59-59,DATE=02-07-01:CCB=PATH:125.114.48.12:
   SNN:C015:\" Connection restored and Saved in NVM \":"
   "ConnID=125.114.48.12&1-1-3-4-1&1,ConnStatus=CON&OK,
   2WAY,AUTONR,STS192,
   connAlias=AEXP-NY-BOS-ckt,
   MaxDelay=199,,,SrlgExclude=630&820&720,IncludeID=0,
   RstrPriority=3,,SrcNID=125.114.48.12,1-1-3-4-1,
   DestNID=125.6.19.43,1-1-14-2-1:
   PathID=125.114.48.12-12123,State=CON &OK,
   NodeList=125.114.48.12&nodeIP1&nodeIP2&...&
   125.6.19.43:PathID=125.114.48.12-11013,State=CON&TRDOWN,
   NodeList=125.114.48.12&nodeIP4&nodeIP5&...&125.6.19.43"
   . . .
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-LOG-NNEVT command.

□

RTRV-LOG-NTFCN: Retrieve notification Log

The RTRV-LOG-NTFCN command retrieves the notification log, which is used to store the most recent notification reported via REPT DBCHG. This log allows the user to see the most recent activity that has caused updates to the system database. This is useful in solving database audit problems. This information can also be used to re-synchronize a management system with the NE after a communications outage between the two.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S1

Priority: 1

Abortable: Yes.

Input format

Command Syntax: `RTRV-LOG-NTFCN`*:tid::ctag::[startdate],[starttime],[replytype]*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
3. startdate – Date for the Starting point
   The format is YY-MM-DD. If both *startdate* and *starttime* are omitted, the entire log is retrieved. Both *startdate* and *starttime* must be specified, or both must be omitted.
   Type: value set.
   Range:
   - for YY: 00 to 99
   - for MM: 01 to 12
   - for DD: 01 to 31.
4. starttime – Time for the Starting point
   The format is HH-MM-SS. If both *startdate* and *starttime* are omitted, the entire log is retrieved. Both *startdate* and *starttime* must be specified, or both must be omitted.
   Type: value set.

Range:

- for HH: 00 to 23
- for MM: 00 to 59
- for SS: 00 to 59.

5. replytype – Type of Reply
   BROWSE is used if user browsing is needed. If the requested *startdate* and *starttime* is in the log, those entries and any subsequent log entries are returned. If the requested *startdate* and *starttime* is NOT in the log, the first log entry in the log with a timestamp later than the *startdate* and *starttime* plus subsequent log entries will be returned. If the requested *startdate* and *starttime* is NOT in the log only a completion message is returned without further error messages.
   Important: If there are no alarm entries in the specified interval the system returns with the error code `SNVS /* Status, Not in Valid State, no matching log entry */` . Instead of this an empty log with a COMPLD message should be returned.
   DBSYNC is used if the management system requires the log for database synchronization. If the requested *startdate* and *starttime* is in the log, those entries and any subsequent log entries are returned. If the requested *startdate* and *starttime* is NOT in the log, an SNVS error response is returned.
   Type: alphanumeric value set.
   Range:
   - BROWSE
   - DBSYNC.

   Default: BROWSE.

Output format

If the RTRV-LOG-NTFCN request completes successfully, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
   "Time=time,Date=date:[ccb]:[aid]:[com_block]:[spec_block]"
        ...
   "Time=time,Date=date:[ccb]:[aid]:[com_block]:[spec_block]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

1. date – Date
   Type: value set
   Range: YY-MM-DD
2. time – Time
   Type: value set.
   Range: HH-MM-SS.
3. ccb – Command Code Block
   This field will be set to the TL1 command that causes that database change. The *com_block* and *spec_block* fields will be set according to the parameters that changed.
   Type: alphanumeric value set verb-modifier[-modifier].
4. aid – Access Identifier
   AID of the entity for which the change is reported
   Type: AID.
   Range: As defined by the *aid* input parameter of the corresponding command, defined by *ccb*.
5. com_block – Common Block
   This is a position-defined field. If the database change is the result of a TL1 command which contains parameters in this block, the parameter values are included in this block in the same order as the corresponding TL1 command.
   As exception to this rule are some commands in the protection fragment, where the aliases *rid* and *ppgname* are not reported in the REPT DBCHG notification.
   If the database change is the result of a TL1 command, then the parameter *ctag* from the TL1 command shall not be included in the *com_block*.
   Type: As defined in the input *com_block* of the corresponding command, defined by *ccb*.
   Range: As defined in the input *com_block* of the corresponding command, defined by *ccb*.
   Default: As defined in the input *com_block* of the corresponding command, defined by *ccb*.
6. spec_block – Specific Block
   This is a name-defined field. If the database change is the result of a TL1 command which contains parameters in this block, the parameter names and values are included in this block. parameters within the specific block are positionally independent and are specified using a name-defined construct of *parameter*=value in a comma-separated list. The parameter names are the same as those for the corresponding TL1 command.
   Type: As defined in the input *spec_block* of the corresponding command, defined by *ccb*.
   Range: As defined in the input *spec_block* of the corresponding command, defined by *ccb*.
   Default: As defined in the input *spec_block* of the corresponding command, defined by *ccb*.

Example input/output

The following is an example of the RTRV-LOG-NTFCN command:

```
RTRV-LOG-NTFCN:LT-UNITE::123456:::;
   LT-UNITE 00-11-15 08:00:00
M  123456 COMPLD
   "TIME=07-59-59,DATE=00-11-15:ENT-EQPT:1-1::shlftp=DUR"
   ...
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-LOG-NTFCN command.

Validation rule: matching log entry

There is at least one matching log entry for the specified *startdate* and *starttime* if reply type equals DBSYNC.

Error code: `SNVS - Status, Not in Valid State, no matching log entry`

Related TL1 messages

"REPT DBCHG: Report data base change" (p. 4-1517)

References

GR-833

□

RTRV-LOG-PROTNSW: Retrieve log protection switch

The RTRV-LOG-PROTNSW command retrieves the protection switch log. This log gives a complete time-ordered list of switching activity which has occurred at the NE covering all different protection groups, system timing reference, station clock output timing reference and system clock.

The protection switch log is a circular buffer that should hold at least 500 entries.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S1

Priority: 1

Abortable: Yes.

Input format

Command Syntax: `RTRV-LOG-PROTNSW`:*tid*::*ctag*::[*startdate*],[*starttime*],[*replytype*];

Input parameters

Command parameters

1. tid – Target Identifier
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
2. ctag – Correlation Tag
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
3. startdate – Start Date
   This parameter specifies a date used as filter criteria in order to determine the set of switch events being returned.
   See description of parameter *replytype* for more precise semantics definition.
   Type: value set of format YY-MM-DD
   Range: Y, M, D are digits. Leading zeros are not suppressed. YY represents the year, MM represents month, DD the day.

4. starttime – Start Time
   This parameter specifies a time used as filter criteria in order to determine the set of switch events being returned.
   See description of parameter *replytype* for more precise semantics definition.
   Type: value set of format HH-MM-SS
   Range: H, M, S are digits. Leading zeros are not suppressed. HH represents hours, MM minutes, SS seconds.
5. replytype – Type of Reply
   This parameter specifies, how the entries in the reply are determined. The value BROWSE is used in case of user browsing. The value DBSYNC is used in case of data synchronization with management system.
   BROWSE semantics: If the requested *startdate* and *starttime* is in the log, those entries with matching timestamp and any subsequent log entries shall be returned. If the requested *startdate* and *starttime* is NOT in the log, the first log entry in the log with a timestamp later than the *startdate* and *starttime* plus subsequent log entries shall be returned.
   Important: If there are no alarm entries in the specified interval the system returns with the error code `SNVS /* Status, Not in Valid State, no matching log entry */` . Instead of this an empty log with a COMPLD message should be returned.
   DBSYNC semantics: If the requested *startdate* and *starttime* is in the log (i.e. a matching timestamp was found), those entries and any subsequent log entries shall be returned. If the requested *startdate* and *starttime* is NOT in the log (i.e. a no matching timestamp was found), an SNVS error response shall be returned.
   Type: alphanumeric value set.
   Range: BROWSE, DBSYNC.
   Default: BROWSE.

Output format

The returned log entries are ordered ascending according to their timestamp. After receiving the RTRV-LOG-PROTNSW command, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
   "aid,aidtype:EVT,condtype,condeff,ocrdat,ocrtm
   [:\"conddescr\"]"
        <0 or more of the line above>
   "aid:SW,,,ocrdat,ocrtm"
        <0 or more of the line above>
        <0 or more repetitions of this entire block>
;
```

The output parameters of the log entry are derived/correspond from/to the parameters in the protection switch notification. The parameter definition will reference to the corresponding parameter in the protection switch notification section. Log entry

parameters are not splitted within this section w.r.t. protection type. Therefore the protection type has to be considered in order to look-up the proper definition.

Output parameters

Command parameters

1. aid – Access Identifier

   Protection Switch notification/System timing/Clock Mode Protection Type:

   - This parameter indicates on which AID the report event belongs
   - Type: alphanumeric value set
   - Range: SYSTEM

   Protection Switch notification/System Timing/Timing Reference Protection Type:

   - This parameter indicates on which AID the report event belongs. The values *all* or someprefix *all* are not allowed in this context.
   - Type: alphanumeric value set
   - Range: External_timing_ref_AID, Line_timing_ref_AID

   Protection Switch notification/Output Timing (only for SDH)/Output Timing Reference Protection Type:

   - This parameter indicates on which AID the report event belongs. The values *all* or someprefix *all* are not allowed in this context.
   - Type: alphanumeric value set
   - Range: Line_timing_ref_AID

   RTRV-PROTN-GRP/1+1 Equipment Protection Group:

   - This parameter specifies the AID of the 1+1 protection equipment group.
   - Type: AID
   - Range: SwitchAndTmgProtGrpAID (for switching protection group instance). CtlProtGroupAID (for controller protection group instance). EP155ProtGroupAID (for EP155 protection group instance). EP51ProtGroupAID (for EP51 protection group instance).

   RTRV-PROTN-GRP/Multiplex Section/Line Protection Group:

   - This parameter specifies: the aid of a 1+1 multiplex section/line protection group or the aid of a 1:1 multiplex section/line protection group (only R3.0 and later)
   - Type: AID
   - Range: OnePlusOne_ProtGrpAID or NByOne_ProtGrpAID.

   RTRV-PROTN-GRP/2 fibre MS-SPRing/BLSR Protection Group:

   - This parameter specifies the AID of the 2 fibre MS-SPRing/BLSR protection group.
   - Type: AID
   - Range: TwoFibre_ProtGrpAID

RTRV-PROTN-GRP/4 fibre MS-SPRing/BLSR Protection Group:

- This parameter specifies the AID of the 4 fibre MS-SPRing/BLSR protection group.
- Type: AID
- Range: FourFibre_ProtGrpAID

RTRV-PROTN-GRP/Path Protection Group:

- This parameter specifies the AID of the path protection group.
- Type: AID
- Range: Path_ProtGrpAID

2. aidtype – Access Identifier Type
   This parameter defines the AID type to which the alarm belongs.
   Type: alphanumeric value set.
   Range:
   - COM: Common. An alarm/event that applies to the whole NE system; for example, a processing error.
   - EQPT: An equipment-related alarm/event.
   - ENV: An alarm/event related to an environmental point.
   - SYST: An alarm/event related to system timing.
   - OUTT: An alarm/event related to output timing.
   - STM1E: A facility-related alarm/event for synchronous transport mode 1 (electrical).
   - STM1: A facility-related alarm/event for synchronous transport mode 1.
   - STM4: A facility-related alarm/event for synchronous transport mode 4.
   - STM16: A facility-related alarm/event for synchronous transport mode 16.
   - STM16T: A facility-related alarm/event for fully transparent synchronous transport mode 16.
   - STM64: A facility-related alarm/event for synchronous transport mode 64.
   - STM256: A facility-related alarm/event for synchronous transport mode 256.
   - OC3: A facility-related alarm/event at the optical carrier signal level 3.
   - OC12: A facility-related alarm/event at the optical carrier signal level 12.
   - OC48: A facility-related alarm/event at the optical carrier signal level 48.
   - OC48T: A facility-related alarm/event at the fully transparent optical carrier signal level 48.
   - OC192: A facility-related alarm/event at the optical carrier signal level 192
   - OC768: A facility-related alarm/event at the optical carrier signal level 768.
   - 1GE: A facility-related alarm/event for 1 Gigabit Ethernet.
   - VC3: A facility-related alarm/event for virtual container 3.

- VCG: A facility-related alarm/event for virtual concatenation group tributary.
- VC4: A facility-related alarm/event for virtual container 4
- VC44C: A facility-related alarm/event for a signal concatenated at 4 times the VC4 rate.
- VC416C: A facility-related alarm/event for a signal concatenated at 16 times the VC4 rate.
- VC464C: A facility-related alarm/event for a signal concatenated at 64 times the VC4 rate.
- STS1: A facility-related alarm/event at synchronous transport signal level 1.
- STS3C: A facility-related alarm/event at synchronous transport signal level 3.
- STS12C: A facility-related alarm/event at synchronous transport signal level 12.
- STS48C: A facility-related alarm/event at synchronous transport signal level 48.
- STS192C: A facility-related alarm/event at synchronous transport signal level 192.

Default: There is no default value.

3. condtype – Condition Type
   ASAP related conditions:
   For events which belong to an ASAP profile, refer to the definition of the *condtype* parameter in the output parameters section of the "RTRV-ALM: Retrieve alarm" (p. 4-1599) command.
   TCA related condition types:
   Refer to the definition of the condtype parameter in the Output parameters section of the "TCA notification" (p. 4-2338) chapter.
   Abnormal condition types:
   This parameter identifies the type of event indication being reported.
   Type: inner string with the Format: ABN-<abntype>
   Range:
   - ABN-INHSWPR: Inhibited switch to protection (forced switch to working or lockout protection)
   - ABN-INHSWWKG: Inhibited switch to working (forced switch to protection or lockout working)
   - ABN-SYNC : Holdover or Free-run synchronization mode
   - ABN-LPBKNETWORK: Loopback, Network
   - ABN-MAINTENANCE: System operates in maintenance mode
   - ABN-INHMSG: Autonomous event forwarding from NE to EMS is inhibited for all currently established sessions
   - ABN-TESTACC: Test access session has been setup.

   Protection Switch related Condition Types:
   Refer to the definition of the *condtype* parameter in the Output parameters section of the Protection group chapter.

4. condeff – Condition Effect
   This parameter indicates the effect of the reported event on the network element. The value TC (Transient Condition) shall be used for all protection switch events.
   Type alphanumeric value set Range TC
   Type: alphanumeric value set
   Range: TC

   a. orcdate – Occurrence Date

      This parameter indicats the date of the switch event being reported. Type: value set of format MM-DD. Range: M, D are digits. Leading zeros are not suppressed. MM represents month, DD the day.

   b. orctime – Occurrence Time

      This parameter indicates the time of the switch event being reported. Type: value set of format HH-MM-SS. Range: H, M, S are digits. Leading zeros are not suppressed. HH represents hours, MM minutes, SS seconds.

5. conddescr – Description of the Condition
   ASAP related conditions:
   For events which belong to an ASAP profile, refer to the definition of the *conddescr* parameter in the output parameters section of the "RTRV-ALM: Retrieve alarm" (p. 4-1599) command.
   TCA related conditions:
   Refer to the definition of the *conddescr* parameter in the Output parameters section of the "TCA notification" (p. 4-2338) chapter.
   Abnormal conditions:
   The general format is: category, description.
   Type: inner string.
   Range:

   - Description for a protection group AID: - Abnormal condition, forced switch active - Abnormal condition, lockout active
   - Description for a timing reference AID: - Abnormal condition, operate in hold-over - Abnormal condition, operate in free run mode
   - Description for a port AID: - Abnormal condition, facility loopback active
   - Description for a logical tributary AID: - Abnormal condition, cross-connect loopback active - Abnormal condition, test access session active
   - Description for a system AID: - Abnormal condition, System operates in maintenance mode - Abnormal condition, Autonomous event forwarding is inhibited.

   Protection Switch related Conditions:
   Refer to the definition of the *conddescr* parameter in the Output parameters section of the Protection group chapter.

Detailed behavior description

If both *startdate* and *starttime* are omitted, the entire log is retrieved. Both *startdate* and *starttime* must be specified, or both must be omitted. If *replytype* is specified, then *startdate* and *starttime* are present.

The log shows the same information as it could be derived from looking on the protection switches reported by means of REPT EVT and REPT SW.

Note: In case of a 1+1 equipment protection switching causing one REPT SW notification and one REPT EVT notification, then two entries are reported in the retrieve log reply.

Example input/output

1+1 Equipment protection group

The following example retrieves a manual switch to protection circuit pack for 1+1 equipment protection group:

```
RTRV-LOG-PROTNSW:LT-UNITE::123456;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
   "1-1-#-#-xcp-cp:SW,,,01-10,08-12-00"
   "1-1-estgrp,COM:EVT,GP,TC,01-10,08-12-00:\"Protection Switch, EQPT,
     Manual switch\""
;
```

Multiplex section/line protection group (1+1 and 1:1)

The following example retrieves a lockout switch for a 1+1 multiplex section/line protection group:

```
RTRV-LOG-PROTNSW:LT-UNITE::123456;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
   "1-1-#-#-10-2,OC3:EVT,WKSWBK,TC,01-10,08-12-00:\"Protection Switch,
     OC3 port, Lockout switch,, 1+1/1x1\""
;
```

2 fibre MS-SPRing/BLSR protection group

The following example retrieves a manual ring switch of the east side for a 2F MS-SPRing/BLSR protection group:

```
RTRV-LOG-PROTNSW:LT-UNITE::123456;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
   "1-1-#-#-10-2,OC48:EVT,WKSWPR-2,TC,01-10,08-12-00:\"Protection
     Switch, OC48 port, Manual switch, MSR, 2F\""
;
```

4 fibre MS-SPRing/BLSR protection group

The following example retrieves a manual ring switch of the east side for a 4F MS-SPRing/BLSR protection group:

```
RTRV-LOG-PROTNSW:LT-UNITE::123456;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
   "1-1-#-#-10-1,OC192:EVT,WKSWPR-2,TC,01-10,08-12-00:\"Protection
     Switch, OC192 port, Manual switch, MSS, 4F\""
;
```

Path protection group

The following example retrieves an autonomous switch to protection for a 1+1 path protection group:

```
RTRV-LOG-PROTNSW:LT-UNITE::123456;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
   "1-1-#-#-10-1-25,STS1:EVT,WKSWPR-2,TC,01-10,08-12-00:\"Protection
     Switch, STS1 CS, SF\""
;
```

System clock

The following example retrieves a switch event for clock mode protection type:

```
RTRV-LOG-PROTNSW:LT-UNITE::123456;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
   "SYSTEM,SYST:EVT,HLDOVRSYNC,TC,11-09,12-00-00,,,:\"Protection
     switch,clock mode,Forced Holdover\""
;
```

System timing reference

The following example retrieves a switch event for system timing reference protection type:

```
RTRV-LOG-PROTNSW:LT-UNITE::123456;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
   "EXTREF1,SYST:EVT,PS,TC,11-09,12-00-00,,,:\"Protection switch,sync
     reference,Manual switch\""
;
```

Station timing reference

The following example retrieves a switch event for output timing reference protection type:

```
RTRV-LOG-PROTNSW:LT-UNITE::123456;
   LT-UNITE 98-01-01 08:00:00
```

```
M  123456 COMPLD
   "LINE2,OUTT:EVT,INHSWPR,SC,11-09,12-00-00,,,:
   \"Protection switch,output reference,Lockout\""
;
```

Error responses

Validation rule: matching log entry

There is at least one matching log entry for the specified *startdate* and *starttime* if replytype equals DBSYNC.

Error code: `SNVS - Status, Not in Valid State, no matching log entry`

Related TL1 messages

- "REPT EVT: Report event" (p. 4-1520)
- "REPT SW: Report switch" (p. 4-1559)
- "RTRV-LOG-ALM: Retrieve log alarm" (p. 4-1753)
- "RTRV-LOG-NTFCN: Retrieve notification Log" (p. 4-1765)

References

GR-833-CORE

□

RTRV-LOG-SECU: Retrieve Log Security

The RTRV-LOG-SECU command can be initiated by a user to retrieve the security information log activity from the NE.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S5

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-LOG-SECU:`*tid*`::`*ctag*`::[`*startdate*`,`*starttime*`]`;

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
3. startdate – Start Date
   The date for the starting point of the report. If both *startdate* and *starttime* are omitted, the entire log is retrieved. Both *startdate* and *starttime* must be specified, or both must be omitted.
   Type: value set of the format YY-MM-DD
   Range: Y, M, D are digits. Leading zeros are not suppressed. YY represents the last two digits of the year, MM the month, DD the day.
4. starttime – Start Time
   The time for the starting point of the report. If both *startdate* and *starttime* are omitted, the entire log is retrieved. Both *startdate* and *starttime* must be specified, or both must be omitted.
   Type: value set of the format HH-MM-SS
   Range: H, M, S are digits. Leading zeros are not suppressed. HH represents the hours, MM the minutes, SS the seconds.
   Default: none

Output format

After receiving the RTRV-LOG-SECU command, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
   "login_id:umb:action:ccb:[uid_block]:[com_block]:
```

```
    [spec_block]:ccde"
         ...
    "login_id:umb:action:ccb:[uid_block]:[com_block]:
    [spec_block]:ccde"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. login_id – Login ID
   The login identification of the user. It is the same as the user ID uid. See definition of *uid* in "ACT-USER: Activate user" (p. 4-14).
2. umb – Update Management Block
   The parameters within this block are positionally independent and are specified using a name-defined construct of parameter=value in a comma-separated list.
   - date
     The date of the user action.
     Type: value set of the format YY-MM-DD
     Range: Y, M, D are digits. Leading zeros are not suppressed. YY represents the last two digits of the year, MM the month, DD the day.
   - time
     The time of the user action
     Type: value set of the format HH-MM-SS
     Range: H, M, S are digits. Leading zeros are not suppressed. HH represents the hours, MM the minutes, SS the seconds.
3. action – Action
   This parameter indicates the reason for the log entry.
   Type: text string.
   Range:
   - For reasons for a logout entry following values are defined: "inactivity timeout" "forced logout" "self logout"
     For reason for login failure following values are defined: "expired passwd" "invalid uid" "invalid passwd" "locked out uid"
     For other reasons following values are defined: "NE security variable change"
4. ccb – Command Code Block
   This parameter contains the name of the command.
   Type: character string
   Range: The names of the commands described in the Administration & Security except the RTRV -Commands.

5. uid_block - User ID Block
   This parameter contains the user ID of the user, who is affected by the logged action. If the action does not affect a specific user (e.g. modification of NE security parameters) the uid_block shall be empty.
   Type: character string
   Range: 1 - 10 character string or empty string.
6. com_block – Common Block
   It contains the common block of the command which is logged in the log. Please refer to the specifications of the commands. There exist only one exception: Passwords will be not logged.
7. spec_block – Specific Block
   It contains the specific block of the command which is logged in the log. Please refer to the specifications of the commands.
8. state_block – State Block
   It contains the state b lock of the command which is logged in the log. Please refer to the specifications of the commands.
   Note: The state block is not used in the commands to be logged. This parameter will be always empty.
9. ccde – Completion Code
   The completion code of the command.
   Type: alphanumeric string
   Range: COMPLD or the 4-character error code.

Detailed behaviour description

If the error log of the system does not contain any records at all or no records exist matching the specified startdate and starttime an empty reply shall be returned.

Example input/output

The following example shows the successful completion of RTRV-LOG-SECU command by the NE:

```
RTRV-LOG-SECU:LT-UNITE-123::123456;
   LT-UNITE-123 00-01-05 08:00:00
M  123456 COMPLD
   "hugo:DATE=00-01-02,TIME=07-59-59:\"NE security
   variable change\":ED-NE-SECU:::thrshld=30,intrvl=60,
   age=90:COMPLD"
   "nbguser1:DATE=00-01-03,TIME=06-59-59:\"inactivity
   timeout\":::::COMPLD"
   "Admin1:DATE=00-01-04,TIME=09-59-59:\"invalid passwd\":
   ACT-USER::::IDNV"
;
```

Error responses

Refer to the RTRV-HDR command Error Resoonses section. The error responses listed there apply to the RTRV-LOG-SECU command.

Related TL1 messages

- "ACT-USER: Activate user" (p. 4-14)
- "RTRV-LOG-ALM: Retrieve log alarm" (p. 4-1753)
- "RTRV-LOG-NTFCN: Retrieve notification Log" (p. 4-1765)
- "RTRV-LOG-PROTNSW: Retrieve log protection switch" (p. 4-1769).

□

RTRV-LONIM: Low-Order Non-Intrusive Monitor

The RTRV-LONIM command retrieves the attributes of a low-order non-intrusive monitor located on a I/O pack (e.g. OPn or EP155).

LONIM entities exist as long as a high-order tributary has been substructured. They are represented by entities only on lowest transmission rate with the maximum number of instances. The substructure depends on the interface standard of the related high-order tributary.

As result of a substructure creation (caused by the first low-order cross-connection for a high-order tributary) following instances will be created:

- SDH: 63 LOVC instances,
- SONET: 28 LOVT instances.

All of those entities can be always retrieved or modified although settings will only take effect for those entities which are indicated in the actual substructure.

Example: Assuming a VC4 (1st VC4 of port 1 in slot 1) is substructured to 3 VC3 (inputsig=33) since three unidirectional LOVC3 cross-connections have been established with that VC3s as input each. A RTRV-LONIM command with the input aid 1-1-#-#-1-1-1-all would deliver 63 responses although only 3 of them are in use (1-1-#-#-1-1-1-1, 1-1-#-#-1-1-1-22 and 1-1-#-#-1-1-1-43). The LONIM 1-1-#-#-1-1-1-2 can be modified without having any effect.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes.

Input format

Command Syntax:

`RTRV-LONIM-`*modifier*:*tid*:*aid*:*ctag*::[*:::spec_block*],

Input parameters

Command parameters

1. modifier
   The modifier shall specify the type of the low-order tributary. The purpose is to distinguish between: - SDH/SONET tributaries.
   Type: alphanumeric value set

Range:

- ALL
- LOVC
- LOVT

The ALL modifier is only useful if aid with wildcards are used which have a bigger range than one single port or if the interface standard of the LONIM entities is unknown.

2. tid – Target Identifier
   See definition in "RTRV-HDR: Retrieve header" (p. 4-1736).
3. aid – Access Identifier
   The access identifier shall specify a low-order tributary to be operated on.
   Type: AID
   Range: GenLOTribAID as defined in SRD_TL1_AID.
   Following wildcard values shall be accepted:
   - *all*, *usall* in Simple_UnivSlotAID,
   - *all* in Simple_SPortAID,
   - *all* in Simple_PTNumAID,
   - *all* in Simple_LONumAID.

   The motiviation to allow a retrieval of all low-order tributaries at once (in combination with the ALL modifier) is that NE internally all slots and ports must be queried anyway to fill the response. If the retrieve command would be more restrictive then multiple commands would be necessary to retrieve all low-order tributaries which results internally to an unnecessary multiple full query.
4. ctag – Correlation Tag
   See definition in "RTRV-HDR: Retrieve header" (p. 4-1736).

Spec Block Parameters

1. dyn - Retrieve Dynamic Parameters
   This parameter controls whether dynamic data (output parameters) shall be reported with the command reply or not. It shall only be possible to retrieve those data if the aid input parameter does not address multiple entities at the same time (no wildcarding allowed). If ommitted the default value is assumed.
   The following output parameters are considered to be dynamic:
   - ptrc
   - ptrcst
   - rsiglb
   - trailst

   Type: alphanumeric value set
   Range:
   - YES: Report dynamic parameters in the reply as well
   - NO: Do not report dynamic parameters in the reply.

Output format

If the network element fully complies with the RTRV-LONIM request, the following normal completion response shall be returned:

```
   sid date time
M  ctag COMPLD
   "aid,aidtype[::spec_block]"
   <1 or more of the line above>
;
```

The output parameters *sid*, *date*, *time* and *ctag* included in the normal completion response are specified in the Output Parameter section for the RTRV-HDR command.

Output parameters

Command Parameters

1. aid – Access Identifier
   The access identifier shall specify the low-order tributary whose attributes are reported.
   Type: AID
   Range: GenLOTribAID as defined in SRD_TL1_AID.
   Following values shall not be used:
   - *all*, *usall* for Simple_UnivSlotAID,
   - *all* for Simple_SPortAID,
   - *all* for Simple_PTNumAID,
   - *all* Simple_LONumAID.

   No wildcards are allowed.
2. aidtype - Access Identifier Type
   The aidtype shall specify the type of the tributary.
   Type: alphanumeric value set
   Range: LOVC, LOVT

Spec Block Parameters

If a third of a high-order tributary has been substructured to a low-order VC-3 then only the first of the 21 referring LOVC entities will contain VC3 related contents - the other 20 entities will represent (currently unused) VC12 related contents. VC3 contents differes from VC12 contents e.g. in the range of the path trace receive format (VC3 allows 64 byte mode exclusively).

Configurations of unused entities is possible - even for performance monitoring. However, performance monitoring bins are not retrievable.

If a used entity changes its contents from VC3 to VC12 related contents or vice versa then all parameter for this entity will be set back to the referring default (note that the default values are transmission rate dependent) except for performance monitoring:

- Possibly enabled performance monitoring will not be stopped,
- SES threshold settings will be set back to default (since different)
- TCA profile assignment remains unchanged.

Other (VC12 related) entities of the same third within the referring high-order cross-connection (VC4) will not be changed at all.

1. crslpbkstat - Crossconnect Loopback Status
   This parameter shall report the configuration of the crossconnection loopback of this triburay. For changing the loopback operation refer to OPR-LPBK.
   Type: alphanumeric value set
   Range:
   - YES: for enabled loopback
   - NO: for disabled loopback.
2. degthr - Signal Degrade Threshold
   This parameter shall specify the exponent to base 10 for building the degraded threshold level. Note that only the POISSON mode is supported by HW for low-order tributaries. Therefore this parameter will be always valid (i.e. in contrast to RTRV-VCGTRIB, RTRV-VC3, RTRV-STS1).
   Type: integer
   Range: -5, -6 (default), -7, -8, -9; i.e. range is 10exp-9 to 10exp-5
3. dexcthr - Excessive Degrade Threshold
   This parameter shall specify the exponent to base 10 for building the excessive threshold level. Note that only the POISSON mode is supported by HW for low0order tributaries. Therefore this parameter will be always valid (i.e. in contrast to RTRV-VCGTRIB, RTRV-VC3, RTRV-STS1).
   Type: integer
   Range: -3 (default), -4, -5; i.e. range is 10exp-5 to 10exp-3
4. explptrc - Expected LO Path Trace Identifier
   This parameter shall specify the Expected Low Order Path Trace Identifier (J1 or J2). The first byte value shall be in the range from 80 to FF (MSB always set to 1). The other byte values shall be in the range from 00 to 7F (MSB always set to 0). This parameter is only useful if ptrcrfmt is set to 16.
   Type: hexadecimal number without a preceeding 'H'.
   Range: length: 32 hexadecimal; digits: value specific string acc. ITU/ETSI mode 1
   Default: 89000000000000000000000000000000
5. feppm - Far End Path PM Enable
   This parameter shall specify whether the performance monitoring for the far end is enabled or disabled for this tributary.
   Type:alphanumeric value set
   Range: DISABLE (default), ENABLE.

6. lonimpn - LO NIM ASA Profile Name
   This parameter points to a tributary ASAP profile name pfname for the designated AID.
   Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: 1 ... 24 characters
   Default: DEFAULT.
7. lptimmon - LO Path Trace Identifier Mismatch Monitor
   This parameter shall specify if the mode of the TIM detection. This parameter is relevant only if the related trace read format ptrcrfmt is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set
   Range: DISABLE (default), ENABLE.
8. neppm - Near End Path PM Enable
   This parameter shall specify whether the performance monitoring for the near end is enabled or disabled for this tributary.
   Type: alphanumeric value set
   Range: DISABLE (default), ENABLE
9. pmlpfeses - PM LO Path Far End SES Threshold
   This parameter shall specify the Low Order Path Far End Severely Errored Seconds Performance Monitioring Threshold for errored frames. If errored frames are crossing this threshold this will result in an SES count for the far end. The behaviour depends on interface standard specified by istd for the related port owning this tributary and the transmission rate of this low-order tributary. For definition of istd refer to RTRV-rr Output Parameters. The transmission rate can only be derived from the parameter inputsig of the related PTF entity.
   Type: integer
   Range:
   The range depends on the tributary type in input direction, which can be derived from inputsig of the related PTF:
   - 1, 2, 3, ..., 7998, 7999, 8000 (if the entity represents a LO-VC3 tributary)
   - 1, 2, 3, ..., 1998, 1999, 2000 (if the entity represents a VC12 tributary)
   - 1, 2, 3, ..., 3998, 3999, 4000 (if the entity represents a VT1.5 tributary)

   Default: The default value depends on the tributary type in input direction, which can be derived from inputsig of the related PTF: 2400 (if the entity represents a LO-VC3 tributary) 600 (if the entity represents a VC12 or VT1.5 tributary).
10. pmlpneses - PM LO Path Near End SES Threshold
    This parameter shall specify the Low Order Path Near End Severely Errored Seconds Performance Monitioring Threshold for errored frames. If errored frames are crossing this threshold this will result in an SES count for the near end. The behaviour depends on interface standard specified by istd for the related port

owning this tributary and the transmission rate of this low-order tributary. For definition of istd refer to RTRV-rr Output Parameters. The transmission rate can only be derived from the parameter inputsig of the related PTF entity.
Type: integer
Range:

The range depends on the tributary type in input direction, which can be derived from inputsig of the related PTF:

- 1, 2, 3, ..., 7998, 7999, 8000 (if the entity represents a LO-VC3 tributary)
- 1, 2, 3, ..., 1998, 1999, 2000 (if the entity represents a VC12 tributary)
- 1, 2, 3, ..., 3998, 3999, 4000 (if the entity represents a VT1.5 tributary).

Default: The default value depends on the tributary type in input direction, which can be derived from inputsig of the related PTF: 2400 (if the entity represents a LO-VC3 tributary) 600 (if the entity represents a VC12 or VT1.5 tributary).

11. ptca - Path TCA Profile Pointer
    The parameter ptca shall specify the name of the threshold crossing alert (TCA) profile used for this tributary.
    Type: alphanumeric string
    Range: 1 ... 24 characters
    Default: DEFAULT0
12. ptrc - Incoming Path Trace
    The parameter ptrc shall report the accepted low order path trace identifier (J1 or J2). The length depends on the value of the parameter ptrcrfmt. The status of this value is contained in parameter ptrcst. If ptrcst indicates NORMAL, then ptrc contains a valid value. If ptrcst indicates UNAVAILABLE or AIS, then no valid incoming path trace identifier could be obtained by the system, e.g. due to not meeting the basic acceptance criteria or intra-NE communication problems, and the output parameter ptrc is omitted from the response.
    Type: hexadecimal

    Range: the range depends on the parameter ptrcrfmt specified in RTRV-LONIM Output Parameters

    - 2, hexadecimal digits if ptrcrfmt=2
    - 32, hexadecimal digits if ptrcrfmt=16
    - 128, hexadecimal digits if ptrcrfmt=64.
13. ptrcrfmt - Path Trace Read Format
    This parameter shall specify the format of the path trace (J1 or J2 byte) to be received (sink).
    Type: numeric string

Range:

- 2 (default), for non-specific repeating byte
- 16, for 16 byte specific string
- 64, for 64 byte string (only applicable if the entity represents a LO-VC3 tributary).

To check whether the entity represents a LO-VC3 tributary or not, the parameter inputsig of the related PTF entity must be checked.

14. ptrcst - Status of Incoming Path Trace
    This parameter shows the status of the value of the incoming Path Trace Identifier (J1 or J2) which is available with parameter *ptrc*.
    Type:alphanumeric value set
    Range:
    - NORMAL, *ptrc* contains a valid value
    - UNAVAILABLE, no valid value for *ptrc* could be obtained by the system
    - AIS, no valid value for *ptrc* could be obtained due to SF condition
15. rsiglb - Received Signal Label
    This parameter shall report the accepted trail signal label (C2 or V5). The parameter shall not be reported if the trailst parameter indicates a fail condition, i.e. has the value AIS or UNAVAILABLE.
    Type: alphanumeric value set
    Range: 00, 01, ..., FE, FF, i.e. two hexadecimal digits.
16. tcamd - TCA mode
    This parameter is only available for SDH mode and will therefore only be reported if the output parameter aidtype is LOVC. The parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable for SDH:
    - TR-only. (also known as the implicit reset method)
    - TR-RTR. (also known as the explicit reset method).

    For SONET the parameter tcamd does not exist. SONET ports only support ″TR-only″ mode. Thus the mode must be internally set to ″TR-only″.
    Type: alphanumeric value set
    Range: TR, TRRTR
    Default:
    - SDH mode: TRRTR
    - SONET mode: TR (internal).

    For SONET the parameter tcamd does not exist. SONET ports only support ″TR-only″ mode. Thus the mode must be internally set to ″TR-only″.
17. tmonmd - Tributary Monitoring Mode
    This parameter shall specify the monitoring mode for the tributary.
    Type: alphanumeric value set
    Range: MON, NMON (default).

18. trailst - Trail Status
    This parameter shall report the accepted trail status value.
    Type: alphanumeric string
    Range:
    - AIS for Alarm Indication Signal in case of Trail Signal Fail Condition
    - UNAVAILABLE for unavailable
    - NORMAL.

Detailed behavior description

The RTRV-LONIM does not generate a REPT DBCHG message. The command shall retrieve all low order tributary parameter related to specified AID as described in section Output Parameters. It does not matter whether the entity is really in use or not.

Example input/output

Retrieval of all LO tributaries of a VC4 being substructured to 3 VC3:

```
RTRV-LONIM-LOVC:LT-UNITE:1-1-#-#-39-16-1-all:123456;
   LT-UNITE 00-11-11 11:11:00
M  123456 COMPLD
   "1-1-#-#-39-16-1-1,LOVC::crslpbkstat=NO,degthr=-6,
    dexcthr=-3,\explptrc=8900000000000000000000000000000000,
    feppm=DISABLE,\lonimpn=DEFAULT,lptimmon=DISABLE,
    neppm=DISABLE,\pmlpfeses=2400,pmlpneses=2400,
    ptca=DEFAULT0,ptrcrfmt=2,\tcamd=TRRTR,tmonmd=NMON"
   "1-1-#-#-39-16-1-2,LOVC::crslpbkstat=NO,degthr=-6,\
    dexcthr=-3,explptrc=8900000000000000000000000000000000,\
    feppm=DISABLE,lonimpn=DEFAULT,lptimmon=DISABLE,
    neppm=DISABLE,\pmlpfeses=600,pmlpneses=600,
    ptca=DEFAULT0,ptrcrfmt=2,\tcamd=TRRTR,tmonmd=NMON"
    <listing of more unused VC12's ending with>
   "1-1-#-#-39-16-1-21,LOVC::crslpbkstat=NO,degthr=-6,\
    dexcthr=-3,explptrc=8900000000000000000000000000000000,\
    feppm=DISABLE,lonimpn=DEFAULT,lptimmon=DISABLE,
    neppm=DISABLE,\pmlpfeses=600,pmlpneses=600,
    ptca=DEFAULT0,ptrcrfmt=2,\tcamd=TRRTR,tmonmd=NMON"
   "1-1-#-#-39-16-1-22,LOVC::crslpbkstat=NO,degthr=-6,
    dexcthr=-3,\explptrc=8900000000000000000000000000000000,
    feppm=DISABLE,\lonimpn=DEFAULT,lptimmon=DISABLE,
    neppm=DISABLE,\pmlpfeses=2400,pmlpneses=2400,
    ptca=DEFAULT0,ptrcrfmt=2,\tcamd=TRRTR,tmonmd=NMON"
   "1-1-#-#-39-16-1-23,LOVC::crslpbkstat=NO,degthr=-6,\
    dexcthr=-3,explptrc=8900000000000000000000000000000000,\
    feppm=DISABLE,lonimpn=DEFAULT,lptimmon=DISABLE,
    neppm=DISABLE,\pmlpfeses=600,pmlpneses=600,
    ptca=DEFAULT0,ptrcrfmt=2,\tcamd=TRRTR,tmonmd=NMON"
    <listing of more unused VC12's ending with>
```

```
   "1-1-#-#-39-16-1-42,LOVC::crslpbkstat=NO,degthr=-6,\
    dexcthr=-3,explptrc=8900000000000000000000000000000,\
    feppm=DISABLE,lonimpn=DEFAULT,lptimmon=DISABLE,
    neppm=DISABLE,\pmlpfeses=600,pmlpneses=600,ptca=DEFAULTO,
    ptrcrfmt=2,\tcamd=TRRTR,tmonmd=NMON"
   "1-1-#-#-39-16-1-43,LOVC::crslpbkstat=NO,degthr=-6,
    dexcthr=-3,\explptrc=8900000000000000000000000000000,
    feppm=DISABLE,\lonimpn=DEFAULT,lptimmon=DISABLE,
    neppm=DISABLE,\pmlpfeses=2400,pmlpneses=2400,
    ptca=DEFAULTO,ptrcrfmt=2,\tcamd=TRRTR,tmonmd=NMON"
   "1-1-#-#-39-16-1-44,LOVC::crslpbkstat=NO,degthr=-6,\
    dexcthr=-3,explptrc=8900000000000000000000000000000,\
    feppm=DISABLE,lonimpn=DEFAULT,lptimmon=DISABLE,
    neppm=DISABLE,\pmlpfeses=600,pmlpneses=600,
    ptca=DEFAULTO,ptrcrfmt=2,\tcamd=TRRTR,tmonmd=NMON"
    <listing of more unused VC12's ending with>
   "1-1-#-#-39-16-1-63,LOVC::crslpbkstat=NO,degthr=-6,\
    dexcthr=-3,explptrc=8900000000000000000000000000000,\
    feppm=DISABLE,lonimpn=DEFAULT,lptimmon=DISABLE,
    neppm=DISABLE,\pmlpfeses=600,pmlpneses=600,
    ptca=DEFAULTO,ptrcrfmt=2,\tcamd=TRRTR,tmonmd=NMON"
;
```

Retrieval of all LO tributaries of a VC4 being substructured to 63 VC12:

```
RTRV-LONIM-LOVC:LT-UNITE:1-1-#-#-39-16-1-all:123456;
   LT-UNITE 00-11-11 11:11:00
M  123456 COMPLD
   "1-1-#-#-39-16-1-1,LOVC::crslpbkstat=NO,degthr=-6,\
    dexcthr=-3,explptrc=8900000000000000000000000000000,\
    feppm=DISABLE,lonimpn=DEFAULT,lptimmon=DISABLE,
    neppm=DISABLE,\pmlpfeses=600,pmlpneses=600,
    ptca=DEFAULTO,ptrcrfmt=2,\tcamd=TRRTR,tmonmd=NMON"
   "1-1-#-#-39-16-1-2,LOVC::crslpbkstat=NO,degthr=-6,\
    dexcthr=-3,explptrc=8900000000000000000000000000000,\
    feppm=DISABLE,lonimpn=DEFAULT,lptimmon=DISABLE,
    neppm=DISABLE,\pmlpfeses=600,pmlpneses=600,
    ptca=DEFAULTO,ptrcrfmt=2,\tcamd=TRRTR,tmonmd=NMON"
    <listing of more VC12 related LONIM's of this HO Trib>
    <ending with>
   "1-1-#-#-39-16-1-63,LOVC::crslpbkstat=NO,degthr=-6,\
    dexcthr=-3,explptrc=8900000000000000000000000000000,\
    feppm=DISABLE,lonimpn=DEFAULT,lptimmon=DISABLE,
    neppm=DISABLE,\pmlpfeses=600,pmlpneses=600,
    ptca=DEFAULTO,ptrcrfmt=2,\tcamd=TRRTR,tmonmd=NMON"
;
```

Retrieval of all LO tributaries of a STS1 being substructured to 28 VT1.5:

```
RTRV-LONIM-LOVT:LT-UNITE:1-1-#-#-39-16-1-all:123456;
```

```
   LT-UNITE 00-11-11 11:11:00
M  123456 COMPLD
   "1-1-#-#-39-16-1-1,LOVT::crslpbkstat=NO,degthr=-6,\
    dexcthr=-3,explptrc=89000000000000000000000000000000,\
    feppm=DISABLE,lonimpn=DEFAULT,lptimmon=DISABLE,\
    neppm=DISABLE,pmlpfeses=600,pmlpneses=600,ptca=DEFAULT0,\
    ptrcrfmt=2,tmonmd=NMON"
   "1-1-#-#-39-16-1-2,LOVT::crslpbkstat=NO,degthr=-6,\
    dexcthr=-3,explptrc=89000000000000000000000000000000,\
    feppm=DISABLE,lonimpn=DEFAULT,lptimmon=DISABLE,\
    neppm=DISABLE,pmlpfeses=600,pmlpneses=600,ptca=DEFAULT0,\
    ptrcrfmt=2,tmonmd=NMON"
    <listing of more VT1.5 related LONIM's of this HO Trib>
    <ending with>
   "1-1-#-#-39-16-1-28,LOVT::crslpbkstat=NO,degthr=-6,\
    dexcthr=-3,explptrc=89000000000000000000000000000000,\
    feppm=DISABLE,lonimpn=DEFAULT,lptimmon=DISABLE,\
    neppm=DISABLE,pmlpfeses=600,pmlpneses=600,ptca=DEFAULT0,\
    ptrcrfmt=2,tmonmd=NMON"
;
```

Retrieval of a single VC3 with dynamic parameters:

```
RTRV-LONIM-LOVC:LT-UNITE:1-1-#-#-39-16-1-43:
123456::dyn=YES;
   LT-UNITE 00-11-11 11:11:00
M  123456 COMPLD
   "1-1-#-#-39-16-1-43,LOVC::crslpbkstat=NO,degthr=-6,
   dexcthr=-3,\explptrc=89000000000000000000000000000000,
   feppm=DISABLE,\lonimpn=DEFAULT,lptimmon=DISABLE,
   neppm=DISABLE,\pmlpfeses=2400,pmlpneses=2400,
   ptca=DEFAULT0,\prtc=89000000000000000000000000000000,
   ptrcst=NORMAL,\ptrcrfmt=2,rsiglb=00,tcamd=TRRTR,
   tmonmd=NMON,trailst=NORMAL"
;
```

Error responses

Refer to the RTRV-HDR command Error Responses section. The error responses listed there apply to the RTRV-LONIM command, too.

Validation rule: Check LONIM::modifier against PTF::istd

If the command is applied with a modifier which does not match to the interface standard parameter istd of the owning PTF entity then the command shall be denied.

Error code: `IENE - Input, Entity Not Exists`

Following combinations are allowed: *modifier istd*:

LOVC, SDH LOVT, SONET ALL, SDH or SONET.

Validation rule: Check *aid* and *dyn* consistency

If the command is applied with an aid parameter containing wildcards (all at any position) and the dyn parameter is set to YES then the command shall be denied.

Error code: `IDRG - Input, Data Range Error`

Example: Given the aid refers to 1-1-#-#-39-16-1-all and the dyn parameter is set to YES then the command will be rejected.

Related TL1 messages

- "ED-LONIM: Edit Low Order Non-Intrusive Monitor" (p. 4-304)

□

RTRV-LOXCPM: Retrieve Performance Monitoring Data of LOXC pack

The RTRV-LOXCPM command is initiated by a user to request the network element to send the current and/or historical Performance Monitoring (PM) data associated with performance monitoring points located on a LOXC pack. For each value in the *montype* parameter of the RTRV-PM Input Parameters section PM counter values will be stored in the current 15-minute period, the 32 previous 15-minute periods (past 8 hours worth of data), current day, and previous day periods.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): PM1

Priority: 1

Abortable: Yes.

Input format

Command Syntax:

RTRV-LOXCPM-*modifier*:*tid*:*aid*:*ctag*::[*montype*], [*monlev*], [*locn*],,*tmper*, [*mondat*], [*montm*];

Input parameters

Command parameters

1. modifier
   This parameter defines the type of performance monitoring point.
   Type: alphanumeric value set
   Range: The following value is for SONET only: LOVT1.
   The following values are for SDH only: LOVC3, LOVC12.
2. tid – Target Identifier
   See definition in "RTRV-HDR: Retrieve header" (p. 4-1736).
3. aid – Access Identifier
   Type: AID
   Range: GenLOTribAID
   Wildcard values in parts of both AIDs shall be usable as follows:
   - *all*, *usall* in Simple_UnivSlotAID,
   - *all* in Simple_SPortAID,
   - *all* in Simple_PTNumAID,
   - *all* in Simple_LONumAID.

   Note that all LOXC related data for a specific transmission rate can be retrieved in one stroke, since with the single-step-approach no sensful filtering can be done.

4. ctag – Correlation Tag
   See definition in "RTRV-HDR: Retrieve header" (p. 4-1736).
5. montype – Monitored parameter type
   This is the monitored parameter type for which data is requested. If the value is omitted, this parameter defaults to ALL.
   Type: value set.
   Range:
   - The following values are for LOVT1 modifiers only: CVP, ESP, SESP, UASP, FC-P, CV-PFE, ES-PFE, SES-PFE, UAS-PFE, FC-PFE
   - The following values are for LOVC3 and LOVC12 modifiers only: VC-N-ES, VC-N-SES, VC-N-BBE, VC-N-UAS, VC-F-ES, VC-F-SES, VC-F-BBE, VC-F-UAS

   The following value is also allowed for all input modifiers: ALL.
   Default: ALL.
6. monlev – Monitored Level
   This parameter provides the level for the monitored PM parameter. The parameter is only evaluated if the value of *montype* parameter is ALL.
   Type: value set.
   Range:
   - 1-UP: Means the NE will report, non-zero data only.
   - 0-UP: Means the NE will report zero and all positive data.

   Default: 1-UP.
7. locn – Location
   Location for which the PM data is monitored. The parameter value is only considered if the *montype* value is ALL; otherwise it is ignored for the calculation of the command reply (i.e has no impact on the command).
   Type: value set.
   Range:
   - NEND: Near-End PM data is requested.
   - FEND: Far-End PM data is requested.
   - ALL: All near-end and far-end data is requested. It applies only to input direction.

   Default: ALL.
8. tmper – Time Period
   This requests PM data for a specified time interval.
   Type: value set.
   Range:
   - 15-MIN: This requests PM data in 15-minute intervals
   - 1-DAY: This requests daily PM data.

9. mondat – Monitored Date
   This requests the beginning date of the interval for which the PM data is to be reported. For both values of tmper parameter, the maximum allowable range of valid dates includes the current and previous one day.
   Type: value set.
   Range:
   - MM-DD: Month-Day. A leading zero (first M or first D) is optional and may be omitted.
   - ALL: Current and previous day.

   Default: Current date
10. montm – Monitored Time
    This parameter specifies the beginning time of day of the requested PM period that was set by *tmper* parameter. The user is able to specify a monitored time in three modes:
    a. A monitored time interval (i.e., from hour-minutes to hour-minutes: HOD-MOH&&THOD-TMOH).
    b. A single time interval (i.e., the hour and minutes for the appropriate 15 minute data: HOD-MOH).
    c. All applicable beginning times for the given *mondat* value (i.e., all).

    Where HOD-MOH represents the start of the requested PM retrieval period (hours and minutes) and THOD-TMOH represents the end of the requested PM retrieval period. The value ALL must be used if the *mondat* value provided is ALL.
    Type: character string.
    Range:
    - HOD-MOH: This specifies the beginning time of day of the requested PM period that was set by *tmper* parameter. This parameter may be omitted or have one of the following values: Hour Of Day- Minute Of Hour, where HOD ranges from 0 to 23 and MOH is 0, 15, 30 and 45. A leading zero is optional. For example, 00 means 0.
    - THOD-TMOH: To Hour Of Day-To Minute Of Hour, where THOD ranges from 0 to 23 and TMOH is 0, 15, 30 and 45. A leading zero is optional. For example, 00 means 0. Parameter grouping is used when specifying THOD-TMOH. For example, 08-15&&09-00 specifies the HOD-MOH and THOD-TMOH of 08-15 and 09-00, respectively. THOD-TMOH of $$-$$ indicates the current Hour Of Day-Minute Of Hour. THOD-TMOH of ##- ## indicates the previous 15-min interval.
    - ALL: All applicable beginning times for the given *mondat* value.

    If the *tmper* value is 1-DAY, the *montm* parameter will not be used.
    Default:
    If THOD-TMOH is not specified, only the PM data for the retrieval period specified by HOD-MOH will be retrieved.
    If HOD-MOH is omitted, the PM period for the current time will be reported.

Output format

If the NE fully complies with the RTRV-LOXCPM request, the following normal completion response is returned:

```
    sid date time
M  ctag COMPLD
   "aid:montype,monval,[validity],[tca],[locn],,
   tmper,[mondat],[montm]"
   . . . . .
   . . . . .
   . . . . .
;
```

Note: The trailing comma has to be present even if the optional parameter is not supported for a dedicated release.

The output parameters *sid*, *date*, *time* and *ctag* included in the normal completion response are specified in the Output Parameter section for the RTRV-HDR command.

Normal completion message – empty reply

If there is no PM data stored within the NE, then the following response is returned:

```
   sid date time
M  ctag COMPLD
;
```

Output parameters

1. aid – Access Identifier
   Description: Access identifier.
   Type: AID
   Range: GenLOTribAID
   Wildcard values (e.g. *all* or *usall*) in any parts of both AIDs shall not be used.
2. montype – Monitored Parameter Type
   See montype in the input parameters section.
3. monval – Monitored Value
   This parameter contains the measured value of the parameter specified in montype.
   Type: integer.
   Range: 0-4294967295
   The specified range is the maximal range taking all PM parameters into consideration. Specific PM parameters may have a smaller range.
   W.r.t. value range for the specific PM parameters see
   - Ouput Parameters section in RTRV-TCA-PROF (if thresholding is applicable for that parameter)
   - PM parameter introduction section (if thresholding is not applicable for that parameter).

4. validity – validity indicator
   This parameter indicates the validity of the PM data.
   Type: integer.
   Range: 1: valid; (omitted): non-valid.
   If the value is omitted, it indicates that the validity is ″non valid″.
5. tca – Threshold Crossing Alert
   Type: value set.
   Range:
   For the current interval: *tca* indicates:
   - in TCA mode TR, that the current value exceeds the provisioned threshold
   - in TCA mode TR-RTR, that a *tca* occurred since the beginning of this interval or that the *tca* reset condition was not fulfilled in any previous interval since the last tca occurred.

   If the value is omitted, it indicates
   - in TCA mode TR, that the current value is below the provisioned threshold
   - in TCA mode TR-RTR, that no tca occurred since the beginning of this interval and that the *tca* reset condition was fulfilled at least in one previous interval.

   For previous intervals, the *tca* parameter indicates the state at the end of the interval.
6. locn – Location
   Location for which the PM data is monitored.
   Type: value set.
   Range:
   - NEND: Near-End PM data is requested
   - FEND: Far-End PM data is requested.
7. tmper – Time Period
   See in the input parameters section.
8. mondat – Monitored Date
   This parameter specifies the beginning date of the interval for which the PM data is reported. The parameter can be omitted in case of current date.
   Type: value set.
   Range: MM-DD: Month-Day
   Default: Current date
9. montm – Monitored Time
   This parameter specifies the beginning time of day for the reported pm register. The parameter is optional and may be omitted for the reporting of current bins (registers).
   Type: character string.
   Range: HOD-MOH: HOD ranges from 0 to 23; MOH is 0, 15, 30 and 45. A leading zero is optional. For example, 00 means 0.

Detailed behavior description

This parameter shall

- only return those parameters, which are specified by the input parameters
- ommit parts of the response (maybe to return an empty response) if related performance monitoring has not been enabled (independent whether this occurs due to a specific or wildcard query)
- ommit parts of the response due to a wildcard query (maybe to return an empty response) if the related entity does not exist
- ommit an entity within the response if the entity is not in use for the specified transmission rate or if the entity is currently not in use at all (LOVC12 only)
- return an empty response for non-existing LONIM entities.

Examples:

If a command is executed for a specific existing LOVT1 entity to retrieve all parameters but the entity has only near-end (thus no far-end) performance monitoring enabled, then a response will be returned containing only the near-end values.

If a command is executed for all LOVC3 entities of a specific VC4 PTF but this PTF is substructured into 1 VC3 and 42 VC12 then a response will be returned containing only the parameters for the one existing VC3.

If a command is executed for a specific LOVC12 entity but the related PTF is substructure into 3 VC3 signals then an empty response will be returned.

Further examples leading to empty responses:

- A command with a specific AID containing a GenLOTribAID for a DS3 port
- A command with a specific AID and modifier LOVC3 containing a Simple_LONumAID different than 1, 22, 43
- A command with a specific AID and modifier LOVC12 containing a Simple_LONumAID equal to 1, 22 or 43 and the related third of the VC4 substructure indicates a VC3 signal rate
- A command with a specific AID and modifier LOVT1 containing a Simple_LONumAID greater than 28.

Example input/output

The following example shows the successful completion of a RTRV-LOXCPM command by the network element for a LOVT1:

```
RTRV-LOXCPM-LOVT1:UNITE-NE:1-1-#-#-39-16-3-28:123456::\
vc-f-es,1-up,,,15-min ,,00-00&&08-00;
   UNITE-NE 00-01-01 08:00:00
M  123456 COMPLD
   "1-1-#-#-39-16-3-28:vc-f-es,17,,tca,,,15-min,,00-00"
   "1-1-#-#-39-16-3-28:vc-f-es,10,,tca,,,15-min,,00-15"
```

```
   . . .
   "1-1-#-#-39-16-3-28:vc-f-es,15,,tca,,,15-min,,08-00"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-LOXCPM command. See also subsection 'Partial Completion on RTRV Commands' w.r.t. handling of internal error (e.g. communication to XCn fails) for a subset of replies.

Validation rule: aid range and monlev

If ALL is specified in slot position of *aid* and 0-up is specified for *monlev*

Error code: `IDNV - Input, Data Not Valid, inconsistent aid and monlev`

Related TL1 messages

- "RTRV-EPM: Ethernet performance monitoring" (p. 4-1679)
- "DLT-TCA-PROF: Delete TCA Profile" (p. 4-186)
- "ED-TCA-PROF: Edit TCA profile" (p. 4-852)
- "ENT-TCA-PROF: Enter TCA Profile" (p. 4-1345)
- "RTRV-TCA-ASGNMT: Retrieve TCA assignment" (p. 4-2181)
- "RTRV-TCA-PROF: Retrieve TCA Profile" (p. 4-2184)

References

GR-833-CORE

□

RTRV-LPBK: Retrieve loopback (here cross-connection loopback)

The RTRV-LPBK-*modifier* command can be initiated by a user to retrieve information on cross-connection loopback(s) in the NE.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): T1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-LPBK-`*modifier*:*tid*:*aid*:*ctag*;

Input parameters

Command parameters

1. modifier
   This parameter indicates the rate of the currently active cross-connection loopback for the specified tributary on which the RTRV-LPBK command acts on.
   For the adaptive rate case this means that the *modifier* does not specify the rate (constituent signal type) of the tributary, but the cross-connection loopback rate.
   Type: Alphanumeric value set
   Range:
   - ALL
   - VC3
   - VC4
   - VC44C
   - VC416C
   - VC464C
   - STS1
   - STS3
   - STS12
   - STS48
   - STS192.
2. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and the description of this parameter.

3. aid – Access Identifier
   This parameter specifies the tributary for which loopback information is requested to be retrieved.
   Type: STS1NumAID (when using OPn packs) or VCGNumAID (when using GEn or OPTn).
   Range: The *all*-parameter is accepted for the slot-, port- and trib-part of the AID. For the port the *all*-parameter is to be distinguished between *all* when referring OPn packs, *vall* when referring the GEn or OPTn packs.
   For example the following *aids* are valid:
   - 1-1-#-#-all-all-all specifying all tribs for all ports in the whole shelf
   - 1-1-#-#-2-1-all specifying all tribs of the first port of the pack in slot-number=02
   - 1-1-#-#-3-vall-all specifying all tribs of all ports of the (GEn) pack in slot-number=03.
4. ctag – Correlation Tag
   See definition of *ctag* in "RTRV-HDR: Retrieve header" (p. 4-1736).

Output format

Normal completion message

In response to a valid RTRV-LPBK-*modifier* command, the following output is returned:

```
   sid date time
M  ctag COMPLD
   "aid:rate:spec_block"
        ...
        ...
   "aid:rate:spec_block"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output Parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter specifies the tributary for which loopback information is retrieved.
   Type: STS1NumAID (when using OPn packs) or VCGNumAID (when using GEn or OPTn packs).
   Range: No `all` or `usall` or `vall` value shell be possible for any part of the aid..
2. rate
   This parameter indicates the cross-connection rate. For a detailed description please refer to parameter *rate* in "RTRV-CRS: Retrieve cross-connection" (p. 4-1649).
   Type: Alphanumeric value set
   Range:
   - VC3
   - VC4
   - VC44C
   - VC416C
   - VC464C
   - STS1
   - STS3
   - STS12
   - STS48
   - STS192.

Spec block parameters

1. crslpbkstat – cross-connection Loopback Status
   This parameter specifies the current cross-connection loopback status of the considered tributary *aid*.
   The value *YES* will be used in case the tributary is loop-backed.
   Note that the tributary does not need to be involved in a cross-connection – but can be in loopback also without cross-connection.
   Note that no dedicated value is specified for the case of a non loop-backed tributary since such a tributary will no be in output.
   Type: Alphanumeric value set.
   Range: YES.

Detailed behavior description

The RTRV-LPBK command allows the retrieval of loopback information for tributaries, regardless if they are involved in cross-connections or not. Tributaries which are not involved in a cross-connection loopback are not present in the reply output.

Interface Standard Independence

No command validation between port interface-standard and modifier will be performed. The output parameter *rate*, however, is filled with the rate according to the interface standard of the port.

Example Input/output

Example:

The example shows the loopback status for the 13th trib of the pack in slot 07, which has an existing loopback:

```
RTRV-LPBK-VC3:UNITE-NE:1-1-#-#-7-1-13:123456
   sid date time
M  ctag COMPLD
   "1-1-#-#-7-1-13:STS1:crslpbkstate=YES"
;
```

Related TL1 messages

- "OPR-LPBK (here cross-connection loopback)" (p. 4-1458)
- "RLS-LPBK: Release loopback (here facility loopback)" (p. 4-1569)

References

GR-199-CORE

□

RTRV-LPBK: Retrieve loopback (here facility loopback)

The RTRV-LPBK-*modifier* command can be initiated by a user to retrieve information on facility loopback(s) in the NE. Facility herein is identical to port – either an optical port of an OPn pack or the optical port of a GEn pack – no other ports (like timing ports, UserByte ports etc) are settable to loopback.

As long as there is loopback active on a port the abnormal LED lits.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): T1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-LPBK-`*modifier:tid:aid:ctag;*

Input parameters

Command parameters

1. modifier
   This parameter indicates the port rate on which the RTRV-LPBK command acts on. (In principle this parameter is redundant, because the port-rate is implicitly given by the port-AID (*SPortAID*), but in order to align the facility loopback command with the tributary loopback command this parameter is retained.)
   Type: Alphanumeric value set
   Range:
   - ALL
   - STM1E
   - STM1
   - STM4
   - STM16
   - STM16T
   - STM64
   - STM256
   - EC1
   - OC3
   - OC12
   - OC48
   - OC48T

- OC192
- OC768
- 1GE
- T3

2. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
3. aid – Access Identifier
   This parameter specifies the port for which loopback information is requested to be retrieved.
   Type: SPortAID (when using OPn, EP155, OPTn packs or EC1 interfaces on the EP51 pack) or EPortAID (when using GEn) or APortAID (when using DS3 interfcaes on the EP51 pack).
   Range: The `all`-parameter is accepted for the slot-, port-part of the AID.
   For example the following *aid* s are valid:
   1-1-#-#-all-all specifying all ports in the whole shelf
   1-1-#-#-2-1 specifying the first port of the pack in slot-number=02
4. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the network element in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters Note: Current implementation also allows ’0’ as valid CTAG, which is an extension to GR-831.

Output format

In response to a valid RTRV-LPBK command, the following output is returned:

```
   sid date time
M ctag COMPLD
   ″aid:rate:spec_block″
        ...
        ...
   ″aid:rate:spec_block″
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output Parameter section of “RTRV-HDR: Retrieve header” (p. 4-1736).

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter indicates the id of the port for which the loopback state is returned.
   Type: SPortAID (when using OPn, EP155, OPTn packs or EC1 interfaces on the EP51 pack) or EPortAID (when using GEn) or APortAID (when using DS3 interfaces on the EP51 pack).
   Range: No all is allowed.
2. rate
   This parameter indicates the port *rate*.
   Type: Alphanumeric value set
   Range:
   - STM1E
   - STM1
   - STM4
   - STM16
   - STM16T
   - STM64
   - STM256
   - EC1
   - OC3
   - OC12
   - OC48
   - OC48T
   - OC192
   - OC768
   - 1GE
   - T3.

Spec block parameters

1. lpbk – Loopback
   This parameter specifies the current near-side loopback status of the output *aid*. A near-side loopback means that the signal on the incoming port is looped to the outgoing port.
   If *lpbk*=YES then the port is (near-side) loop-backed.
   If *lpbk*=NO then there is no (near-side) loopback existing for the port.
   Note: At most one loopback (*lpbk* or *fsflpbkstat*) can be set to YES for the same port at the same time.
   Type: Alphanumeric value set.

Range:

- YES
- NO (default).

2. fsflpbkstat – Far-Side-Facility-Loopback-Status
   This parameter specifies the current far-side facility loopback status of the output *aid*. A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port.
   If *fsflpbkstat*=YES then the port is (far-side) loop-backed. If *fsflpbkstat*=NO then there is no (far-side) loopback existing for the port.
   Note: At most one loopback (*lpbk* or *fsflpbkstat*) can be set to YES for the same port at the same time.
   Type: Alphanumeric value set.
   Range:
   - YES
   - NO (default).

Detailed behavior description

The RTRV-LPBK command allows the retrieval of near-side and far-side loopback information for ports.

If no port exists with the specified interface standard and rate at the AID or in the AID range, then the command shall complete and return an empty resonse.

For the GEn the lpbk parameter is always set to NO due to the fact that the GE (EPort) only allows the far-side loopback possibility.

Example input/output

Suppose the port 1 of the pack in slot 7 has a existing near-side loopback:

```
RTRV-LPBK-ALL:UNITE-NE:1-1-#-#-7-1:123456
   sid date time
M  ctag COMPLD
   "1-1-#-#-7-1:OC48:lpbk=YES,fsflpbkstat=NO"
;
```

Error responses

Refer to the RTRV-HDR command Error Responses section. The error responses listed there also apply to RTRV-LPBK command.

Related TL1 messages

- "OPR-LPBK: Operate loopback (here facility loopback)" (p. 4-1465)
- "RLS-LPBK: Release loopback (here facility loopback)" (p. 4-1569)

References

GR-199-CORE

□

RTRV-MAP-NEIGHBOR: Retrieve map neighbor

The RTRV-MAP-NEIGHBOR command will retrieve a list of all immediate OSI neighbors to the local NE (node or NE). This can include other NEs, as well as neighbors on the LAN, such as the CIT.

A neighbor entry will not appear in the report for channels allocated to the SCN_node_AID.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S1

Priority: 1

Abortable: Yes.

Input format

Command Syntax: `RTRV-MAP-NEIGHBOR:`*tid*`::`*ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
   Type: TID
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
   Type: CTAG

Output format

If the RTRV-MAP-NEIGHBOR request is successful, the following normal completion message is returned:

```
   sid date time
M  ctag COMPLD
   "[rate]:thru[,lpaid]:spec_block"
   ...
   "[rate]:thru[,lpaid]:spec_block"
;
```

Ordering of output lines: Output is sorted in ascending order first by *lpaid*.

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736) .

Output parameters

Command parameters

1. rate – DCC Port Rate
   This parameter is only available for a DCC neighbor and provides the optical port rate as used in RTRV-*rr*.
   Type: value set
   Range:
   - STM1
   - STM4
   - STM16
   - STM64
   - STM256
   - OC3
   - OC12
   - OC48
   - OC192
   - OC768.

   Default: n/a – as determined by the port type.
2. thru – Connected Through
   This parameter specifies the type of connectivity between the NE and its neighbor.
   Type: value set.
   Range: DCC, LAN.
   Default: n/a – as determined by the type of connection.
3. lpaid – Local Port AID
   This parameter provides the SPortAID of the optical port in case thru=DCC or the LanPortAID in case thru=LAN.
   Type: AID.
   Range: SPortAID in case thru=DCC or LanPortAID in case thru=LAN as defined in section AID Structure.

Spec block parameters

1. nsap – Network Service Access Point
   This filed defines the ASAP of the neighbor.
   Type: 20 byte octet string in 40 digit hex representation.
   Range: The NSAP address/NET is composed of the following components:
   - l3idp (l3afi and l3idi)
   - l3dfi,

- l3org,
- l3res,
- l3rd,
- l3area,
- l3sys,
- l3se.l

See "RTRV-ULSDCC-L3: Retrieve layer 3 related parameters" (p. 4-2226) for details.

2. npaid – Neighbor Port AID
   This parameter is only available for DCC neighbors and provides the port AID of the optical port of the OSI neighbor. (Peer of *lpaid*)
   Since the neighbor NE might have a different AID structure it is interpreted as a string.
   Type: AID string.
   Range: up to 20 characters-
3. tid – Neighbor TID
   This parameter is only available for DCC neighbors. It provides the TID value of the neighbor NE.
   Type: TID
   Range: Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for legal values and a general description of TIDs.
4. dcctype – DCC Type
   This parameter is only available for DCC neighbors. It specifies whether the values displayed in the *spec_block* refer to the MS/LINE or RS/SECTION DCC.
   Type: value set.
   Range:
   - SECTION
   - LINE

   Default: n/a – depends on DCC channel type for which *spec_block* parameters are reported.

Detailed behavior description

The command retrieves per NE information about all neighbors which are physically connected to the local NE via DCC or LAN and about details of the connection as specified in the output command and *spec_block* parameters.

If there is a link failure between the local NE and its neighboring NE, or if the DCC is disabled, the neighbor NE entry will not appear in the report.

The command will not retrieve the neighborship between the internal osinodes of the NE. This is only relevant for the network level design and RTRV-MAP-NETWORK can be used for it.

A neighbor node entry shall not appear in the report for DCC channels allocated to the SCN_node_AID. A neighbor node entry shall not appear in the report for LANs allocated to the SCN_node_AID.

This command does not generate a REPT DBCHG notification.

Example input/output

The following example shows the result of a RTRV-MAP-NEIGHBOR command for an NE which has all DCCs (RS/MS) enabled for the port on an OP40 and the CIT LAN:

```
RTRV-MAP-NEIGHBOR:LT-UNITE::123456;
   LT-UNITE 00-11-01 15:00:00
M  123456 COMPLD
   "STM256:DCC,1-1-#-#-1-1:
   nsap=39840F800000000000000000000000000000a400,
   npaid=1-1-#-#-1-1,tid=LT-UNITE2,dcctype=SECTION"
   "STM256:DCC,1-1-#-#-1-1:
   nsap=39840F800000000000000000000000000000a400,
   npaid=1-1-#-#-1-1,tid=LT-UNITE2,dcctype=LINE"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the RTRV-MAP-NEIGHBOR command.

Related TL1 messages

- "ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack." (p. 4-929)
- "RTRV-ULSDCC-L3: Retrieve layer 3 related parameters" (p. 4-2226)
- "RTRV-MAP-NETWORK: Retrieve network map" (p. 4-1813)

□

RTRV-MAP-NETWORK: Retrieve network map

The RTRV-MAP-NETWORK command will retrieve a list of OSI nodes, reachable from the local NE (NE). This can include other NEs, other nodes on the local NE, as well as neighbors on the LAN, such as the CIT.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S1

Priority: 1

Abortable: Yes.

Input format

Command Syntax: `RTRV-MAP-NETWORK`:*tid*:*aid*:*ctag*[::*level2*];

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
   Type: TID.
2. aid – Access Identifier
   This parameter specifies the osinode for which the OSI nodes is retrieved. The value *osinodeall* is not allowed.
   Type: AID.
   Range: OSI_node_AID | SCN_node_AID. The value *osinodeall* is not allowed.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
   Type: CTAG.
4. level2 – IS Routing Level
   If set to N(o), report will list only the nodes in the local level 1 area of this node. If set to Y(es), report will list the nodes in the level 2 sub-domain (when *aid* specifies a level 2 node).
   Note: For nodes where level 2 routing is not supported, the output will be empty when *level2*=Y.
   Note: The previous note implies that level2 shall be set to N, if info for osinode=scnnode is requested.
   Type: value set.
   Range:
   - N (default)
   - Y.

Output format

If the RTRV-MAP-NETWORK request is successful, the following normal completion message is returned:

```
   sid date time
M  ctag COMPLD
   "spec_block"
   ...
   "spec_block"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output Parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736) .

Output parameters

Spec block parameters

1. level1 – Level 1 Router
   This parameter specifies whether reachable node is level 1 router.
   Type: value set
   Range:
   - Y (es)
   - N (o).
2. level2 – Level 2 Router
   This parameter specifies whether reachable node is level 2 router.
   Type: value set
   Range:
   - Y (es)
   - N (o).
3. ip_ad1 - IP Address 1
   This parameter shall be used to retrieve the IPv4 address of a reachable SCN node or LAN interface in the network map. This output parameter is only available when input aid is of type SCN_node_AID.
   Note: The IP address can be a host address or one of up to two LAN interfaces addresses. There is no order or semantics (i.e. whether IP address belongs to SCN node or LAN interface) specified for ip_ad1, ip_ad2, ip_ad3.
   Type: Four dot separated numeric strings or empty string.
   Range: Each numeric string: 0 .. 255 or empty string.
   Note: The empty string is reported when the IP address can not be retrieved. In output direction it is represented as \"\".

4. ip_ad2 – IP Address 2
   This parameter is used to retrieve the IPv4 address of a reachable SCN node or LAN interface in the network map. This output parameter is only available when input aid is of type SCN_node_AID.
   Note: The IP address can be a host address or one of up to two LAN interfaces addresses. There is no order or semantics (i.e. whether IP address belongs to SCN node or LAN interface) specified for ip_ad1, ip_ad2, ip_ad3.
   Type: Four dot separated numeric strings or empty string.
   Range: Each numeric string: 0 .. 255 or empty string.
   Note: The empty string is reported when the IP address can not be retrieved. In output direction it is represented as as \"\".
5. ip_ad3 – IP Address 3
   This parameter is used to retrieve the IPv4 address of a reachable SCN node or LAN interface in the network map. This output parameter is only available when input aid is of type SCN_node_AID.
   Note: The IP address can be a host address or one of up to two LAN interfaces addresses. There is no order or semantics (i.e. whether IP address belongs to SCN node or LAN interface) specified for ip_ad1, ip_ad2, ip_ad3.
   Type: Four dot separated numeric strings or empty string.
   Range: Each numeric string: 0 .. 255 or empty string.
   Note: The empty string is reported when the IP address can not be retrieved. In output direction it is represented as \"\".
6. ip_sid – SID
   This parameter shall be used to display the SID of a reachable SCN node in the network map. This output parameter is only available when input aid is of type SCN_node_AID.
   Note: Since the SID (MAC address) is unique it might be used to detect misconfigurations of duplicate IP addresses.
   Type: hexadecimal number.
   Range: 000000000000 - FFFFFFFFFFFF.
7. net – Network Entity Title
   This field is the Network Entity Title (NET) of one reachable OSI node. The NET is the same as the NSAP with the last byte set to 00 (hex).
   This output parameter is only available when input aid is of type OSI_node_AID.
   Type: 20 byte octet string in 40 digit hex representation.
   Range: The NET is composed of the following components:
   - l3idp (l3afi and l3idi)
   - l3dfi,
   - l3org,
   - l3res,
   - l3rd,
   - l3area,

- l3sys,
- l3sel = 00 (hex).

See "RTRV-ULSDCC-L3: Retrieve layer 3 related parameters" (p. 4-2226) for details.

8. tid – Target Identifier
   This parameter specifies the TID of the NE. This parameter shall be reported for entries of the local and remote NEs if OSI node 1 is specified as AID in the command. For OSI nodes 2 - 8 and the SCN node, the parameter shall only be reported for entries of the local NE.
   Type: TID
   Range:
   - Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for legal values of TIDs
   - ″?″ when the TID cannot be determined.

Detailed behavior description

The RTRV-MAP-NETWORK command retrieves per node a list of OSI or SCN nodes (depending on the input aid), reachable from the local network element (NE) via the OSI or SCN stack(s). This can include other network elements, other nodes of the local NE, as well as other systems on the LAN, such as the CIT.

In contrast to RTRV-MAP-NEIGHBOR or RTRV-SCN-NEIGHBOR, which retrieve info about physical neighbors and properties of the physical connection, this command shall retrieve info with respect to (I)IS-IS routing.

If the node specified by aid is provisioned as level 2 and level2=Y, the report shall list the level 2 nodes across the level 2 subdomain and the nodes in the local level 1 area of the selected node. The output parameters level1 and level2 contain the correct level 1, 2 indication.

If level2=N, the report shall list only the nodes in the local level 1 area of the selected node (including the default level 2 node and other level 2 nodes in the local level 1 area). The output parameters level1 and level2 are meaningless.

The local OSI system is also listed in the report.

OSI node not in created state

If the specified OSI node is not in created state, then the system shall return no response.

This command does not generate a REPT DBCHG notification.

Example input/output

The following example shows the result of a RTRV-MAP-NETWORK command for an input aid of type OSI_node_AID:

```
RTRV-MAP-NETWORK:LT-UNITE:osinode1:123456;
   LT-UNITE 00-11-01 15:00:00
M  123456 COMPLD
   "tid=LT-UNITE-A,
   net=39840F8000000000000000000000601D0d56e000,
   ip_ad1=\"\",ip_ad2=\"\",ip_ad3=\"\",level1=Y,level2=N"
   "tid=?,net=39840F8000000000000000000000108334F1E600,
   ip_ad1=\"\",ip_ad2=\"\",ip_ad3=\"\",level1=Y,level2=N"
   "tid=?,net=39840F8000000000000000000000A0D103189900,
   ip_ad1=\"\",ip_ad2=\"\",ip_ad3=\"\",level1=Y,level2=N"
   "tid=LT-UNITE-B,
   net=39840F8000000000000000000000601D0D52D000,
   ip_ad1=\"\",ip_ad2=\"\",ip_ad3=\"\",level1=Y,level2=N"
   "tid=LT-UNITE-C,
   net=39840F8000000000000000000000601D0D562000,
   ip_ad1=\"\",ip_ad2=\"\",ip_ad3=\"\",level1=Y,level2=N"
;
```

The following example shows the result of a RTRV-MAP-NETWORK command for an input aid of type SCN_node_AID:

```
RTRV-MAP-NETWORK:LT-UNITE:scnnode:123456;
   LT-UNITE 00-11-01 15:00:00
M  123456 COMPLD
   "tid=LT-UNITE,ip_ad1=192.168.200.1,ip_sid=123456789012,
   level1=Y,level2=N"
   "ip_ad1=192.168.200.8,ip_ad2=\"\",ip_ad3=\"\",
   ip_sid=123456789012,level1=Y,level2=N"
   "ip_ad1=192.168.200.17,ip_ad2=\"\",ip_ad3=\"\",
   ip_sid=123456789123,level1=Y,level2=N"
   "ip_ad1=192.168.200.23,ip_ad2=192.168.200.26,
   ip_ad3=192.168.200.29,ip_sid=123456789576,level1=Y,
   level2=N"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the RTRV-MAP-NETWORK command.

Validation rule: level2 parameter must not be present when *osinode* = scnnode

If the osinode parameter for which the network map should be retrieved is the *scnnode* the input parameter level2 is not allowed.

Error Code: `IDNC- Input, Data Not Consistent, level2 not allowed for scnnode`

Related TL1 messages

- "ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack." (p. 4-929)
- "RTRV-ULSDCC-L3: Retrieve layer 3 related parameters" (p. 4-2226)
- "RTRV-MAP-NEIGHBOR: Retrieve map neighbor" (p. 4-1809)
- "RTRV-SCN-NEIGHBOR: Retrieve SCN neighbor" (p. 4-2047)

□

RTRV-MAP-RING: Retrieve map ring

The RTRV-MAP-RING command retrieves the ring map for one MS-SPRing/BLSR protection group.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M1

Priority: 1

Abortable: Yes.

Input format

Command Syntax: `RTRV-MAP-RING`:*tid*:[*aid*]:*ctag*::[*rid*],*[mapsrc]*;

Important! To make sure that the complete ring map information will be given the RTRV-RING-MAP command should always be issued against the UNITE NE within the ring.

Input parameters

Command parameters

1. tid – Target Identifier
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   This parameter specifies the aid of a MS-SPRing/BLSR protection group or an port aid being a member of the group.
   Option: If *rid* is specified, then *aid* can be omitted.
   Type: AID.
   Range: TwoFibre_ProtGrpAID (not ranged) or FourFibre_ProtGrpAID (not ranged) or SPortAID (not ranged)
3. ctag – Correlation Tag
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).

4. rid – Ring Identification
   This parameter specifies the ring identification name. Storage and retrieval of the *rid* is case sensitive, but actual use of the rid to determine the corresponding protection group is case insensitive. The parameter is used as an alias to identify exactly one MS-SPRing/BLSR protection group of any type. Therefore the value shall be unique for all protection groups of type 2F or 4F within the NE.
   Type: text string of chars allowed for TID strings.
   Range: 1 to 15 characters.
   Default: NONE.
5. mapsrc – Map source
   This parameter specifies, how the ring map is derived. The value DCCEI is used if the ring map is derived via the DCF function. The value NVMRING is used if the ring map is derived from non-volatile memory as used by the MS-SPRing/BLSR protection group. The value MANUAL shall be used, if the ring map data which was manually populated by the user and stored in RAM shall be shown.
   Note: If NVMRING is specified and there is a valid and complete ringmap in NVM, it will be reported. Otherwise, nothing will be reported.
   Type: alphanumeric value set.
   Range: DCCEI, NVMRING, MANUAL.
   Default: DCCEI.

Output format

After receiving the RTRV-MAP-RING command, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
   "aid:rid,localnid:spec_block"
    ...
    ...
   "aid:rid,localnid:spec_block"
;
```

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter specifies the aid of 2F-/4F MS-SPRing/BLSR protection.
   Type: AID
   Range: TwoFibre_ProtGrpAID or FourFibre_ProtGrpAID
2. rid – Ring Identification
   This parameter specifies the ring identification name. Storage and retrieval of the *rid* is case sensitive, but actual use of the rid to determine the corresponding protection group is case insensitive. The parameter is used as an alias to identify exactly one MS-SPRing/BLSR protection group of any type. Therefore the value shall be unique for all protection groups of type 2F or 4F within the NE.
   Type: text string of chars allowed for TID strings.
   Range: 1 to 15 characters.
   Default: NONE.
3. localnid – Local Node ID
   This parameter specifies the local node ID of the NE receiving the retrieve request (i.e. the node which has been addressed within RTRV-MAP-Ring command) as used by the MS-SPRing/BLSR APS protocol.
   Type: numeric string
   Range: 0 .. 15

Spec block parameters

1. nid – Node ID
   This parameter specifies the node ID of the NE within the ring as used by the MS-SPRing/BLSR APS protocol. It shall correspond to the first TID in the *linkid* block.
   Type: numeric string
   Range: 0 .. 15
2. linkId – Link Identifier
   This parameter specifies a link connecting two NEs within the ring. It has the following format:
   linkid=\″*{nename*,[*port*],*direction*},{*nename*,[*port*],*direction*}\″
   The first value set of *nename*, *port, direction* corresponds to the NE as indicated by parameter *nid*.
   The second value set of *nename*, *port, direction* corresponds to the NE reachable via the link.
   The port and direction may be omitted, if the value *mapsrc* is MANUAL.
   Type: inner string
   Range: see parameter description for *nename*, *port, direction* below.
   Note: The *linkID* as used in the ring map will refer to the ports of that link which is used for the automatic detection of the ring topology (i.e. to protection ports for asymmetric spans and to worker ports for symmetric spans).

3. nename – NE Name
   See definition of parameter *tid* "RTRV-HDR: Retrieve header" (p. 4-1736).
4. port – port AID
   This parameter specifies the port being a member within the 2-/4-fibre MS-SPRing/BLSR protection group.
   Type: AID, in case *nename* denotes the local NE; AID string, in case nename denotes another NE in the ring.
   Range: SPortAID, in case of an AID; up to 20 characters otherwise
   Option: The parameter may be omitted if unknown due to link failure.
5. direction – Direction
   This parameter specifies the side role of the corresponding port within the protection group. The value E is used for the east side. The value W is used for the west side.
   Type: alphanumeric value set
   Range: E, W
   Option: The parameter may be omitted if unknown due to link failure.
6. continuity – Link Continuity Status
   This parameter specifies the link continuity status of a port. The following values are supported:
   - UP – The link is working.
   - DOWN – The link has failed.
   - OPEN – The link is non-existent, as in an open ring.
   - UNKNOWN – The link ID has not been established.
   - ISOLATED – The link is in an isolated part of a segmented ring.

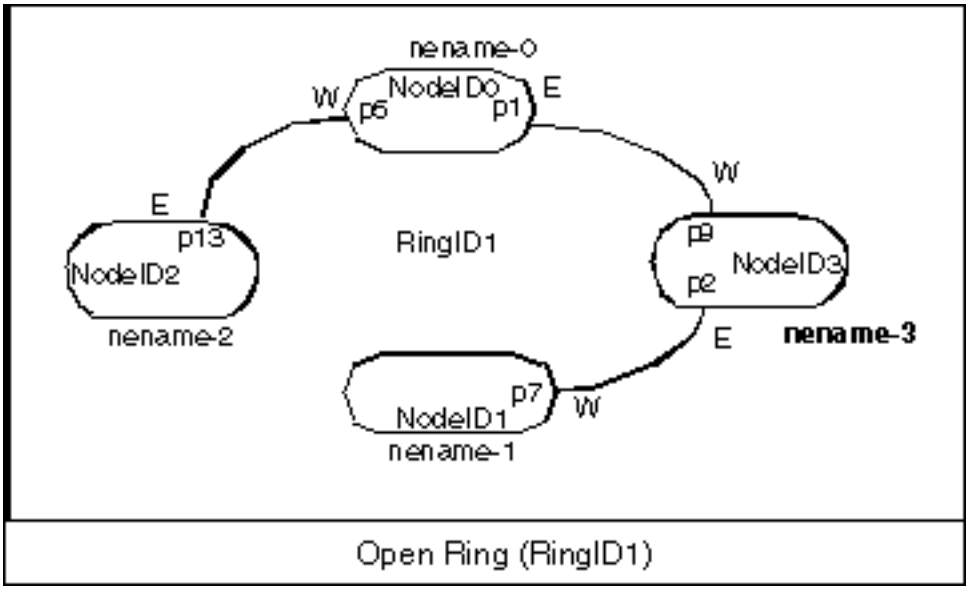
   Type: alphanumeric value set.
   Range: UP, DOWN, OPEN, UNKNOWN, ISOLATED.
7. net – Network Entity Title
   This parameter specifies the NSAP (Network Service Access Point) with the last byte (SEL byte – see NSAP format) set to 00 (hex) for the node with TID as specified for the first *nename* within *linkid* list.
   Type: Hexadecimal digit string
   Range: 40 characters

Detailed behavior description

For open rings, the output starts at the end with the lower *nid* value and continuous to the other end. For closed rings, the output starts at the node with the lowest *nid* value and continues in the direction of the first node's east neighbor.

Example input/output

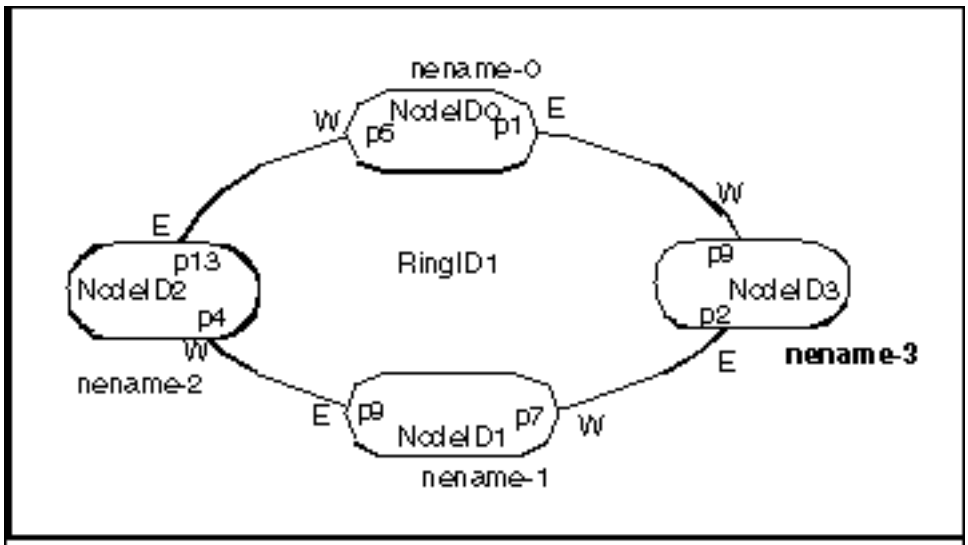
Ring map for an open ring – example 1



RTRV-MAP-RING for example 1:

```
RTRV-MAP-RING:NENAME-1:1-1-f01:123456;
   NENAME-1 98-01-01 08:00:00
M  123456 COMPLD
   "1-1-f01:\"RingID1\",1:nid=1,linkid=\"{nename-1,
   1-1-#-#-4-7,W},{nename-3,1-1-#-#-2-2,E}\",
   continuity=UP,
   net=39840F8000000000000000000000000000000a100"
   "1-1-f01:\"RingID1\",1:nid=3,linkid=\"{nename-3,
   1-1-#-#-3-9,W},{nename-0,1-1-#-#-1-1,E}\",
   continuity=UP,
   net=39840F8000000000000000000000000000000a300"
   "1-1-f01:\"RingID1\",1:nid=0,linkid=\"{nename-0,
   1-2-#-#-2-5,W},{nename-2,1-2-#-#-1-13,E}\",
   continuity=UP,
   net=39840F8000000000000000000000000000000a000"
   "1-1-f01:\"RingID1\",1:nid=2,linkid=\"{nename-2,,},
   {nename-1,,}\",continuity=OPEN,
   net=39840F8000000000000000000000000000000a200"
;
```

Ring map for an closed ring – example 2



Ringmap for Closed Ring at nename-3

RTRV-MAP-RING for example 2:

```
RTRV-MAP-RING:NENAME-3::123456:\"RingID1\";
NENAME-3 98-01-01 08:00:
M  123456 COMPLD
   "1-1-f01:\"RingID1\",3:NID=0,linkid=\"{nename-0,
   1-1-#-#-4-1,E},{nename-3,1-1-#-#-2-9,W}\",
   continuity=UP,
   net=39840F8000000000000000000000000000000a000"
   "1-1-f01:\"RingID1\",3:NID=3,linkid=\"{nename-3,
   1-1-#-#-3-2,E},{nename-1,1-1-#-#-1-7,W}\",
   continuity=UP,
   net=39840F8000000000000000000000000000000a300"
   "1-1-f01:\"RingID1\",3:NID=1,linkid=\"{nename-1,
   1-1-#-#-4-9,E},{nename-2,1-1-#-#-3-1,W}\",
   continuity=UP,
   net=39840F8000000000000000000000000000000a100"
   "1-1-f01:\"RingID1\",3:NID=2,linkid=\"{nename-2,
   1-1-#-#-2-13,E},{nename-0,1-1-#-#-1-1,W}\",
   continuity=UP,
   net=39840F8000000000000000000000000000000a200"
;
```

RTRV-MAP-RING for example 3

```
RTRV-MAP-RING:NENAME-3::123456:\"RingID1\",MANUAL;
   NENAME-3 98-01-01 08:00:
M  123456 COMPLD
```

```
   "1-1-f01:\"RingID1\",3:NID=0,linkid=\"{nename-0,,},
   {nename-3,1-1-f01-ww-tr2-1,W}\",continuity=UNKNOWN"
   "1-1-f01:\"RingID1\",3:NID=3,linkid=\"{nename-3,
   1-1-f01-ew-tr3-1,E},{nename-1,,}\",continuity=UNKNOWN"
   "1-1-f01:\"RingID1\",3:NID=1,linkid=\"{nename-1,,},
   {nename-2,,}\",continuity=UNKNOWN"
   "1-1-f01:\"RingID1\",3:NID=2,linkid=\"{nename-2,,},
   {nename-0,,}\",continuity=UNKNOWN"
;
```

Error responses

Validation Rule: consistent aid and rid

If both an aid and an rid are specified as input parameters and they are inconsistent, then the following error response is returned.

Error Code: `IDNV - Input, Data Not Valid, inconsistent aid and rid`

Related TL1 messages

- "ENT-ULSDCC-L3: Create a further OSI node" (p. 4-1391)
- "RTRV-MAP-NEIGHBOR: Retrieve map neighbor" (p. 4-1809)
- "RTRV-MAP-NETWORK: Retrieve network map" (p. 4-1813)
- "ED-MAP-RING: Edit map ring" (p. 4-316)
- "SET-MAP-RING: Set map ring" (p. 4-2304)
- "ENT-PROTN-GRP: Enter protection group" (p. 4-1222)

References

GR-199-CORE

□

RTRV-NE: Retrieve NE

The RTRV-NE command retrieves DCN attributes associated with the NE at the system level but not associated with any particular facility or equipment unit.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S1

Priority: 1

Abortable: Yes.

Input format

Command Syntax: `RTRV-NE:`*tid*`::`*ctag;*

Input parameters

Command parameters

1. tid – Target Identifier
   Description: Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Description: Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
   Type: CTAG.

Output format

If the RTRV-NE request is successful, the following normal completion message is returned:

```
   sid date time
M  ctag COMPLD
   ":spec_block"
   .    .    .
   .    .    .
   .    .    .
   ":spec_block"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Spec block parameters

1. ftamftpgw - File Transfer Translation Device (FT-TD) function
   This parameter is used to enable or disable the File Transfer Translation Device (FT-TD) function.
   Type: Value set.
   Range: ENABLE, DISABLE (default).
2. tl1tcpipgw – TL1 Translation Device (T-TD) function
   This parameter is used to enable or disable the TL1 Translation Device (T-TD) function.
   Type: Value set.
   Range: ENABLE, DISABLE (default).
3. dcnpn – DCN ASAP Profile Name
   Type: Alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: up to 24 characters.
   Default: DEFAULT.

Detailed behavior description

The command retrieves system parameters as described in the Output parameter section.

Example input/output

The following example shows the result of a RTRV-NE command:

```
RTRV-NE:LT-UNITE::123456;
   LT-UNITE 00-11-01 08:00:00
M  123456 COMPLD
   ″:ftamftpgw=DISABLE″
   ″:tl1tcpipgw=DISABLE″
   ″:tunstat=DISABLE″
   ″:dcnpn=DEFAULT″
;
```

Error responses

Refer to the “RTRV-HDR: Retrieve header” (p. 4-1736) command Error responses section. The error responses listed there apply to the RTRV-NE command.

Related TL1 messages

“ED-NE: Edit NE” (p. 4-320)

□

RTRV-NE-SECU: Retrieve NE security

The RTRV-NE-SECU command can be initiated by a user to retrieve global security information in the NE. The current login sessions in the NE identified by the *uid* which established the session will also be retrieved using the RTRV-NE-SECU command.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S1

Priority: 1

Abortable: No

Input format

Command Syntax: `RTRV-NE-SECU`*:tid::ctag;*

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736) .

Output format

There is one output line for each session. The first line contains user information for the user and session that issued the RTRV-NE-SECU command.

After receiving the RTRV-NE-SECU command, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
   "uid::spec_block"
   "uid"
   .
   .
   "uid"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. uid – User ID
   ID of the user that initiated the RTRV-NE-SECU command. Listed below this *uid* are *uids* of all the other sessions. If the user from which the RTRV-NE-SECU command was issued is logged on via other sessions, the *uid* list will contain each other instance of the *uid*, but the additional listing is just like the listing of any other user, without the additional user information.

Spec block parameters

1. age – Lockout Aging Period
   The time interval during which the number of invalid login attempts are counted. When *age* expires after the last invalid login attempt, the counter of invalid login attempts by that *uid* is reset to zero.
   Type: numeric string
   Range: 1 – 999 [minute]
   Default: 60
2. intrvl – Lockout Period
   The time during which login attempts using that *uid* will not be allowed. This occurs when the number of consecutive invalid login attempts by a *uid* reaches *thrshld.* When *intrvl* expires, login attempts will again be allowed from that *uid*. If this parameter is set to 0 (zero), the lockout feature is disabled.
   Type: numeric string
   Range: 0 – 99 [minute]
   Default: 10
3. thrshld – Lockout Threshold
   The maximum number of consecutive invalid login attempts that are allowed by a *uid*. If the count of invalid login attempts is equal to the threshold, the *uid* is locked out for *intrvl* period of time. If a login attempt is successful, the count of *invalid* login attempts by that *uid* is reset to zero.
   Type: numeric string
   Range: 2 – 99
   Default: 5
4. usrage – User ID Aging Period
   If a *uid* has never been used to perform a successful login during a specified time interval it shall be disabled. A value of 0 disables user ID aging.
   The *usrage* does not apply to the super-users. Super-users will be never disabled.
   Type: numeric string
   Range: 0 – 999 [days]
   Default: 10

Example input/output

The following example shows the successful completion of the RTRV-NE-SECU command by the NE:

```
RTRV-NE-SECU:LT-UNITE-123::123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
   "nbguser1::thrshld=3,intrvl=1,age=60,usrage=10"
   "njsmith"
   "hugo"
   "airmail"
;
```

Error responses

The RTRV-NE-SECU command reports no special error responses. The general error responses defined in "RTRV-HDR: Retrieve header" (p. 4-1736) are also valid for this command.

Related TL1 messages

- "ACT-USER: Activate user" (p. 4-14)
- "ED-NE-SECU: Edit NE security" (p. 4-324)

□

RTRV-NNCNFG: Retrieve ONNS configuration data

Overview

The RTRV-NNCNFG command retrieves ONNS system configuration parameters (fixed and user-provisionable). It also retrieves ONNS software version information. The data is retrieved from the ONNS system configuration data repository.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Abortable: No

Input format

Command Syntax: `RTRV-NNCNFG:`*srcTid:[srcAid]:ctag;*

Input parameters

Command parameters

1. srcTid – Source Target Identifier.
   The TID of the NE to which the command is addressed.
   See the parameter description in the "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950) Input parameters section. NN uses the same *tid* used by the Host NE.
2. srcAid
   ONNS application access identifier: *snn*.
3. ctag – Correlation Tag
   The *ctag* parameter is a character strings of up to 6 ASCII characters. The allowed ASCII character string is comprised of alphanumeric characters beginning with a letter, or decimal numerals (a decimal numeral is a string of decimal digits with an optional non-trailing ".").
   It should be a unique value for each new command.

Output format

If the RTRV-NNCNFG request completes successfully, then the following normal completion response is returned:

```
srcTid date time
M  ctag COMPLD
   "specBlock"
   "Reported Configuration Parameter List:
   reportedList"
;
```

Output parameters

The output parameters *srcTid*, *date*, *time*, *ctag*, *completionCode* and their syntax are included in the Output parameters section of the "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950) command.

Spec block parameters

This block contains the descriptions and allowed values for the reported output parameters.

1. TID - Node Target Identifier
   Target Identifier of the source node is the logical name of the Host NE. ONNS uses the same *tid* used by Host NE.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: The *srcTid* parameter is a case insensitive ASCII character string of up to 20 characters with the allowed character set as described above.
2. NodeID
   Node isentifier to which the RTRV-NNCNFG command is sent.
   Values:Four dot seperated numeric strings, 0 - 255 for each numeric string.
3. NN_SWVersion
   ONNS software version number.
   Values: x.y.z where x = release, y = point release, z = development integration release
   Range: 0 - 99 for each integer.
4. NN_BldVersion
   ONNS Build version and date in format xxx-mmddyy, since there is no difference any longer between the ONNS and host build version, this field is set to a default value. See corresponding parameters in RTRV-PRMTR-SWTFR and ACT-USER.
   Type: two - seperated numeric strings
   Range: 000 -999 for build number, 000000 -923999 for date.
5. NN_BldInfo
   Version of path calculation engine. NEtype, NN_SWVersion, Operating system.
   Values: *ORPx.y* for NEtype, x, y digits, *LU-NNx.y.z* for NN_SWVersion, x, y, z digits, *Chorus* for Operating System
6. NN_HostName
   Host name of the Host NE.
   Values: LambdaUnite.
7. NN_SystemMode
   NN system mode status describes the operational state of ONNS.
   Values: INIT Initializing, MAINT in maintenance condition (MCOND), RUNNING in normal operation.

8. NN_SigIPaddress
   Signaling IP address of the SCN.
   Type: Four dot seperated integers.
   Range: 0 - 255 for each integer.
9. AdminCostEscalation
   Determines whether a cost escalation algorithm is applied or not. This algorithm raises the cost of a link bundle to reduce the attractiveness when the link bundle fills up.
   Type: alphanumeric value set
   Range: DISABLE, ENABLE (default).
10. PathSetupRetryMax
    Determines how many retries NN makes after the initial path setup.
    Range: 0 - 5, default =1
11. PathRestoreRetryMax
    Determines how many retries NN makes during the path restoration
    Range: 0 - 5, default =1
12. WaitToRevertTimer
    Determines how long an original path must be steadily OK before it is made active again through tear-down of the restoration path. Applies to auto-reroute revertive connections. This parameter shall apply to M:N protected connections as well.
    Range: 60 - 1800 seconds (default = 300 seconds).
13. LBA_UpdateTimer
    LinkBundleAvailability Update Timer determines the maximum interval for LSA distribution of bandwidth availability changes which have not exceeded threshold.
    Range: 1 - 25 minutes, default =15
14. LBA_Threshold
    The LinkBundle Availability threshold determines the percent change in bandwidth availability necessary to trigger an immediate LSA distribution.
    Range: 10 - 65 %, default =50%
15. LB_UsageThreshold
    The LinkBundle usage threshold determines the percent link bundle usage that triggers cost escalation on the bundle.
    Range: 50 - 95 %, default =70%
16. TCAThresholdLow
    Lower threshold in percent for the supervision of the unavailable bandwidth in the link bundles. Exceeding this threshold for a link bundle results in a TCA status LOW or HIGH for this link bundle.
    Range: 10 - 100%, default = 40%
17. TCAThresholdHigh
    Upper threshold in percent for the supervision of the unavailable bandwidth in the link bundles. Exceeding this threshold for a link bundle results in a TCA status HIGH for this link bundle
    Range: 10 - 100%, default = 70%

18. MaxExplicitNodeList
    This parameter determines the maximum number of intermediate nodes that will be accepted in the ENT-PATH explicit node list.
    Range: 8.
19. MaxExcludeNodeList
    Determines the maximum number of nodes that will be accepted in the ENT-PATH exclude *nodeList*.
    Range: 15.
20. MaxSRLGList
    Determines the maximum number of SRLG values that will be accepted in the ENT-PATH SRLG exclude list.
    Range: 10.
21. DefaultRstrPriority
    Determines the connection restoration priority default to be used if a value is not specified in the ENT-PATH command. Lower values denote higher priority.
    Range: 0 - 7 (default = 0, highest priority).
22. RestorationRetryTimer
    Path Restoration Queue timer, sets the time between checks to restore from the queue.
    Range: 90 - 700 seconds, default =324
23. NNFunctionUpgradeState
    After a SW upgrade, new ONNS functionality must be explicitely enabled. This parameter indicates whether this has been done or not.
    Type: alphanumeric value set
    Range:
    - DISABLE: New ONNS functionality not yet enabled.
    - ENABLE (default): New ONNS functionality already enabled.

Example input/output

The following is an example shows a successful execution of the RTRV-NNCNFG command:

```
   DIETMAR 2003-06-06 10:21:57
M  C1 COMPLD
   "TID = DIETMAR,
   NodeId = 29.54.174.87,
   NN_SWVersion = 2.0.0,
   NN_BldVersion = 042-032603,
   NN_BldInfo = ORP2.0, LU-NN2.0.0, Sun/Chorus,
   NN_HostName = LambdaUnite,
   NN_SystemMode = RUNNING,
   NN_SigIpAddress = 172.16.1.250,
   NN_UiIpAddress = 172.16.2.9,
   NN_UniIpAddress = 0.0.0.0,
```

```
   PathSetupRetryMax = 1,
   PathRestoreRetryMax = 1,
   DefaultRstrPriority = 0,
   RestorationRetryTimer = 324 seconds,
   WaitToRevertTimer = 300 seconds,
   LBA_UpdateTimer = 15 minutes,
   LBA_Threshold = 50 %,
   LB_UsageThreshold = 70 %,
   TCAThresholdLow = 42 %,
   TCAThresholdHigh = 69 %,
   MaxExplicitNodeList = 8,
   MaxExcludeNodeList = 15,
   MaxSRLGList =10,
   NNFunctionUpgradeState = ENABLE"
;
```

Error responses

The error codes defined in the "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950) command Error responses section also apply to the RTRV-NNCNFG command.

Related TL1 messages

- "REPT-NNCHG Notification: Report ONNS data repository changes" (p. 4-1531)
- "ED-NNCNFG: Edit ONNS configuration data" (p. 4-329)

□

RTRV-NNDR: Retrieve ONNS neighbor nodal data repository

Overview

The RTRV-NNDR command retrieves information stored in the NNDR data repository that is in RAM memory. The RTRV-NNDR command operates on the current, active-memory-resident, ONNS data. ONNS writes port/connPt/pathID data to NVM shortly after each cross-connect setup of a path transaction completes. The NVM data is used in conjunction with port update messages from the NE during initialization to recover the ONNS NNDR data repository.

The NNDR record structure

The NNDR record is composed of an NNDR_HeaderRecord and multiple PortRecords which are described below, see the Output format and Output parameter sections for more detail.

Retrieving the NNDR records by ALL or by *portID*

ONNS responds to a RTRV-NNDR request to retrieve its NNDR by sending a report of the contents of the data repository. The command RTRV-NNDR with *dataType* = ALL shall cause the ONNS node to send all information in the NNDR data repository. When the NNDR is retrieved, each TL1 response message contains multiple PortRecords. If *dataType* = ALL, there must be no *componentID*. When *dataType* = PORT and a *componentID* = portID are specified as input parameters in RTRV-NNDR, the NNDR data repository records relating to that *portID* shall be returned

Retrieving the NNDR records by *neighborASTNNodeID*

When *dataType* = NBRIP and *componentID* = neighborASTNNodeID is specified, the response returns all NNDR PortRecords related to the link bundles between the reporting node and its neighbor node with the *neighborASTNNodeID*. The command will fail if the *neighborASTNNodeID* is not a neighbor of the reporting node.

Retrieving the NNDR records by *PortUsage*

When *dataType* = PORTUSAGE and a *componentID* = portClass is specified, the response returns all NNDR records relating to ports with the *portClass* specified in the *componentID* field.

The RTRV-NNDR command sends a maximum of 4 PortRecords per block of data returned if there are no associated cross connects on the ports. PortRecords with *TribConnRecords* will be send in data blocks that are less than 4096 characters. On all messages but the last, a RTRV completion code is used and the semicolon (;) is replaced with a (>) terminator. Then, on the last record block, the COMPLD completion code is used with the final semicolon (;) terminator.

Data blocks in PortRecords with TribConnRecords shall contain complete TribConnRecords only including leading and trailing double quotes (″).

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Abortable: No

Input format

Command Syntax: `RTRV-NNDR:`*srcTid:[srcAid]:ctag::dataType[,componentID];*

Input parameters

Command parameters

1. srcTid – Target Identifier.
   Target Identifier of the source node is the logical name of the Host NE. ONNS uses the same *tid* used by Host NE.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: The *srcTid* parameter is a case insensitive ASCII character string of up to 20 characters with the allowed character set as described above.
2. srcAid
   Source node ONNS application access identifier of the ONNS controller OS command interface port.
   Range: Source node Access IDentifier parameter of the source node controller ONNS command interface entity has the allowed values shown here: snn.
3. ctag – Correlation Tag
   This parameter is included in the command by the TL1 user and is repeated by the NE in the response to allow the TL1 user to associate the command and response messages.
   The *ctag* parameter is a character strings of up to 6 ASCII characters. The allowed ASCII character string is comprised of alphanumeric characters beginning with a letter, or decimal numerals (a decimal numeral is a string of decimal digits with an optional non-trailing “.”).
4. dataType
   This parameter specifies, which part of the NNDR is to be retrieved. Furtheron it determines the expected input parameter type of the *componentID* input parameter. When *datatype* = ALL *componentID* must not be specified.
   Values:
   - ALL: retrieves the entire NNDR in RAM (default).
   - PORT: retrieves NNDR port data, *componentID* must be a *portID*.
   - NBRID: retrieves all NNDR port data for link bundles between the local and neighbor node, *componentID* must be a *neighborASTNNodeID*.
   - PORTUSAGE: retrieves all NNDR port data of ports of a specified port class, *componentID* must be a *portClass*.

5. ComponentID
   This parameter depends on the previous *dataType* parameter and is one of: *null* (when *datatype* = ALL), *portID* (when *datatype* = PORT, see definition of output parameter *portID* in RTRV-PATH), *nodeID* (when *datatype* = NBRID), *portClass* (when *datatype* = PORTUSAGE).
   The detailed parameter format of the choices is described below:
   - portID - Port Identifier
     Port ID for which the NNDR data shall be retrieved. The portID consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #.
     Type: dash-seperated list of 4 numeric strings
     Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16).
   - nodeID - Neighbor Node Identifier
     This parameter identifies a neighbor ASTN node.
     Type: Four dot seperated numeric strings (0 - 255 for each numeric string).
   - portClass
     This parameter specifies which type of port to include in the report, it determines how ONNS uses the port: EDGE (ONNS client port, where the signal enters/leaves the ONNS domain), INNI (ONNS port within the ONNS domain, topology relevant).

Output format

If the RTRV-NNDR request completes successfully, then the following normal completion response is returned:

```
   srcTid date time
M  ctag RTRV
   "NNDR_HeaderRecord"
   "PR:PortStatusRecord_1,PortAttributeRecord_1"
   ...
   "PR:PortStatusRecord_4,PortAttributeRecord_4"
>
   srcTid  date  time
M  ctag COMPLD
   "PR:PortStatusRecord_5,PortAttributeRecord_5"
   ...
   "PR:PortStatusRecord_8,PortAttributeRecord_8"
;
```

If the RTRV-NNDR request completes successfully, then the following normal NNDR_Report with TribConnRecords will be returned, when there are tributary connections:.

```
   srcTid date time
M  ctag RTRV
   "NNDR,ALL,srcNodeASTNNodeID,NumberOfRecords=portCount"
   "PR:PortStatusRecord1,PortAttributeRecord1
```

```
   ["TR:TribPathRecord_1[:TribPathRecord_1b]"]
   ...
   ["TR:TribPathRecord_n[:TribPathRecord_nb]"]
"

   .....
   .....
   "PR:PortStatusRecord4,PortAttributeRecord4
   ["TR:TribPathRecord_1[:TribPathRecord_1b]"]
   ["TR:TribPathRecord_2[:TribPathRecord_2b]"]
   ["TR:TribPathRecord_3[:TribPathRecord_3b]"]
   ["TR:TribPathRecord_4[:TribPathRecord_4b]"]
>
   srcTid  date  time
M  ctag COMPLD
   "PR:PortStatusRecord5,PortAttributeRecord5
   ["TR:TribPathRecord_1[:TribPathRecord_1b]"]
   ...
   ["TR:TribPathRecord_n[:TribPathRecord_nb]"]
   .....
   .....
   "PortStatusRecord8,PortAttributeRecord8
   ["TR:TribPathRecord_1[:TribPathRecord_1b]"]
   ["TR:TribPathRecord_2[:TribPathRecord_2b]"]
   ["TR:TribPathRecord_3[:TribPathRecord_3b]"]
   ["TR:TribPathRecord_4[:TribPathRecord_4b]"]
   ["TR:TribPathRecord_5[:TribPathRecord_5b]"]
```

Output parameters

The output parameters *srcTid*, *date*, *time*, *ctag*, *completionCode* and their syntax are included in the Output parameters section of the "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950) command.

NNDR_HeaderRecord

1. nndrID
   ONNS Data Repository *dataID* to be returned: NNDR, Neighbor Nodal data repository in RAM.
2. dataType
   This parameter specifies, which part of the NNDR is to be retrieved. Furtheron it determines the expected input parameter type of the *componentID* input parameter. When *datatype* = ALL *componentID* must not be specified.
   Values:
   - ALL: retrieves the entire NNDR in RAM (default).
   - PORT: retrieves NNDR port data, *componentID* must be a *portID*.

- NBRIP: retrieves all NNDR port data for link bundles between the local and neighbor node, *componentID* must be a *neighborASTNNodeID*.
- PORTUSAGE: retrieves all NNDR port data of ports of a specified port class, *componentID* must be a *portClass*.

3. componentID
   This parameter depends on the previous *dataType* parameter and is one of: *null* (when *datatype* = ALL), *portID* (when *datatype* = PORT, see definition of output parameter *portID* in RTRV-PATH), *nodeID* (when *datatype* = NBRIP), *portClass* (when *datatype* = PORTUSAGE).
   The detailed parameter format of the choices is described below:
   - portID - Port Identifier
     Port ID for which the NNDR data shall be retrieved. The portID consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #.
     Type: dash-seperated list of 4 numeric strings
     Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16).
   - nodeID - Neighbor Node Identifier
     This parameter identifies a neighbor ASTN node.
     Type: Four dot seperated numeric strings (0 - 255 for each numeric string).
   - portClass
     This parameter specifies which type of port to include in the report, it determines how ONNS uses the port: EDGE (ONNS client port, where the signal enters/leaves the ONNS domain), INNI (ONNS port within the ONNS domain, topology relevant).
4. srcNodeASTNNodeID - Source Node ASTN Node ID
   Identifier of the ASTN node to which the RTRV-NNDR command is sent.
   Values:Four dot seperated numeric strings, 0 - 255 for each numeric string.
5. NumberOfRecords
   This parameter indicates the number of PortRecords returned in this query.
   Values: number of NNDR records 0 - 1000.

PortRecord - PortStatusRecord

Two PortStatusRecords are present per reported port, one for each direction (see parameter pdir below).

1. portID - port identifier
   portID of the port for which data in the PortRecord is reported. It consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #.
   Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16).
2. portClass
   The *portClass* specifies how ONNS uses the port.

Values:

- INNI, ONNS port within the ONNS domain, topology relevant, bandwidth on this port is managed by ONNS
- EDGE, ONNS client port, where the signal enters/leaves the ONNS domain, unmanaged by ONNS, but used as the source or destination ports of an ONNS connection.
- NA, Traditional (non-NN) port, they are normally not included in the ONNS data repository (exception: connections with EDGE ports exist).

3. pdir - Port Direction
   This parameter specifies whether the PortRecord is for the port in receive or transmit direction.
   Values:
   - TX: PortRecord is for transmit side of port
   - RX: PortRecord is for receive side of port
4. neighbor - Neighbor Information
   The neighbor information consists of &-seperated *neighborNodeID* and *neighborPortID* parameter.
   - neighborNodeID
     Identifier of the peer ASTN node (neighbor node) with respect to output parameter *portID*. The special value 0.0.0.0 indicates that the neighbor node ID is unknown.
     Type: Four dot seperated numeric strings, (0 - 255) for each numeric string
   - neighborPortID
     Port ID of the peer port (neighbor port) with respect to output parameter portID. It consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #. The special value 0-0-0-0 indicates that the neighbor port ID is unknown.
     Type: dash-seperated list of 4 numeric strings.
     Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16).
5. lineSigStatus - Port Line Signal Status
   Line Signal Status indicates the fault status of the line signal on the port as reported to ONNS from the Host..
   Values:
   - GOOD (ONNS assumes that the port can be used for transmission)
   - BAD (ONNS assumes that the port can not be used for transmission)
   - UNKNOWN (ONNS couldn’t derive status information from the Host).

6. portEqptState
   This parameter indicates the fault status of the equipment associated with the port as reported to ONNS by the Host..
   Values: OK (ONNS assumes that the equipment is ok and that the associated port can be used for transmission), FAILED (ONNS assumes that the equipment is failed and that the associated port can not be used for transmission), UNKNOWN (ONNS couldn't derive status information from the Host).
7. portAdminMode - Port Control
   This attribute determines the mode of operation of this port.
   Values: NORMAL (Port is for unrestricted use by ONNS), LOCKOUT (ONNS is not allowed to use the port for new connections, note: ONNS might delete existing connections from that port).

PortRecord - PortAttributeRecord

Two PortAttributeRecords are present per reported port, one for each direction (see parameter pdir above).

1. portRate
   This parameter is the bandwidth / port rate of the port.
   Values:
   - STS3 (STM1E, STM1, OC3 port), STS12 (STM4, OC12 port), STS48 (STM16, OC48 port), STS192 (STM64, OC192 port), GE1 (GE1 port), STS768 (STM256, OC768 port).
2. propagationDelay
   Propagation delay in milliseconds through the port connection between the pair of ports on the path. The time needed for a signal to traverse from this node to the neighbor node. A propagation delay of 1 milliseconds corresponds to about 450 km of fiber length.
   Range: 0 - 255, default = 0.
3. Cost - Administrative Cost
   Provisioned administrative cost of the port connection when used in a connection path.
   Range: 1 - 65535
4. SRLG - SRLG list
   Shared Risk Link Group Identifier list. See also parameter srlgList in RTRV-rr. The max. number of identities that can be provisioned per port may be release dependent.
   Type: Up to ten &-seperated integers (examples: 198&233; 10&20&30&40; 89&1000&4&10&20&31&111&231&300&777).
   Range: Each value: 0 - 65535.
   Default: 0, means no SRLG provisioned.
5. IncludeID - VPN ID
   Values: 0 - 65535. default: = 0 means *includeID* provisioned.
6. XCRate (minXCrate)- Cross-connection rate

The XCRate consists of minXCrate&maxXCrate with

- *minXCrate* denotes the smallest signal rate granularity used to provision a port into trib's,
- *maxXCrate* denotes the largest signal rate granularity used to provision a port into trib's.

Type: two &-seperated alphanumeric value sets
Range *minXCrate*: STS1 (for all STMm, OCn ports), STS1 (for GE1 ports in SONET mode), STS3 (for GE1 ports in SDH mode).
Range *maxXCrate*: STS1 (for all STMm, OCn ports), STS3 (for all STMm, OCn ports), STS12 (for all STMm, OCn ports, with m=4,16,64 and n=12,48,192), STS48 (for all STMm, OCn ports, with m=16,64 and n=48,192), STS192 for all STMm, OCn ports, with m=64 and n=192), STS1 (for GE1 ports in SONET mode), STS3 (for GE1 ports in SDH mode).

7. BundleID - Link Bundle identifier
   This parameter is a unique numeric ID assigned to the link bundle on this node. Link bundling depends on a number of parameters, e.g. propagationDelay, which can be provisioned on Host level for ports with (e)portClass=INNI.
   Range: > 0 (valid BundleID), 0 (for EDGE ports).

TribPathRecord

For ports with *portClass* = INNI one TribPathRecord is present per cross-connection associated with the port. For ports with *portClass* = EDGE two TribPathRecords are present per bridged cross-connection and one TribPathRecord is present per non-bridged cross-connection associated with the port.

1. tribID - Tributary Identifier
   Identifier of the tributary whose *pathID* and cross-connect information is included below. The *tribID* also denotes the timeslot of the reported cross-connection in the reported port.
   Range: 1 - n
   - with n=3 for STM1E, STM1, OC3 ports
   - with n=12 for STM4, OC12 ports
   - with n=48 for STM16, OC48 ports
   - with n=192 for STM64, OC192 ports
   - with n=21 for GE1 ports
2. pathID - Path Identifier
   The *pathID* of the associated cross-connection. The special value 0.0.0.0-0 indicates, that there is no associated pathID, i.e. the port has a non-ONNS cross-connection.
   Type: character string of length up to 20.
   Range: nodeID-Index; nodeID: four dot separated numeric strings: each string 0..255, Index: Numeric string.
   Example: 135.13.196.203-432165

3. connPtA - Connection Point A
   The *connPoint* on the reporting port of the cross-connection connPoint pair. The connPtA consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # .
   Type: dash-seperated list of 5 numeric strings.
   Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).
4. connInd - Connection Indicator
   Seperator for better readability. -X- (cross-connection setup)
5. connPtB
   The *connPoint* opposite to the reporting port of the cross-connection *connPoint* pair. The *connPtB* consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary #.
   Type: dash-seperated list of 5 numeric strings.
   Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128) Slot/Pack ## Port ## Tributary ##.
   Value # for Slot/Pack, Port and Tributary indicates default tributary AID used for reporting the open end in not existing xcons in the A-node or Z-node for a protecting NN connection of an M:N protected connection group.
   Slot/Pack #*, Port #*, Tributary #*.
   Value * for Slot/Pack, Port and Tributary indicates unknown HO tributary AIDs used for reporting that the corresponding HO tributary of an EDGE port (specified in parameter connPtA) is allocated by one or more LO traditional cross connections.
   Slot/Pack #@, Port #@, Tributary #@.
   Value @ for Slot/Pack, Port and Tributary indicates that the corresponding HO input and/or output tributary specified by connPtA is involved as EDGE-prt tributary in an OUC.
6. RsvStatus - Reservation Status
   Indicator whether the cross-connection has been allocated to a path by ONNS..
   When *RsvStatus* = 0 and *XCStatus* = 1, this is a Host NE initiated cross-connection.
   Reserved (by ONNS) = 1; Unreserved = 0; default = 1.
7. XCStatus
   Indicator whether the cross-connect operation was successful.
   When *RsvStatus* = 0 and *XCStatus* = 1, this is a Host NE initiated cross-connection.
   Range: Success = 1 (default); Failed = 0
   2 = Reserved, for cross-connections, that are not physically switched, i.e. cross-connections in A- and Z-node for protecting NN connections within M:N protected connection groups.
   3 = Reserved, for cross-connections, that are not switched on higher order, but the corresponding HO tributary is blocked by a LO cross-connection on a substructure.
   4 = Reserved, for cross-connections, that are switched to/from an EDGE tributary involved as EDGE-prt in an OUC.

8. tribWidth - Tributary Width
   The used bandwidth of the cross-connections expressed in multiples of STS1s. Range: STS1, STS3, STS12, STS48, STS192.
9. tribSigStatus - Tributary Signal Status
   This parameter indicates the fault status of the *connPtA* incoming signal on a path. Range: OK, FAILED.

Note: In the reply to the TL1 command RTRV-NNDR the parameter *tribSigStatus* is missing. This parameter is sent per tributary path record being sent for all connected tributaries of all ports reported and gives the state of the incoming signal at the corresponding tributary (value OK or FAILED). As tributary record information from RTRV-NNDR is not displayed at the GUI, this issue is only recognized when checking TL1 logfiles. Workaround: To get state information at least for paths as a whole, RTRV-PATH can be executed or the corresponding GUI screens can be used.

Example input/output

Example NNDR output for the RTRV-NNDR command with a INNI *portID*:

```
   LT-ONNS-319 2002-01-14 09:45:28
M  123456 COMPLD
   "NNDR,PORT=1-1-4-3,172.41.18.0,NumberOfRecords=1"
   "PR:1-1-3-4,INNI,TX,172.41.19.1&1-1-1-2,,OK,OK,,
   NORMAL,,STS48,MON,10,Cost=1,SRLG=0&0&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=39"
   "TR:1,172.3.19.0-1011,1-1-3-4-1,-X-,1-1-2-1-1,
   RsvStatus=1,XcStatus=1,STS12,OK"
   "TR:13,172.3.19.0-1251,1-1-3-4-13,-X-,1-1-6-1-49,
   RsvStatus=1,XcStatus=1,STS12,OK"
   "TR:25,172.3.19.65-51,1-1-3-4-25,-X-,1-1-3-1-7,
   RsvStatus=1,XcStatus=1,STS3,OK"
   "TR:28,172.3.19.53-91,1-1-3-4-28,-X-,1-1-3-4-4,
   RsvStatus=1,XcStatus=1,STS3,OK"
   "PR:1-1-3-4,INNI,RX,172.41.19.1&1-1-1-2,,OK,OK,,
   NORMAL,,STS48,MON,10,Cost=1,,SRLG=0&0&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=39"
   "TR:1,172.3.19.0-1011,1-1-3-4-1,-X-,1-1-2-1-1,
   RsvStatus=1,XcStatus=1,STS48,OK"
   "TR:13,172.3.19.0-1251,1-1-3-4-13,-X-,1-1-6-1-49,
   RsvStatus=1,XcStatus=1,STS48,OK"
   "TR:25,172.3.19.65-51,1-1-3-4-25,-X-,1-1-3-1-7,
   RsvStatus=1,XcStatus=1,STS3,OK"
   "TR:28,172.3.19.53-91,1-1-3-4-28,-X-,1-1-3-4-4,
   RsvStatus=1,XcStatus=1,STS3,OK"
;
```

Example NNDR output for the RTRV-NNDR command with a NNI portID with protecting connection involved

```
   LT-ONNS-319 2002-01-14 09:45:28
M  123456 COMPLD
   "NNDR,PORT=1-1-4-3,172.41.18.0,NumberOfRecords=1"
   "PR:1-1-3-4,INNI,TX,172.41.19.1&1-1-1-2,,OK,OK,,
   NORMAL,,STS48,MON,10,Cost=1,SRLG=0&0&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=39"
   "TR:1,172.3.19.0-1011,1-1-3-4-1,-X-,1-1-2-1-1,
   RsvStatus=1,XcStatus=1,STS12,OK"
   "TR:13,172.3.19.0-1251,1-1-3-4-13,-X-,1-1-6-1-49,
   RsvStatus=1,XcStatus=1,STS12,OK"
   "TR:25,172.3.19.65-51,1-1-3-4-25,-X-,1-1-#-#-#,
   RsvStatus=1,XCStatus=2,STS3,OK"
   "TR:28,172.3.19.53-91,1-1-3-4-28,-X-,1-1-3-4-4,
   RsvStatus=1,XCStatus=1,STS3,OK"
   "PR:1-1-3-4,INNI,RX,172.41.19.1&1-1-1-2,,OK,OK,,
   NORMAL,,STS48,MON,10,Cost=1,,SRLG=0&0&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=39"
   "TR:1,172.3.19.0-1011,1-1-3-4-1,-X-,1-1-2-1-1,
   RsvStatus=1,XcStatus=1,STS12,OK"
   "TR:13,172.3.19.0-1251,1-1-3-4-13,-X-,1-1-6-1-49,
   RsvStatus=1,XcStatus=1,STS12,OK"
   "TR:25,172.3.19.65-51,1-1-3-4-25,-X-,1-1-#-#-#,
   RsvStatus=1,XCStatus=2,STS3,OK"
   "TR:28,172.3.19.53-91,1-1-3-4-28,-X-,1-1-3-4-4,
   RsvStatus=1,XCStatus=1,STS3,OK"
;
```

Example NNDR output for the RTRV-NNDR command with a EDGE *portID*:

```
   LT-ONNS-319 2002-01-14 09:45:28
M  123456 COMPLD
   "NNDR,PORT=1-1-3-4,172.3.19.0,NumberOfRecords=1"
   "PR:1-1-3-4,EDGE,TX,192.41.19.1&1-1-1-2,,OK,OK,,
   NORMAL,,STS48,MON,10,Cost=1,,SRLG=0&0&0,
   IncludeID=0,XCRate=STS1&STS48,BundleID=0
   "TR:1,172.3.19.0-211,1-1-3-4-1,-X-,1-1-2-1-1,
   RsvStatus=1,XcStatus=1,STS48,OK"
   "TR:1,172.3.19.0-1011,1-1-3-4-1,-X-,1-1-3-2-1,
   RsvStatus=1,XcStatus=1,STS48,OK"
   "PR:1-1-3-4,EDGE,RX,192.41.19.1&1-1-1-2,,OK,UNKNOWN,,
   NORMAL,,STS48,MON,10,Cost=1,,SRLG=0&0&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=0"
   "TR:1,172.3.19.0-211,1-1-3-4-1,-X-,1-1-2-1-1,
   RsvStatus=1,XcStatus=1,STS48,OK"
   "TR:1,172.3.19.0-1011,1-1-3-4-1,-X-,1-1-3-2-1,
   RsvStatus=1,XcStatus=1,STS48,OK"
;
```

Example NNDR output for the RTRV-NNDR command with an SNN *portID:*

```
   LT-SNN319 2002-01-14 09:45:28
M 123456 COMPLD
   "NNDR,PORT=1-1-3-4-1,172.3.19.0,NumberOfRecords=1"
   "PR:1-1-3-4,INNI,TX,172.3.19.1&1-1-1-3,,OK,UNKNOWN,,
   NORMAL,,STS3,MON,10,Cost=1,,SRLG=319&1969&922,
   IncludeID=0,XCRate=STS3&STS48,BundleID=320"
   "PR:1-1-3-4,INNI,RX,172.3.19.1&1-1-1-3,,OK,UNKNOWN,,
   NORMAL,,STS3,MON,10,Cost=1,,SRLG=319&1969&922,
   IncludeID=0,XCRate=STS3&STS48,BundleID=320"
;
```

Example NNDR output for the RTRV-NNDR command with a neighbor ASTN node ID:

```
   LT-ONNS-319 2002-01-14 09:45:28
M  123456 COMPLD
   "NNDR,NBRIP=172.3.19.69,172.3.19.109,
   NumberOfRecords=8,"
   "PR:1-1-3-1,INNI,TX,172.3.19.69&1-2-5-1,,OK,UNKNOWN,,
   NORMAL,,STS192,MON,10,Cost=1,,
   SRLG=5&7&0,IncludeID=0,XCRate=STS1&STS192,
   BundleID=11,
   "TR:1,182.63.219.10-219,1-1-3-1-1, -X-,1-1-6-1-1,
   RsvStatus=1,XcStatus=1, STS48,OK"
   "TR:49,192.168.7.12-9,1-1-3-1-49,-X-,1-1-5-1-1,
   RsvStatus=1,XcStatus=1, STS48,OK"
   "PR:1-1-3-1,INNI,RX,172.3.19.69&1-2-5-1,,OK,OK,,
   NORMAL,,STS192,MON,10,Cost=1,,SRLG=5&7&0,IncludeID=0,
   XCRate=STS1&STS192,BundleID=11,
   "TR:1,182.63.219.10-219,1-1-3-1-1,-X-,1-1-6-1-1,
   RsvStatus=1,XcStatus=1,STS48,OK"
   "TR:49,192.168.7.12-9,1-1-3-1-49,-X-,1-1-5-1-1,
   RsvStatus=1,XcStatus=1,STS48,OK"
   .......
   "PR:1-1-6-1,INNI,TX,172.3.19.69&1-1-1-4,,OK,FAILED,,
   NORMAL,,STS192,TRANS,10,Cost=1,,SRLG=5&7&0,
   IncludeID=0,XCRate=STS1&STS192,BundleID=9,
   "TR:1,182.63.219.10-219,1-1-6-1-1,-X-,1-1-3-1-1,
   RsvStatus=1,XcStatus=1,STS48, OK"
   "TR:49,192.168.3.5-54,1-1-6-1-49,-X-,1-1-5-1-49,
   RsvStatus=1,XcStatus=1,STS48, OK"
   "PR:1-1-6-1,INNI,RX,172.3.19.69&1-1-1-4,,OK,UNKNOWN,,
   NORMAL,,STS192,TRANS,10,Cost=1,,SRLG=5&7&0,
   IncludeID=0,XCRate=STS1&STS192,BundleID=9"
   "TR:1,182.63.219.10-219,1-1-6-1-1,-X-,1-1-3-1-1,
   RsvStatus=1,XcStatus=1,STS48, OK"
   "TR:49,192.168.3.5-54,1-1-6-1-49,-X-,1-1-5-1-49,
   RsvStatus=1,XcStatus=1,STS48, OK"
;
```

The next example shows the output for the RTRV-NNDR command with ALL. The RTRV-NNDR command will send a maximum of 4 bi-directional port records per block:

```
   LT-ONNS-39 2002-01-14 09:45:28
M  12345 COMPLD
   "NNDR,ALL,172.3.19.0,NumberOfRecords=16"
   "PR:1-1-1-1,INNI,TX,192.41.19.1&1-1-1-2,,OK,OK,,NORMAL,,
   STS48,TRANS,100,Cost=1,,SRLG=0&0&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=3
   "TR:1,172.3.19.0-1011,1-1-1-1-1,-X-,1-1-2-1-1,RsvStatus=1,
   XcStatus=1,STS48,OK"
   "PR:1-1-1-1,INNI,RX,192.41.19.1&1-1-1-2,,OK,UNKNOWN,,
   NORMAL,,STS48,TRANS,100,Cost=1,,SRLG=0&0&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=3"
   "PR:1-1-1-2,INNI,TX,172.3.19.1&1-1-1-1,,FAILED,UNKNOWN,,
   NORMAL,,STS48,TRANS,100,Cost=1,,SRLG=0&0&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=3"
   "PR:1-1-1-2,INNI,RX,172.3.19.1&1-1-1-1,,OK,OK,,NORMAL,,
   STS48,TRANS,100,cost=4,,SRLG=0&0&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=3"
   "TR:1,192.3.19.0-1199,1-1-1-2-1,-X-,1-1-2-2-1,RsvStatus=1,
   XcStatus=1,STS48,OK"
   "PR:1-1-1-3,INNI,TX,172.3.19.1&1-1-3-4,,OK,OK,,NORMAL,,
   STS48,TRANS,100,Cost=1,,SRLG=0&0&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=3"
   "TR:1,172.3.19.0-1065,1-1-1-3-1,-X-,1-1-4-1-1,
   RsvStatus=1,XcStatus=1,STS48,OK"
   "PR:1-1-1-3,INNI,RX,172.3.19.1&1-1-3-4,,OK,FAILED,,
   NORMAL,,STS48,TRANS,100,Cost=1,,SRLG=0&0&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=3"
   "TR:1,172.3.19.0-1065,1-1-1-3-1,-X-,1-1-4-1-1,RsvStatus=1,
   XcStatus=1,STS48,OK"
   "PR:1-1-1-4,INNI,TX,172.3.19.1&1-1-1-3,,OK,UNKNOWN,,
   NORMAL,,STS48,TRANS,100,Cost=1,,SRLG=0&0&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=3"
   "PR:1-1-1-4,INNI,RX,0.0.0.0&1-1-1-1,,OK,UNKNOWN,,NORMAL,,
   STS48,TRANS,100,Cost=1,,SRLG=0&0&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=3"
   "PR:1-1-2-1,EDGE,TX,0.0.0.0&1-1-1-1,,OK,UNKNOWN,,NORMAL,,
   STS48,MON,100,Cost=1,,SRLG=0&0&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=0"
   "PR:1-1-2-1,EDGE,RX,0.0.0.0&1-1-1-1,,OK,OK,,NORMAL,,
   STS48,MON,100,Cost=1,,SRLG=0&0&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=0"
   "TR:1,172.3.19.0-1011,1-1-2-1-1,-X-,1-1-1-1-1,RsvStatus=1,
   XcStatus=1,STS48,OK"
   "PR:1-1-3-2,INNI,TX,0.0.0.0&1-1-1-1,,OK,OK,,NORMAL,,
```

```
   STS48,MON,100,Cost=1,,SRLG=99&0&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=93"
   "TR:1,192.3.19.0-1199,1-1-1-2-2,-X-,1-1-1-2-1,RsvStatus=0,
   XcStatus=1,STS48,OK"
   "PR:1-1-3-2,INNI,RX,0.0.0.0&1-1-1-1,,OK,UNKNOWN,,NORMAL,,
   STS48,MON,100,Cost=1,,SRLG=99&0&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=93"
   "PR:1-1-4-1,EDGE,TX,0.0.0.0&1-1-1-1,,OK,FAILED,,NORMAL,,
   STS48,MON,100,Cost=1,,SRLG=67&0&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=0
   "TR:1,172.3.19.0-1065,1-1-4-1-1,-X-,1-1-1-3-1,RsvStatus=1,
   XcStatus=1,STS48,OK"
   "PR:1-1-4-1,EDGE,RX,0.0.0.0&1-1-1-1,,OK,OK,,NORMAL,,
   STS48,MON,100,Cost=1,,SRLG=67&0&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=0
   "TR:1,172.3.19.0-1065,1-1-4-1-1,-X-,1-1-1-3-1,RsvStatus=1,
   XcStatus=1,STS48,OK"
   "PR:1-1-4-2,EDGE,TX,0.0.0.0&1-1-1-1,,FAILED,OK,,NORMAL,,
   STS48,MON,100,Cost=1,,SRLG=67&0&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=0"
   "PR:1-1-4-2,EDGE,RX,0.0.0.0&1-1-1-1,,FAILED,OK,,NORMAL,,
   STS48,MON,100,Cost=1,,SRLG=67&0&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=0"
;
```

Example NNDR output for the RTRV-NNDR command with a PORTUSAGE data type:

```
   LT-ONNS-39 2002-01-14 09:45:28
M  123456 COMPLD
   "NNDR,PORTUSAGE=UNI,172.3.19.0,NumberOfRecords=4"
   "PR:1-1-3-1,UNI,TX,0.0.0.0&1-1-1-1,,OK,UNKNOWN,,NORMAL,,
   STS192,MON,10,Cost=1,,SRLG=3&33&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=0"
   "TR:1,182.63.219.10-219,1-1-1-3-1,-X-,1-1-6-1-1,RsvStatus=1,
   XcStatus=1,STS12, OK"
   "TR:49,182.63.219.10-599,1-1-1-3-49,-X-,1-1-5-2-1,RsvStatus=1,
   XcStatus=1,STS48,OK"
   "PR:1-1-3-1,UNI,RX,0.0.0.0&1-1-1-1,,OK,NO-IN,,NORMAL,,
   STS192,MON,10,Cost=1,PPC=0x1,SRLG=3&33&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=0"
   "TR:1,182.63.219.10-219,1-1-1-3-1,-X-,1-1-6-1-1,RsvStatus=1,
   XcStatus =1,STS12,OK"
   "TR:49,182.63.219.10-599,1-1-1-3-49,-X-,1-1-5-2-1,RsvStatus=1,
   XcStatus=1,STS48, OK"
   "PR:1-1-6-1,UNI,TX,172.3.19.2&1-1-1-4,,OK,OK,,NORMAL,,
   STS192,TRANS,10,Cost=1,,SRLG=12&34&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=0
   "TR:1,182.63.219.10-219,1-1-1-6-1,-X-,1-1-3-1-1,RsvStatus=1,
```

```
   XcStatus=1,STS12, OK"
   "PR:1-1-6-1,UNI,RX,172.3.19.2&1-1-1-4,,OK,UNKNOWN,,NORMAL,,
   STS192,TRANS,10,Cost=1,,SRLG=12&34&0,IncludeID=0,
   XCRate=STS1&STS48,BundleID=0
   "TR:1,182.63.219.10-219,1-1-1-6-1,-X-,1-1-3-1-1,RsvStatus=1,
   XcStatus=1,STS12, OK"
;
```

Error responses

The error codes defined in the "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950) command Error responses section also apply to the RTRV-NTDR command.

Invalid *PortID* or *componentID* parameter

If the RTRV-NNDR command is received with an invalid PortID parameter value, then the following error response is returned:

Error code: `E410 - Input, Invalid PortID`

The following list identifies conditions that will cause a similiar error response:

Error code: `E512 - Input, Invalid Neighbor node ID`

Related TL1 messages

- "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
- "ENT-PATH: Create ONNS path connection" (p. 4-1190)
- "ED-PATH: Modify alias of ONNS connection" (p. 4-522)
- "DLT-PATH: Delete ONNS path Connection" (p. 4-148)
- "REPT-PTHCHG Notification: Report path change" (p. 4-1540)
- "REPT-PTHEVT Notification: Report ONNS Path Events" (p. 4-1554)
- "RTRV-NTDR: Retrieve ONNS network topology data repository" (p. 4-1857)
- "REPT-NNEVT Notification: Report ONNS internal events" (p. 4-1536)
- "REPT-NNCHG Notification: Report ONNS data repository changes" (p. 4-1531)
- "RTRV-NNCNFG: Retrieve ONNS configuration data" (p. 4-1831)
- "ED-NNCNFG: Edit ONNS configuration data" (p. 4-329)

□

RTRV-NNEVT-TCA

Overview

The RTRV-NNEVT-TCA command retrieves the Threshold Control Alert (TCA) Status of the link bundles and operates on the current Neighbour Nodal Data Repository (NNDR) based local view on the bandwidth availability.

Retrieving all TCA status records

Network Navigator responds to a request to retrieve its TCA Status by sending a complete report of the corresponding contents of the NNDR for the local node.

The command RTRV-NNEVT-TCA ALL is supported, and it retrieves the entire TCA Status of the local node when the dataType field = ALL.

The RTRV-NNEVT-TCA command sends a maximum of 64 output lines per block. If possible, the next block shall start with the next LSA_Link_Record.

Retrieving TCA status by neighbour ASTN node ID

The command RTRV-NNEVT-TCA with dataType = NBRID and a neighborASTNNodeID as componentID retrieves all of the TCA status records that relate to the link between the local node and the neighbor node with that neighborASTNNodeID. The componentID is a single specific ASTN node ID of a neighbor node (ONNS adjacent node).

REPT PTHCHG or REPT NNCHG is not generated

The RTRV-NNEVT-TCA command do not generate a REPT PTHCHG or REPT NNCHG message.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Abortable: No

Input format

The RTRV-NNEVT-TCA command has a parameter dataType that defines what type of information is expected in the componentID field that determines what portion of the data repository records is retrieved.

Command Syntax: `RTRV-NNEVT-TCA:`*srcTid:[srcAid]:ctag::dataType[,componentID];*

Input parameters

Command parameters

1. srcTid – Source Target Identifier
   Target Identifier of the source node is the logical name of the Host NE. ONNS uses the same *tid* used by Host NE.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: The *srcTid* parameter is a case insensitive ASCII character string of up to 20 characters with the allowed character set.
2. srcAid
   Source node ONNS application access identifier of the ONNS controller OS command interface port.
   Range: Source node Access IDentifier parameter of the source node controller ONNS command interface entity has the allowed values shown here: snn.
3. ctag – Correlation Tag
   This parameter is included in the command by the TL1 user and is repeated by the NE in the response to allow the TL1 user to associate the command and response messages.
   The *ctag* parameter is a character strings of up to 6 ASCII characters. The allowed ASCII character string is comprised of alphanumeric characters beginning with a letter, or decimal numerals (a decimal numeral is a string of decimal digits with an optional non-trailing “.”).
4. dataType
   This parameter indicates the data input parameter type of the *componentID* in the next field. The input parameters in the next field may change with each *dataType* to suit the requirements of the requested *dataType*. ALL is supported in this field and requires no *componentID* in the next field.
   Type: alphanumeric value set.
   Range:
   - *ALL*: retrieve all TCA Status information
   - *NBRID*: next field will contain a Neighbor ASTN node ID, not valid without a matching appropriate value in the *componentID* field except for dataType = ALL.
5. componentID
   This parameter allows the user to specify a portion of TCA Status information such as an ASTN node ID for a neighbor node to return the TCA Status for all bundles of a link. The TCA Status records for the specified *componentID* will be returned.
   componentID depends on the previous dataType parameter and is one of:
   - *null*: when datatype=ALL, to get all TCA Status information
   - *nodeID*: when datatype=NBRID, to get the part of the TCA status of the link between that neighbor node and this node. See definition of *nodeID* in “RTRV-NNDR: Retrieve ONNS neighbor nodal data repository” (p. 4-1836).

Output format

The RTRV-NNEVT-TCA with *dataType*=ALL produces this example ouput result with the complete TCA status information of the local node:

```
RTRV-NNEVT-TCA:LT-ONN61:snn:123456::ALL;
RTRV-NNEVT-TCA:LT-ONN61:snn:123456::ALL;
LT-ONN61 2002-01-14 09:45:28
M 123456 COMPLD
"nndrID,ALL,srcNodeASTNNodeID"
"LinkId=origNodeASTNNodeID&neighborASTNNodeID1"
":BundleID=bundleID1,TCAStatus=TCA_Status1"
":BundleID=bundleID3,TCAStatus=TCA_Status3"
"LinkId=origNodeASTNNodeID&neighborASTNNodeID9"
":BundleID=bundleID9,TCAStatus=TCA_Status9"
"LinkId=origNodeASTNNodeID&neighborASTNNodeID2"
":BundleID=bundleID2,TCAStatus=TCA_Status2"
":BundleID=bundleID7,TCAStatus=TCA_Status7"
;
```

The RTRV-NNEVT-TCA command with *dataType*=NBRID produces this example ouput result:

```
RTRV-NNEVT-TCA:LT-ONN61:snn:123456::NBRID,neighborASTNNodeID;
LT-ONN61 2002-01-14 09:45:28
M 123456 COMPLD
"nndrID,NBRID=neighborASTNNodeID,origNodeASTNNodeID"
"LinkId=origNodeASTNNodeID&neighborASTNNodeID"
":BundleID=bundleID1,TCAStatus=TCA_Status1"
":BundleID=bundleID4,TCAStatus=TCA_Status4"
":BundleID=bundleID3,TCAStatus=TCA_Status3"
;
```

Output parameters

The output parameters *srcTid*, *date*, *time*, *ctag*, *completionCode* and their syntax are included in the Output parameters section of the RTRV-PATH command.

Header_Record

1. nndrID – ONNS Data Repository dataID to be returned
   Type: alphanumeric value set.
   Range: NNDR-TCA: TCA portion of Neighbour Nodal data repository.
2. dataType
   See definition of *dataType* in Input parameters section above.

3. componentID
   See definition of *componentID* in Input parameters section above.
4. origNodeASTNNodeID – ASTN node ID of the originating node.
   Type: Four dot seperated numeric strings.
   Range: for each numeric string: 0..255.

Link_Header_Record

1. LinkID
   LinkID is the ASTN node ID of the originating node plus that of the neighbor node that uniquely identifies the link.
   Type: Two &-seperated node IDs, each node ID consists of four dot seperated numeric strings.
   Example: 135.13.44.61&135.13.3.86
   Range: for each numeric string: 0..255.

LinkBundle_Data Record

1. BundleID
   This parameter is a unique numeric ID assigned to the link bundle on this node..
   Type: integer.
   Range: >0.
2. TCAStatus - Status of the TCA of this link bundle
   Type: alphanumeric value set.
   Range: INACTIVE (default), LOW, HIGH

Example input/output

Output for the RTRV-NNEVT-TCA command by neighbor ASTN node ID.

The RTRV-NNEVT-TCA command with *datatype*=NBRID produces this example output result with all bundles between two neighbor nodes:

```
RTRV-NNEVT-TCA:LT-ONNS61:snn:123456::NBRID,135.13.44.86;
LT-ONNS61 2001-01-14 09:45:28
M 123456 COMPLD
"NNDR-TCA,NBRID=135.13.44.86,135.13.44.61"
"LinkId=135.13.44.61&135.13.3.86"
":BundleId=1,TCAStatus=INACTIVE"
":BundleId=2,TCAStatus=LOW"
":BundleId=4,TCAStatus=HIGH"
;
```

The RTRV-NNEVT-TCA command with *datatype*=ALL produces this example ouput result:

```
RTRV-NNEVT-TCA:LT-ONNS-61:snn:123456::ALL;
LT-ONNS-61 2002-07-14 09:45:28
M 123456 RTRV
"NNDR-TCA,ALL,135.13.44.61"
"LinkId=135.13.44.61&135.13.3.86"
```

```
":BundleId=1,TCAStatus=INACTIVE"
":BundleId=2,TCAStatus=LOW"
":BundleId=4,TCAStatus=HIGH"
....
"LinkId=135.13.44.61&135.13.3.89"
":BundleId=3,TCAStatus=INACTIVE"
":BundleId=11,TCAStatus=LOW"
":BundleId=17,TCAStatus=LOW"
>
LT-ONNS-61 2002-01-14 09:45:29
M 123456 RTRV
"LinkId=135.13.44.61&135.13.3.95"
":BundleId=9,TCAStatus=INACTIVE"
":BundleId=13,TCAStatus=INACTIVE"
":BundleId=5,TCAStatus=INACTIVE"
....
"LinkId=135.13.44.61&135.13.3.99"
":BundleId=19,TCAStatus=INACTIVE"
":BundleId=14,TCAStatus=LOW"
":BundleId=18,TCAStatus=LOW"
> ....
LT-ONNS-61 2002-01-14 09:45:30
M 123456 COMPLD
"LinkId=135.13.44.61&135.13.3.105"
":BundleId=7,TCAStatus=LOW"
":BundleId=15,TCAStatus=LOW"
":BundleId=8,TCAStatus=HIGH";
```

The RTRV-NNEVT-TCA command will send a maximum of 64 lines per block.

Error responses

The error codes defined in the "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950) command Error responses section also apply to the ED-NNCNFG command.

Invalid *componentID* parameter

The validity of the *componentID* parameter shall be checked. If it is invalid an appropriate error response shall be returned.

The following error responses is returned for an ASTN node ID which is not that of a neighbor:

Error code: `E512 - IINI Error - Input, Invalid Neighbor node ID`

Related TL1 messages

- "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
- "ENT-PATH: Create ONNS path connection" (p. 4-1190)

- "ED-PATH: Modify alias of ONNS connection" (p. 4-522)
- "DLT-PATH: Delete ONNS path Connection" (p. 4-148)
- "REPT-PTHCHG Notification: Report path change" (p. 4-1540)
- "REPT-PTHEVT Notification: Report ONNS Path Events" (p. 4-1554)
- "RTRV-NNCNFG: Retrieve ONNS configuration data" (p. 4-1831)
- "RTRV-NNDR: Retrieve ONNS neighbor nodal data repository" (p. 4-1836)
- "RTRV-NTDR: Retrieve ONNS network topology data repository" (p. 4-1857)
- "REPT-NNEVT Notification: Report ONNS internal events" (p. 4-1536)

□

RTRV-NTDR: Retrieve ONNS network topology data repository

Overview

The RTRV-NTDR command retrieves information stored in the NTDR data repository that is in RAM Memory. The RTRV-NTDR command operates on the current, active-memory-resident, ONNS data. The NVM data from NNDM is used during initialization to recover the ONNS local NTDR data repository. Data from other ONNS nodes is acquired by the flooding and exchange of LSA's.

Retrieving ALL NTDR records

When the *dataType* = ALL, Network Navigator responds to a request to retrieve its NTDR by sending a complete report of the contents of the data repository specified. The request causes the ONNS node to send all information in the specified data repository. When the NTDR is retrieved, each TL1 response message contains a record with all of the data relevant to a ONNS link group or LSA.

Retrieving NTDR records for any ASTN node ID

The command RTRV-NTDR with *dataType* = LSAID and *componentID* = ASTNNodeID retrieves the NTDR LSA records that relate to all of the links from the specified node with the *ASTNNodeID* to adjacent nodes. This *ASTNNodeID* can be the address of any node in the ONNS domain.

Retrieving NTDR records for a neighbor ASTN node

The command RTRV-NTDR with *dataType* = NBRID and *componentID* = neighborASTNNodeID retrieves all of the NTDR LSA records that relate to the links between the current node and the neighbor node with the *neighborASTNNodeID*. The *componentID* is a single specific ASTNNodeID. The *neighborASTNNodeID* must be the ID of a neighbor node (ONNS adjacent node).

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Abortable: No

Input format

Command Syntax: `RTRV-NTDR:`*srcTid:srcAid:ctag::dataType[,componentID];*

Input parameters

Command parameters

1. srcTid – Source Target Identifier
   Target Identifier of the source node is the logical name of the Host NE. ONNS uses the same *tid* used by Host NE.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: The *srcTid* parameter is a case insensitive ASCII character string of up to 20 characters with the allowed character set.
2. srcAid
   Source node ONNS application access identifier of the ONNS controller OS command interface port.
   Range: Source node Access IDentifier parameter of the source node controller ONNS command interface entity has the allowed values shown here: snn.
3. ctag – Correlation Tag
   This parameter is included in the command by the TL1 user and is repeated by the NE in the response to allow the TL1 user to associate the command and response messages.
   The *ctag* parameter is a character strings of up to 6 ASCII characters. The allowed ASCII character string is comprised of alphanumeric characters beginning with a letter, or decimal numerals (a decimal numeral is a string of decimal digits with an optional non-trailing “.”).
4. dataType
   This parameter specifies, which part of the NNTR is to be retrieved. Furtheron it determines the expected input parameter type of the componentID input parameter. When datatype = ALL componentID must not be specified.
   Values:
   - ALL: retrieves the entire NTDR in RAM. (default)
   - LSAID: retrieves the LSA in NTDR related to the ASTN node ID, *componentID* must be an *ASTNnodeID*
   - NBRID: retrieves the LSA in NTDR between the current and the specified neighbor node, *componentID* must be a *neighborASTNNodeID*.
5. componentID
   This parameter depends on the previous dataType parameter and is one of: null (when *datatype* = ALL), nodeID (when datatype = LSAID (any node ID) or datatype=NBRID (neighbor node ID)).
   The details for nodeID are described below.
   - nodeID - Node Identifier

   Identifier of an ASTN node.
   Type: Four dot seperated numeric strings.
   Range: 0 - 255 for each numeric string.

Output format

Output format with normal data retrieve completion report for dataType=ALL

If the RTRV-NTDR request completes successfully, then the following normal completion response is returned:

```
   srcTid date time
M  ctag RTRV
   "nndrID,ALL,srcNodeASTNNodeID,NumberOfLSAs=LSA_Count"
   "LSAheaderID1:Link_Header_record1-1:
    LinkBundle DataRecords"
   ...
   "LSAheaderID4:Link_Header_record4-1:
    LinkBundle DataRecords,
   Link_Header_record4-2:
    LinkBundle DataRecords"
>
   srcTid date time
M  ctag COMPLD
   "LSAheaderID5:Link_Header_record5-1:
    LinkBundle DataRecords,
   Link_Header_record5-2:
    LinkBundle DataRecords"
   ...
   "LSAheaderID9:Link_Header_record9-1:
   LinkBundle DataRecords"
;
```

The complete NTDR of one node consists of LSARecords for all known nodes (including the reporting node itself) in the topology. Within a LSARecord all (direct) neighborship releationships are kept in LinkRecords (one record for each neighbor relation). Within a LinkRecord the individual LinkBundleRecords are listed.

Output format for the RTRV-NTDR command for dataType=LSAID:

```
   LT-ONN61 2002-01-14 09:45:28
M  123456 COMPLD
   "NTDR,LSAIP=origNodeASTNNodeID,srcNodeASTNNodeID,
   NumberOfLSAs=LSA_Count"
   "LSAAdvertisedRouter=origNodeASTNNodeID,
   LinkCount=linkCount1,nodeTid,UIipAddr=nodeUI_IPaddr,
   SIGipAddr=nodeIPAddr:LinkId=origNodeASTNNodeID&
   neighborASTNNodeID1,BundleCount=bundleCount1:
   BundleID=bundleID1,Delay=delay1,Cost=adminCost1,
   SRLG=srg1&srg2&srg3,IncludeId=vpnID10,
   AtMinRate=minXCrate1,TotalBandwidth=totalBandwidth1,
   AvailBandwidth=availableBandwidth1,
   AtMaxRate=maxXCrate1,AvailBandwidth=availableBW_MaxXCrate1,
   BundleID=bundleID3,Delay=delay3,Cost=adminCost3,
   SRLG=srg1&srg2&srg3,IncludeId=vpnID30,
```

```
   AtMinRate=minXCrate3,TotalBandwidth=totalBandwidth3,
   AvailBandwidth=availableBandwidth3,
   AtMaxRate=maxXCrate3,AvailBandwidth=availableBW_MaxXCrate3,
   LinkId=origNodeASTNNodeID&neighborASTNNodeID9,
   BundleCount=bundleCount9:BundleID=bundleID9,Delay=delay9,
   Cost=adminCost9,SRLG=srg1&srg2&srg3,IncludeId=vpnID90,
   .....
   LinkId=origNodeASTNNodeID&neighborASTNNodeID2,
   BundleCount=bundleCount2:
   BundleID=bundleID2,Delay=delay2,Cost=adminCost2,
   SRLG=srg1&srg2&srg3,IncludeId=vpnID20,
   AtMinRate=minXCrate2,TotalBandwidth=totalBandwidth2,
   AvailBandwidth= availableBandwidth2,
   AtMaxRate=maxXCrate2,AvailBandwidth=availableBW_MaxXCrate2,
   BundleID=bundleID7,Delay=delay7,Cost=adminCost7,
   SRLG=srg1&srg2&srg3,IncludeId=vpnID70,
   AtMinRate=minXCrate7,TotalBandwidth=totalBandwidth7,
   AvailBandwidth=availableBandwidth7,
   AtMaxRate=maxXCrate7,AvailBandwidth=availableBW_MaxXCrate3"
;
```

Output format for the RTRV-NTDR command with dataType=NBRID

```
   LT-ONN61 2002-01-14 09:45:28
M  123456 COMPLD
   "NTDR,NBRIP=neighborASTNNodeID,srcNodeASTNNodeID,
   NumberOfLSAs=LSA_Count"
   "LSAAdvertisedRouter=srcNodeASTNNodeID,LinkCount=
   linkCount,nodeTid1,UIipAddr=nodeUI_IPaddr1,
   SIGipAddr=nodeIPaddr1:
   LinkId=srcNodeASTNNodeID&neighborASTNNodeID,
   BundleCount=bundleCount:
   BundleID=bundleID1,Delay=delay1,Cost=adminCost1,
   SRLG=srg11&srg21&srg31,IncludeId=vpnID10,
   AtMinRate=minXCrate1,TotalBandwidth=totalBandwidth1,
   AvailBandwidth=availableBandwidth1,
   AtMaxRate=maxXCrate1,AvailBandwidth=
   availableBW_MaxXCrate1,
   .....
   BundleID=bundleID4,Delay=delay4,Cost=adminCost4,
   SRLG=srg14&srg24&srg34,IncludeId=vpnID40,
   AtMinRate=minXCrate4,TotalBandwidth=totalBandwidth4,
   AvailBandwidth=availableBandwidth4,
   AtMaxRate=maxXCrate4,AvailBandwidth=
   availableBW_MaxXCrate4,BundleID=bundleID3,
   Delay=delay3,Cost=adminCost3,SRLG=srg13&srg23&srg33,
   IncludeId=vpnID30,AtMinRate=minXCrate3,
   TotalBandwidth=totalBandwidth3,
   AvailBandwidth= availableBandwidth3,
   AtMaxRate=maxXCrate3,AvailBandwidth=
```

```
    availableBW_MaxXCrate3″
    ″LSAAdvertisedRouter=neighborASTNNodeID,
    LinkCount=linkCount,nodeTid2,UIipAddr=nodeUI_IPaddr2,
    SIGipAddr=nodeIPaddr2:
    LinkId=neighborASTNNodeID&srcNodeASTNNodeID,
    BundleCount=bundleCount:
    BundleID=bundleID1,Delay=delay1,Cost=adminCost1,
    SRLG=srg11&srg21&srg31,IncludeId=vpnID10,
    AtMinRate=minXCrate1,TotalBandwidth=totalBandwidth1,
    AvailBandwidth=availableBandwidth1,
    AtMaxRate=maxXCrate1,AvailBandwidth=
    availableBW_MaxXCrate1,
    .....
    BundleID=bundleID4,Delay=delay4,Cost=adminCost4,
    SRLG=srg14&srg24&srg34,IncludeId=vpnID40,
    AtMinRate=minXCrate4,TotalBandwidth=totalBandwidth4,
    AvailBandwidth= availableBandwidth4,
    AtMaxRate=maxXCrate4,AvailBandwidth=
    availableBW_MaxXCrate4,
    BundleID=bundleID3,Delay=delay3,Cost=adminCost3,
    SRLG=srg13&srg23&srg33,IncludeId=vpnID30,
    AtMinRate=minXCrate3,TotalBandwidth=totalBandwidth3,
    AvailBandwidth= availableBandwidth3,
    AtMaxRate=maxXCrate3,AvailBandwidth=
    availableBW_MaxXCrate3″
;
```

Output parameters

The output parameters *srcTid*, *date*, *time*, *ctag, completionCode* and their syntax are included in the Output parameters section of the "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950) command.

NTDR_HeaderRecord

1. nndrID
   NN Data Repository *dataID* to be returned: NTDR, Network Topology data repository in RAM.
2. dataType
   This parameter specifies, which part of the NNTR is to be retrieved. Furtheron it determines the expected input parameter type of the componentID input parameter. When datatype = ALL componentID must not be specified.

Values:

- ALL: retrieves the entire NTDR in RAM. (default)
- LSAIP: retrieves the LSA in NTDR related to the ASTN node ID, *componentID* must be an *ASTNnodeID*
- NBRIP: retrieves the LSA in NTDR between the current and the specified neighbor node, *componentID* must be a *neighborASTNNodeID*.

3. componentID
   This parameter depends on the previous dataType parameter and is one of: null (when *datatype* = ALL), nodeID (when datatype = LSAIP (any node ID) or datatype=NBRIP (neighbor node ID)).
   The details for nodeID are described below.
   - nodeID - Node Identifier

   Identifier of an ASTN node.
   Type: Four dot seperated numeric strings.
   Range: 0 - 255 for each numeric string.
   Note: If *dataType* = ALL, *componentID* and the = sign are not reported.
4. srcNodeASTNNodeID - Reporting Node ID
   This parameter is the ASTN node ID of the ONNS node replying to this command.
   Values: Four dot seperated numeric strings, 0 - 255 for each numeric string.
5. NumberOfLSAs
   This parameter indicates the number of LSA records in the report. Also equals number of NE nodes in the network for *dataType* = ALL.
   Values: > 0

LSARecord

For each reported node of the topology one LSARecord shall be reported.

1. LSAHeaderRecord
   All parameters in the *LSAHeaderRecord* describe properties of the LSAAdvertisedRouter.
   a. LSAAdvertisedRouter - Node ID of Advertising Node
      This is the ASTN node ID of the node advertising this LSA data record.
      Type: Four dot seperated numeric strings. 0 - 255 for each numeric string.
   b. LinkCount
      Number of reported links of LSAAdvertisedRouter towards other nodes in the network.
      Range: >0
   c. nodeTid
      Target identifier of the source node is the logical name of the Host NE. ONNS uses the same unique Tid used by Host NE.

Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed Range The srcTid parameter is a case insensitive ASCII character string of up to 20 characters with the allowed character set as described above.

Range: The *srcTid* parameter is a case insensitive ASCII character string of up to 20 characters with the allowed character set as described above.

d. UIipAddr

See definition of this parameter in "RTRV-NNCNFG: Retrieve ONNS configuration data" (p. 4-1831) section.

e. SIGipAddr

See definition of this parameter in "RTRV-NNCNFG: Retrieve ONNS configuration data" (p. 4-1831) section.

LinkRecord

For each neighborship of the LSAAdvertisedRouter one LinkRecord shall be reported.

1. Link_HeaderRecord

   a. LinkID

   LinkID consists of the advertising ASTN nodeID and a neighbor ASTN nodeID, which together uniquely identify a link. The two IDs are seperated by a &.

   Type: Two times four dot seperated numeric strings, seperated by &.

   Example: 135.13.44.61&135.13.3.86

   Range: 0 - 255 for each numeric string.

   b. BundleCount

   Number of LinkBundles within the LinkRecord.

   Range: >0

2. LinkBundleRecord

   For each link bundle within the LinkRecord one LinkBundleRecord shall be reported.

   a. BundleID

   This parameter is a unique numeric ID assigned to the link bundle on this node.

   Range: >0

   b. Delay- Propagation Delay

   Propagation delay in milliseconds through the port connection between the pair of ports on the path. The time needed for a signal to traverse from this node to the neighbor node. A propagation delay of 1 milliseconds corresponds to about 450 km of fiber length.

   Type: Integer

   Range: 0 (default) - 255

   c. Cost - Administrative Cost

   Provisioned administrative cost of the port connection when used in a connection path.

   Type: Integer

Range; 1 (default) - 65535

d. SRLG - Shared Risk Link Group Identifier list

Type: Up to ten &-seperated Integers

Range: Each value: 0 (default) - 65535. 0 means no SRLG provisioned

e. IncludeID - VPN ID

Type: Integer

Range: 0 (default) - 65535. 0 means no includeID provisioned

Range: 1 - 65535, default = 0 means no VPN.

f. AtMinRate

AtMinRate denotes the smallest signal rate granularity used to provision a port into trib's.

Values: STS1 (link bundle consists of STMm, OCn ports), STS3 (link bundle consists of GE1 ports in SDH mode), STS1 (link bundle consists of GE1 ports in SONET mode).

g. TotalBandwidth

This parameter is a numeric value indicating the total bandwidth in this linkBundle as multiples of *AtMinRate*.

Range: >2

h. AvailBandwidth (for *AtMinRate*)

This parameter is a numeric value indicating the available (i.e. non-used) bandwidth in this *linkBundle* as multiples of *AtMinRate*.

Values: integer, >=0

i. AtMaxRate

This parameter denotes the largest signal rate granularity used to provision a port into trib's..

Range: STS1, STS3, STS12, STS48, STS192 (link bundle consists of all STMm, OCn ports), STS1 (link bundle consists of GE1 ports in SONET mode), STS3 (link bundle consists of GE1 ports in SDH mode).

j. Avail Bandwidth (for *AtMaxRate*)

This parameter is a numeric value indicating the available (i.e. non-used) bandwidth in this *linkBundle* as multiples of *AtMaxRate*.

Values: numeric value, 0 - 65535.

Example input/output

Example output for the RTRV-NTDR command by Neighbor ASTN node ID:

```
   LT-ONNS61 2001-01-14 09:45:28
M  123456 COMPLD
   "NTDR,NBRIP=135.13.44.86,135.13.44.61,NumberOfLSAs=2"
   "LSAAdvertisedRouter=135.13.44.61,LinkCount=1,
   LT-ONNS61,UIipAddr=135.3.9.61,SIGipAddr=135.18.64.79:
   LinkId=135.13.44.61&135.13.3.86,BundleCount=3:
   BundleId=1,Delay=10,Cost=1,SRLG=0&0&0,IncludeId=0,
   AtMinRate=STS1,TotalBandwidth=288,AvailBandwidth=48,
```

```
   AtMaxRate=STS48,AvailBandwidth=1,
   BundleId=2,Delay=10,Cost=10,SRLG=0&0&0,IncludeId=30,
   AtMinRate=STS1,TotalBandwidth=192,AvailBandwidth=48,
   AtMaxRate=STS48,AvailBandwidth=1,
   BundleId=4,Delay=20,Cost=5,SRLG=0&0&0,IncludeId=0,
   AtMinRate=STS1,TotalBandwidth=384,AvailBandwidth=336,
   AtMaxRate=STS192,AvailBandwidth=1"
   "LSAAdvertisedRouter=135.13.44.86,LinkCount=1,
   LT-ONNS45,UIipAddr=135.3.9.45,SIGipAddr=135.18.64.83:
   LinkId=135.13.44.86&135.13.3.61,BundleCount=3:
   BundleId=2,Delay=10,Cost=1,SRLG=0&0&0,IncludeId=0,
   AtMinRate=STS1,TotalBandwidth=288,AvailBandwidth=0,
   AtMaxRate=STS48,AvailBandwidth=0"
   BundleId=4,Delay=10,Cost=10,SRLG=0&0&0,IncludeId=30,
   AtMinRate=STS1,TotalBandwidth=192,AvailBandwidth=96,
   AtMaxRate=STS48,AvailBandwidth=2,
   BundleId=15,Delay=20,Cost=5,SRLG=0&0&0,IncludeId=0,
   AtMinRate=STS1,TotalBandwidth=384,AvailBandwidth=336,
   AtMaxRate=STS192,AvailBandwidth=1"
;
```

Example NTDR output for the RTRV-NTDR command with ALL:

```
   LT-ONNS-61 2002-07-14 09:45:28
M  123456 RTRV
   "NTDR,ALL,135.13.44.61,NumberOfLSAs=3"
   "LSAAdvertisedRouter=135.13.44.61,LinkCount=3,
   LT-ONNS-61,UIipAddr=135.3.9.61,SIGipAddr=135.22.19.55:
   LinkId=135.13.44.61&135.13.3.111,BundleCount=1:
   BundleId=4,Delay=10,Cost=10,SRLG=10&26&322,
   IncludeID=0,AtMinRate=STS1,TotalBandwidth=96,
   AvailBandwidth=96,AtMaxRate=STS48,AvailBandwidth=2,
   LinkId=135.13.44.61&135.13.3.113,BundleCount=2:
   BundleId=1,Delay=10,Cost=6,SRLG=101&29&3272,
   IncludeID=0,AtMinRate=STS1,TotalBandwidth=48,
   AvailBandwidth=48,AtMaxRate=STS48,AvailBandwidth=1,
   BundleId=2,Delay=10,Cost=4,SRLG=20&69&272,
   IncludeID=0,AtMinRate=STS1,TotalBandwidth=48,
   AvailBandwidth=48,AtMaxRate=STS48,AvailBandwidth=1,
   LinkId=135.13.44.61&135.13.3.21,BundleCount=1:
   BundleId=3,Delay=10,Cost=1,SRLG=30&9&2272,
   IncludeID=0,AtMinRate=STS1,TotalBandwidth=48,
   AvailBandwidth=0,AtMaxRate=STS48,AvailBandwidth=0"
>
   LT-ONNS-61   2002-01-14   09:45:29
M  123456 RTRV
   "LSAAdvertisedRouter=135.13.3.21,LinkCount=3,
   LT-ONNS221,UIipAddr=135.3.9.21,SIGipAddr=135.22.19.56:
   LinkId=135.13.3.21&135.13.144.221,BundleCount=1:
   BundleId=23,Delay=10,Cost=10,SRLG=40&2&472,
```

```
   IncludeID=0,AtMinRate=STS1,TotalBandwidth=96,
   AvailBandwidth=96,AtMaxRate=STS48,AvailBandwidth=2,
   LinkId=135.13.3.21&135.13.14.216,BundleCount=1:
   BundleId=1,Delay=10,Cost=12,SRLG=50&39&72,
   IncludeID=0,AtMinRate=STS1,TotalBandwidth=96,
   AvailBandwidth=96,AtMaxRate=STS48,AvailBandwidth=2,
   LinkId=135.13.3.21&135.13.44.61 ,BundleCount=1:
   BundleId=35,Delay=10,Cost=1,SRLG=30&9&2272,
   IncludeID=0,AtMinRate=STS1,TotalBandwidth=48,
   AvailBandwidth=0,AtMaxRate=STS48,AvailBandwidth=0"
>    ....
   LT-ONNS-61   2002-01-14   09:45:30
M  123456 COMPLD
   "LSAAdvertisedRouter=135.13.3.113,LinkCount=2,
   LT-ONNS13,UIipAddr=135.3.9.13,SIGipAddr=135.22.19.57:
   LinkId=135.13.3.113&135.13.44.61,BundleCount=2:
   BundleId=31,Delay=10,Cost=6,SRLG=101&29&3272,
   IncludeID=0,AtMinRate=STS1,TotalBandwidth=48,
   AvailBandwidth=48,AtMaxRate=STS48,AvailBandwidth=1,
   BundleId=32,Delay=10,Cost=4,SRLG=20&69&272,
   IncludeID=0,AtMinRate=STS1,TotalBandwidth=48,
   AvailBandwidth=48,AtMaxRate=STS48,AvailBandwidth=1,
   LinkId=135.13.3.113&135.13.144.221,BundleCount=1:
   BundleId=33,Delay=10,Cost=10,SRLG=40&2&472,
   IncludeID=0,AtMinRate=STS1,TotalBandwidth=96,
   AvailBandwidth=96,AtMaxRate=STS48,AvailBandwidth=2"
:
```

Example output for the RTRV-NTDR command by LSAIP address:

```
   LT-ONNS-165 2001-01-14 09:45:28
M  123456 COMPLD
   "NTDR,LSAIP=135.13.44.61,135.13.44.165,NumberOfLSAs=1"
   "LSAAdvertisedRouter=135.13.44.61,LinkCount=3,
   LT-ONNS61,UIipAddr=135.3.9.61,
   SIGipAddr=135.25.18.77:LinkId=135.13.44.61&
   135.13.3.111,BundleCount=1:BundleId=4,Delay=10,
   Cost=10,SRLG=10&26&322,IncludeId=0,AtMinRate=STS48,
   TotalBandwidth=2,AvailBandwidth=2,AtMaxRate=STS48,
   AvailBandwidth=2,
   LinkId=135.13.44.61&135.13.3.113,BundleCount=2:
   BundleId=1,Delay=10,Cost=6,SRLG=101&29&3272,
   IncludeId=0,AtMinRate=STS48,TotalBandwidth=1,
   AvailBandwidth=1,AtMaxRate=STS48,AvailBandwidth=1,
   BundleId=2,Delay=10,Cost=4,SRLG=20&69&272,
   IncludeId=0,AtMinRate=STS48,TotalBandwidth=1,
   AvailBandwidth=1,AtMaxRate=STS48,AvailBandwidth=1,
   LinkId=135.13.44.61&135.13.3.21,BundleCount=1:
   BundleId=3,Delay=10,Cost=1,SRLG=SRLG=30&9&2272,
   IncludeId=0,AtMinRate=STS48,TotalBandwidth=1,
```

```
   AvailBandwidth=0,AtMaxRate=STS48,AvailBandwidth=0"
;
```

Error responses

The error codes defined in the "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950) command Error responses section also apply to the RTRV-NTDR command.

Error code: `E512 - IINI Error - Input, Invalid Neighbor node ID`

The following list identifies conditions that will be returned, if access to the topology database is not possible due to internal problems:

`E002 - SICE Error - Status, Inter-Processor Communication Error caused cmd failure`

`E003 - SNTT Error - Status, Network Topology database Timed out`

Related TL1 messages

- "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
- "ENT-PATH: Create ONNS path connection" (p. 4-1190)
- "ED-PATH: Modify alias of ONNS connection" (p. 4-522)
- "DLT-PATH: Delete ONNS path Connection" (p. 4-148)
- "REPT-PTHCHG Notification: Report path change" (p. 4-1540)
- "REPT-PTHEVT Notification: Report ONNS Path Events" (p. 4-1554)
- "RTRV-NNCNFG: Retrieve ONNS configuration data" (p. 4-1831)
- "RTRV-NNDR: Retrieve ONNS neighbor nodal data repository" (p. 4-1836)
- "REPT-NNEVT Notification: Report ONNS internal events" (p. 4-1536)

□

RTRV-OC3: Retrieve OC3 port

The RTRV-OC3 command is used to retrieve all parameters related to the optical OC3 port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-OC3:`*tid:aid:ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   Access Identifier of an OC3 port.
   Type: AID.
   Range: SPortAID of OC3 port.
   The keyword `all` is allowed up to shelf level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

In response to a valid RTRV-OC3 command, the following output report is returned:

```
   sid date time
M  ctag COMPLD
   "aid[:spec_block]"
        ...
        ...
   "aid[:spec_block]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID.
   Range: OC3 port AID.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....255
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. It is the pointer processor setup if adaptive mode (*trbmd* = ADAPTIVE) is selected.
   When switching *trbmd* from FIXED to ADAPTIVE or when creating a port newly *crstat* inherits the current value of *inputsig* until the system delivers an up-to-date value from the pointer processor. If no value is available from the pointer processor the latest known value is retained.
   For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the Tributary Input Rate Signal List.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 1 or 3 representing STS1 or STS3C.
5. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd

is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
Type: Hexadecimal digits
Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
Default: 89hex followed by 15 bytes 00hex

6. felpm – Far-end Line PM Enable
   Enable or disable of the performance monitoring of the Far-end Line.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
7. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU
8. fsflpbkstat – Far Side Facililiy Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output *aid.*
   A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
   Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).
9. inputsig – Tributary Input Signal Rate List
   This parameter is a list of STSn rates across the port's bandwidth.
   If *trbmd* is FIXED, then *inputsig* constrains the cross-connection rates that can be entered for the port. If *trbmd* is ADAPTIVE, then *inputsig* is setable and retrievable as in fixed mode but does not influence the port behavior.
   Type: numeric value set.

Range: NX-NX-NX-...
N is the number of Xs. X can be 1 or 3 representing STS1 or STS3C.
Default: 31.
Example: An O-3 signal might be represented by 31 which implies 3 STS1's or 13 which implies 1 STS3C.

10. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET.
    Type: alphanumeric value set.
    Range: SONET.
    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
11. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
12. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS3 (default), STS1.
13. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS1 (default), STS3.

14. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
15. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
16. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN. If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″
17. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.

neighborPortID is introduced specifically for use by NN application.
Type: Four dash separated numeric string.
Range: Each numeric string: 0...255.
Default: 0-0-0-0.
Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.

18. nelpm – Near-End Line PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
19. opdis – Optical Distance
    It shows the type of application for which the optical transmitter on this port is suited.
    Type: alphanumeric value set.
    Range:
    - VERY-SHORT-REACH
    - SHORT-REACH
    - INTERMEDIATE-REACH
    - LONG-REACH
    - VERY-LONG-REACH
    - OLS_PASSIVE
    - OLS_400G
    - OLS_800G
    - XTREME.
20. opwl – Optical Wavelength
    Optical Wavelength in nanometers. It shows the type of optics that is used on this port.
    Type: numeric value set.
    Range (wavelength in [nm]): 0 (i.e. undefined), 1310; 1550; 1530.334 ... 1562.640 (i.e. C-Band); 1553.731 ... 1608.329 (i.e. L-Band). The value undefined is used e.g. in the context of optical modules if the retrieval of the inventory data is not yet supported.
21. outql – Outgoing timing quality
    This parameter provides the outgoing quality level message on the S1 SONET line overhead byte.
    Type: alphanumeric value set.

Range:

- PRS
- STU
- ST2
- ST3
- DUS (default).

22. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.

    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

    - STM-1/OC-3: 1 – 192000.

    Default: The default values differ for SDH and SONET:

    - STM1: 28800
    - OC3: 154.

23. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.

    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

    - STM-1/OC-3: 1 – 192000.

    Default: The default values differ for SDH and SONET and the different rates:

    - STM1: 28800
    - OC3: 154.

24. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set

Range:

- AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
- MON indicates that alarm monitoring is taking place on the port.
- NMON means that alarm monitoring is not occurring on the port.

25. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
Type: numeric value set.
Range (superset of allowed ranges for SDH and SONET):1 – 64000
Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392
    - SONET OC192: 8554
    - SONET OC768: 22776.
26. portClass – Port Class
This identifies the port class of the AID.
portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
Type: alphanumeric value set.
Range: TRADITIONAL (default), INNI, EDGE.
27. portControl – Port Control (PortAdministrative Mode)
This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
portControl is introduced specifically for use by ONNS application.
Type: alphanumeric value set.
Range: NORMAL (default), LOCKOUT.
28. propagationDelay - Propagation Delay
This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
propagationDelay is introduced specifically for use by ONNS application.
Type: Numeric string
Range: 0(sedault) ...25. The unit of this value is ″milliseconds″.

29. ptype – Port Type
    This identifies the port type of the AID.
    Type: alphanumeric value set.
    Range: OC3.
30. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable consequent action for TIM
    - DISABLE (default): disable consequent action for TIM.
31. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
32. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST
    - POISSON (default).
33. sdthr – Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
34. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.

35. sfthr – Signal Failure Threshold
    Signal failureb threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
36. sltca – Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
37. sonet – SONET ASAP
    SONET Alarm Severity Assignment Profile. This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH ASAP for SDH ports of corresponding line rate (see "RTRV-STM4: Retrieve STM4 port" (p. 4-2086), output parameter *sdhpn*) to be compatible with current generation applications.
    Type: alphanumeric string.
    Range: String with a maximum of 24 characters. A hyphen (-) is additionally allowed in the name.
    Default: DEFAULT.
38. spm – Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
39. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    srlgList is introduced specifically for use by ONNS application. The order of the three identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only one or two identities are provisioned, the remaing one shall be set to the default value 0, e.g. 3-0-0.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0.

40. strc – Value of incoming J0
    This parameter shows the value of the Section Trace Identifier on the incoming section overhead J0 byte of a port. The length of the string depends on the value of the parameter *strcfmt*. The status of this value is contained in parameter *strcst*. If *strcst* indicates NORMAL, then strc contains a valid value. If *strcst* indicates UNAVAILABLE or AIS, then no incoming section trace identifier could be obtained by the system, e.g. due to a signal-fail condition, and the output parameter strc is omitted from the response.
    Type: hexadecimal (each byte is expressed as two hexadecimal digits. An example of a byte is 6D).
    Range: 1 byte string, 16 byte string, 64 byte string (dependent on the strcfmt parameter).
41. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
42. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex

43. strcst – Status of incoming J0
    This parameter shows the status of the value of the incoming RS/Section Trace Identifier which is available with parameter *strc*.
    Type: alphanumeric value set.
    Range: NORMAL: strc contains a valid value; UNAVAILABLE: no value for strc could be obtained by the system; AIS: no value for strc due to an SF condition.
44. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
45. unequiposig – Unequipped Output Signal List
    This parameter is a list of STSn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need to have the identical setting. Mixed rates for tx and rx side of the port are allowed. If *trbmd* is ADAPTIVE, then *unequiposig* is settable and retrievable as in fixed mode but does not influence the port behavior.
    Type: numeric value set.
    Range: NX-NX-NX-...
    N is the number of Xs. X can be 1 or 3 representing STS1 or STS3C.
    Default: 3 1 = all STS1.
46. z0outmode – Mode of outgoing Z0 byte insertion
    The Z0 insertion is configurable to support interworking with old SONET equipment for STS-M interfaces (M=3, 12, 48).
    Type: alphanumeric value set.
    Range:
    - FIXEDCC (default): for inserting the fixed value CChex
    - STSID: for inserting the STS-Id of the current frame.

Detailed behavior description

The command retrieves the parameters as described above.

The RTRV-OC3 command does not generate a REPT DBCHG message.

Example input/output

The following example shows the successful execution of a RTRV-OC3 command. Not all output parameters are listed (missing ones indicated by …):

```
RTRV-OC3:LT-UNITE:1-1-#-#-1-1:123456;
   LT-UNITE 00-11-27 08:00:00
M  123456 COMPLD
   "1-1-#-#-1-1:ptype=OC3,frcdus=DISABLE,sfthr=-3,sdthr=-6,
     pmode=MON,..... pmmsneses=15,pmrsneses=30"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-OC3 command.

Check CCB against *ptype* and *istd*

See definition of error response in "RTRV-STM16: Retrieve STM16 port" (p. 4-2099).

References

GR-199-CORE (RTRV-*rr*)

□

RTRV-OC12: Retrieve OC12 port

The RTRV-OC12 command is used to retrieve all parameters related to the optical OC12 port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-OC12:`*tid:aid:ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   Access Identifier of an OC12 port.
   Type: AID.
   Range: SPortAID of OC12 port.
   The keyword `all` is allowed up to shelf level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

In response to a valid RTRV-OC12 command, the following output report is returned:

```
   sid date time
M  ctag COMPLD
   "aid[:spec_block]"
        ...
        ...
   "aid[:spec_block]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID.
   Range: OC-12 port AID.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....255
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. It is the pointer processor setup if adaptive mode (*trbmd* = ADAPTIVE) is selected.
   When switching *trbmd* from FIXED to ADAPTIVE or when creating a port newly *crstat* inherits the current value of *inputsig* until the system delivers an up-to-date value from the pointer processor. If no value is available from the pointer processor the latest known value is retained.
   For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the Tributary Input Rate Signal List.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 1, 3 or 12 representing STS1, STS3C or STS12C.
5. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd

is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
Type: Hexadecimal digits
Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
Default: 89hex followed by 15 bytes 00hex

6. felpm – Far-end Line PM Enable
   Enable or disable of the performance monitoring of the Far-end line.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
7. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU
8. fsflpbkstat – Far Side Facililiy Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output *aid.*
   A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
   Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).
9. inputsig – Tributary Input Signal Rate List
   This parameter is a list of STSn rates across the port's bandwidth.
   If *trbmd* is FIXED, then *inputsig* constrains the cross-connection rates that can be entered for the port. If *trbmd* is ADAPTIVE, then *inputsig* is settable and retrievable as in fixed mode but does not influence the port behavior.
   Type: numeric value set.
   Range: NX-NX-NX-…

N is the number of Xs. X can be 1, 3 or 12 representing STS1, STS3C or STS12C.
Default: 121.
Example:
An OC12 signal might be represented by 31-33 which implies 3 STS1's, 3 STS3C's.

10. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET.
    Type: alphanumeric value set.
    Range: SONET.
    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
11. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
12. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS12 (default), STS3, STS1.
13. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS1 (default), STS3, STS12.

14. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
15. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
16. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN. If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″
17. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.

neighborPortID is introduced specifically for use by NN application.
Type: Four dash separated numeric string.
Range: Each numeric string: 0...255.
Default: 0-0-0-0.
Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.

18. nelpm – Near-End Line PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
19. opdis – Optical Distance
    It shows the type of application for which the optical transmitter on this port is suited.
    Type: alphanumeric value set.
    Range:
    - VERY-SHORT-REACH
    - SHORT-REACH
    - INTERMEDIATE-REACH
    - LONG-REACH
    - VERY-LONG-REACH
    - OLS_PASSIVE
    - OLS_400G
    - OLS_800G
    - XTREME.
20. opwl – Optical Wavelength
    Optical Wavelength in nanometers. It shows the type of optics that is used on this port.
    Type: numeric value set.
    Range (wavelength in [nm]): 0 (i.e. undefined), 1310; 1550; 1530.334 ... 1562.640 (i.e. C-Band); 1553.731 ... 1608.329 (i.e. L-Band). The value undefined is used e.g. in the context of optical modules if the retrieval of the inventory data is not yet supported.
21. outql – Outgoing timing quality
    This parameter provides the outgoing quality level message on the S1 SONET line overhead byte.
    Type: alphanumeric value set.

Range:

- PRS
- STU
- ST2
- ST3
- DUS (default).

22. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.

    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

    - STM-4/OC-12: 1 – 768000.

    Default: The default values differ for SDH and SONET:

    - STM4: 115200
    - OC12: 615.

23. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.

    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

    - STM-4/OC-12: 1 – 768000.

    Default: The default values differ for SDH and SONET and the different rates:

    - STM4: 115200
    - OC3: 615.

24. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set

Range:

- AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
- MON indicates that alarm monitoring is taking place on the port.
- NMON means that alarm monitoring is not occurring on the port.

25. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
Type: numeric value set.
Range (superset of allowed ranges for SDH and SONET):1 – 64000
Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392
    - SONET OC192: 8554
    - SONET OC768: 22776.
26. portClass – Port Class
This identifies the port class of the AID.
portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
Type: alphanumeric value set.
Range: TRADITIONAL (default), INNI, EDGE.
27. portControl – Port Control (PortAdministrative Mode)
This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
portControl is introduced specifically for use by ONNS application.
Type: alphanumeric value set.
Range: NORMAL (default), LOCKOUT.
28. propagationDelay - Propagation Delay
This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
propagationDelay is introduced specifically for use by ONNS application.
Type: Numeric string
Range: 0(sedault) ...25. The unit of this value is ″milliseconds″.

29. ptype – Port Type
    This identifies the port type of the AID.
    Type: alphanumeric value set.
    Range: OC12.
30. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable consequent action for TIM
    - DISABLE (default): disable consequent action for TIM.
31. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
32. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST
    - POISSON (default).
33. sdthr – Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
34. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.

35. sfthr – Signal Failure Threshold
    Signal failure threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
36. sltca – Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
37. sonet – SONET ASAP
    SONET Alarm Severity Assignment Profile. This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH ASAP for SDH ports of corresponding line rate (see "RTRV-STM4: Retrieve STM4 port" (p. 4-2086), output parameter *sdhpn*) to be compatible with current generation applications.
    Type: alphanumeric string.
    Range: String with a maximum of 24 characters. A hyphen (-) is additionally allowed in the name.
    Default: DEFAULT.
38. spm – Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
39. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    srlgList is introduced specifically for use by ONNS application. The order of the three identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only one or two identities are provisioned, the remaing one shall be set to the default value 0, e.g. 3-0-0.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0.

40. strc – Value of incoming J0
    This parameter shows the value of the Section Trace Identifier on the incoming section overhead J0 byte of a port. The length of the string depends on the value of the parameter *strcfmt*. The status of this value is contained in parameter *strcst*. If *strcst* indicates NORMAL, then strc contains a valid value. If *strcst* indicates UNAVAILABLE or AIS, then no incoming section trace identifier could be obtained by the system, e.g. due to a signal-fail condition, and the output parameter strc is omitted from the response.
    Type: hexadecimal (each byte is expressed as two hexadecimal digits. An example of a byte is 6D).
    Range: 1 byte string, 16 byte string, 64 byte string (dependent on the strcfmt parameter).
41. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
42. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex

43. strcst – Status of incoming J0
    This parameter shows the status of the value of the incoming RS/Section Trace Identifier which is available with parameter *strc*.
    Type: alphanumeric value set.
    Range: NORMAL: strc contains a valid value; UNAVAILABLE: no value for strc could be obtained by the system; AIS: no value for strc due to an SF condition.
44. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
45. unequiposig – Unequipped Output Signal List
    This parameter is a list of STSn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need to have the identical setting. Mixed rates for tx and rx side of the port are allowed. If *trbmd* is ADAPTIVE, then *unequiposig* is settable and retrievable as in fixed mode but does not influence the port behavior.
    Type: numeric value set.
    Range: NX-NX-NX-...
    N is the number of Xs. X can be 1, 3 or 12 representing STS1, STS3C or STS12C.
    Default: 121 = all STS1 (fixed).
46. z0outmode – Mode of outgoing Z0 byte insertion
    The Z0 insertion is configurable to support interworking with old SONET equipment for STS-M interfaces (M=3, 12, 48).
    Type: alphanumeric value set.
    Range:
    - FIXEDCC (default): for inserting the fixed value CChex
    - STSID: for inserting the STS-Id of the current frame.

Detailed behavior description

The command retrieves the parameters as described above.

The RTRV-OC12 command does not generate a REPT DBCHG message.

Example input/output

The following example shows the successful execution of a RTRV-OC12 command. Not all output parameters are listed (missing ones indicated by …):

```
RTRV-OC12:LT-UNITE:1-1-#-#-1-1:123456;
   LT-UNITE 00-11-27 08:00:00
M  123456 COMPLD
   "1-1-#-#-1-1:ptype=OC12,frcdus=DISABLE,sfthr=-3,
   sdthr=-6, pmode=MON,..... pmmsneses=15,pmrsneses=30"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-OC12 command.

Check CCB against ptype and istd

See definition of error response in "RTRV-STM16: Retrieve STM16 port" (p. 4-2099).

References

GR-199-CORE (RTRV-*rr*)

□

RTRV-OC48: Retrieve OC48 port

The RTRV-OC48 command is used to retrieve all parameters related to the optical OC48 port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-OC48:`*tid:aid:ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   Access Identifier of an OC-48 port.
   Type: AID.
   Range: SPortAID of OC48 port.
   The keyword `all` is allowed up to shelf level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

In response to a valid RTRV-OC48 command, the following output report is returned:

```
   sid date time
M  ctag COMPLD
   "aid[:spec_block]"
        ...
        ...
   "aid[:spec_block]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. aid – Access Identifier
   Type: AID.
   Range: OC-48 port AID.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....65535
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. It is the pointer processor setup if adaptive mode (*trbmd* = ADAPTIVE) is selected.
   When switching *trbmd* from FIXED to ADAPTIVE or when creating a port newly *crstat* inherits the current value of *inputsig* until the system delivers an up-to-date value from the pointer processor. If no value is available from the pointer processor the latest known value is retained.
   For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the Tributary Input Rate Signal List.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 1, 3, 12, 48 representing STS1, STS3C, STS12C, STS48C.

5. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
6. felpm – Far-end Line PM Enable
   Enable or disable of the performance monitoring of the Far-end Line.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
7. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU
8. fsflpbkstat – Far Side Facililiy Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output *aid.*
   A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
   Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).
9. inputsig – Tributary Input Signal Rate List
   This parameter is a list of STSn rates across the port's bandwidth.
   If *trbmd* is FIXED, then *inputsig* constrains the cross-connection rates that can be entered for the port. If *trbmd* is ADAPTIVE, then *inputsig* is settable and retrievable as in fixed mode but does not influence the port behavior.

Type: numeric value set.
Range: NX-NX-NX-...
N is the number of Xs. X can be 1, 3, 12 or 48 representing STS1, STS3C, STS12C or STS48C.
Default: 481.
Example: An OC-48 signal might be represented by 91-13-112-241 which implies 9 STS1's, 1 STS3C, 1 STS12C, 24 STS1's.

10. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET.
    Type: alphanumeric value set.
    Range: SONET.
    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
11. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
12. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS48 (default), STS12, STS3, STS1.
13. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS1 (default), STS3, STS12, STS48.

14. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
15. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
16. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN. If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″
17. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.

neighborPortID is introduced specifically for use by NN application.
Type: Four dash separated numeric string.
Range: Each numeric string: 0...255.
Default: 0-0-0-0.
Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.

18. nelpm – Near-End Line PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
19. opdis – Optical Distance
    It shows the type of application for which the optical transmitter on this port is suited.
    Type: alphanumeric value set.
    Range:
    - VERY-SHORT-REACH
    - SHORT-REACH
    - INTERMEDIATE-REACH
    - LONG-REACH
    - VERY-LONG-REACH
    - OLS_PASSIVE
    - OLS_400G
    - OLS_800G
    - XTREME.
20. opwl – Optical Wavelength
    Optical Wavelength in nanometers. It shows the type of optics that is used on this port.
    Type: numeric value set.
    Range (wavelength in [nm]): 0 (i.e. undefined), 1310; 1550; 1530.334 ... 1562.640 (i.e. C-Band); 1553.731 ... 1608.329 (i.e. L-Band). The value undefined is used e.g. in the context of optical modules if the retrieval of the inventory data is not yet supported.
21. outql – Outgoing timing quality
    This parameter provides the outgoing quality level message on the S1 SONET line overhead byte.
    Type: alphanumeric value set.

Range:

- PRS
- STU
- ST2
- ST3
- DUS (default).

22. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.

    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:

    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.

23. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.

    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

Default: The default values differ for SDH and SONET and the different rates:

- STM16: 460800
- STM64: 1843200
- STM256: 7372800
- SONET OC48: 2459
- SONET OC192: 9835
- SONET OC768: 39340.

24. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
25. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000
    Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392
    - SONET OC192: 8554
    - SONET OC768: 22776.
26. portClass – Port Class
    This identifies the port class of the AID.
    portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.
27. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.

Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
portControl is introduced specifically for use by ONNS application.
Type: alphanumeric value set.
Range: NORMAL (default), LOCKOUT.

28. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(sedault) ...25. The unit of this value is ″milliseconds″.
29. ptype – Port Type
    This identifies the port type of the AID.
    Type: alphanumeric value set.
    Range: OC48.
30. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable consequent action for TIM
    - DISABLE (default): disable consequent action for TIM.
31. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
32. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST
    - POISSON (default).

33. sdthr – Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
34. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
35. sfthr – Signal Failure Threshold
    Signal failure threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
36. sltca – Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
37. sonet – SONET ASAP
    This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH Alarm Severity Assignment Profile for SDH ports (see "RTRV-STM16: Retrieve STM16 port" (p. 4-2099), output parameter *sdhpn*) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
38. spm – Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).

39. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    srlgList is introduced specifically for use by ONNS application. The order of the three identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only one or two identities are provisioned, the remaing one shall be set to the default value 0, e.g. 3-0-0.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0.
40. strc – Value of incoming J0
    This parameter shows the value of the Section Trace Identifier on the incoming section overhead J0 byte of a port. The length of the string depends on the value of the parameter *strcfmt*. The status of this value is contained in parameter *strcst*. If *strcst* indicates NORMAL, then strc contains a valid value. If *strcst* indicates UNAVAILABLE or AIS, then no incoming section trace identifier could be obtained by the system, e.g. due to a signal-fail condition, and the output parameter strc is omitted from the response.
    Type: hexadecimal (each byte is expressed as two hexadecimal digits. An example of a byte is 6D).
    Range: 1 byte string, 16 byte string, 64 byte string (dependent on the strcfmt parameter).
41. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).

42. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
43. strcst – Status of incoming J0
    This parameter shows the status of the value of the incoming RS/Section Trace Identifier which is available with parameter *strc*.
    Type: alphanumeric value set.
    Range: NORMAL: strc contains a valid value; UNAVAILABLE: no value for strc could be obtained by the system; AIS: no value for strc due to an SF condition.
44. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
45. trbmd – Tributary mode
    If *trbmd* is FIXED, then *inputsig* constrains the cross-connection rates that can be entered for the port. If *trbmd* is ADAPTIVE, then input *inputsig* and *unequiposig* have no effect.
    Type: alphanumeric value set.

Range:

- ADAPTIVE
- FIXED.

Default: The initial value is defined as the *trbmddflt* parameter on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720) command.

46. unequiposig – Unequipped Output Signal List
    This parameter is a list of STSn rates across the port's bandwidth. It determines the rate(s) of the *unequipped* signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need to have the identical setting. Mixed rates for *tx* and *rx* side of the port are allowed. If *trbmd* is ADAPTIVE, then *unequiposig* is settable and retrievable as in fixed mode but does not influence the port behavior.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 1, 3, 12 or 48 representing STS1, STS3C, STS12C or STS48C.
    Default: 481 = all STS1 (fixed).
47. z0outmode – Mode of outgoing Z0 byte insertion
    The Z0 insertion is configurable to support interworking with old SONET equipment for STS-M interfaces (M=3, 12, 48).
    Type: alphanumeric value set.
    Range:
    - FIXEDCC (default): for inserting the fixed value CChex
    - STSID: for inserting the STS-Id of the current frame.

Detailed behavior description

The command retrieves the parameters as described above.

The RTRV-OC48 command does not generate a REPT DBCHG message.

Example input/output

The following example shows the successful execution of a RTRV-OC48 command. Not all output parameters are listed (missing ones indicated by …):

```
RTRV-OC48:LT-UNITE:1-1-#-#-1-1:123456;
   LT-UNITE 00-11-27 08:00:00
M  123456 COMPLD
   "1-1-#-#-1-1:ptype=OC48,frcdus=DISABLE,sfthr=-3,
   sdthr=-6, pmode=MON,..... pmmsneses=15,pmrsneses=30"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-OC48 command.

Check CCB against ptype and istd

See definition of error response in "RTRV-STM16: Retrieve STM16 port" (p. 4-2099).

References

GR-199-CORE (RTRV-*rr*)

□

RTRV-OC48T: Retrieve OC48T port

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-OC48T`:*tid:aid:ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   Access Identifier of an OC-48 port.
   Type: AID.
   Range: SPortAID of OC48 port.
   The keyword `all` is allowed up to shelf level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

In response to a valid RTRV-OC48T command, the following output report is returned:

```
   sid date time
M  ctag COMPLD
   "aid[:spec_block]"
        ...
        ...
   "aid[:spec_block]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. aid – Access Identifier
   Access Identifier of an OC-48 port.
   Type: AID.
   Range: SPortAID of OC48 port.
   The keyword `all` is allowed up to shelf level.

Spec block parameters

1. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
   For RTRV-OC48T this parameter refers to the incoming (ingress) direction.
2. exprstrcout - Value of Expected J0 in outgoing direction
   Expected regenerator section trace identifier in outgoing (egress) direction.
   The parameter expstrcout specifying the expected path trace is only relevant for the section trace supervision in outgoing direction when the related trace read format strcfmtout is set to 16 (16-byte-specific-string mode).
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte shall be expressed as two hexadecimal digits (example value: 6D). The first byte value shall be in the range from 80 to FF. The other byte values shall be in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
3. fsflpbkstat – Far Side Facililiy Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output *aid.*
   A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
   Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).

4. istd – Interface Standard
   Each synchronous optical interface can be set to SDH or SONET.
   Type: alphanumeric value set.
   Range: SONET.
   Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
5. lpbk – Loopback
   This parameter specifies the current near-side loopback status of the considered output *aid*.
   A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).
6. opdis – Optical Distance
   It shows the type of application for which the optical transmitter on this port is suited.
   Type: alphanumeric value set.
   Range:
   - VERY-SHORT-REACH
   - SHORT-REACH
   - INTERMEDIATE-REACH
   - LONG-REACH
   - VERY-LONG-REACH
   - OLS_PASSIVE
   - OLS_400G
   - OLS_800G
   - XTREME.
7. opwl – Optical Wavelength
   Optical Wavelength in nanometers. It shows the type of optics that is used on this port.
   Type: numeric value set.
   Range (wavelength in [nm]): 0 (i.e. undefined), 1310; 1550; 1530.334 ... 1562.640 (i.e. C-Band); 1553.731 ... 1608.329 (i.e. L-Band). The value undefined is used e.g. in the context of optical modules if the retrieval of the inventory data is not yet supported.

8. pmode – Port Mode
   This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
   Type: alphanumeric value set
   Range:
   - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
   - MON indicates that alarm monitoring is taking place on the port.
   - NMON means that alarm monitoring is not occurring on the port.
9. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
   This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET.
   Type: numeric value set.
   Range (superset of allowed ranges for SDH and SONET):1 – 64000
   Default: The default values differ for SDH and SONET and the different rates:
   - SDH (all rates): 2400
   - SONET OC48: 2392
   - SONET OC192: 8554
   - SONET OC768: 22776.

   For RTRV-OC48T this parameter refers to the incoming (ingress) direction.
10. pmrsnesesout - Performance Monitoring Section/RS Near-End SES Threshold in Outgoing Direction
    This parameter describes the Section/RS Near-End SES threshold value for the outgoing (egress) direction. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severly errored. The default value depends on the interface standard and may differ between SDH and SONET.
    Type: numeric value set
    Range (superset of allowed ranges for SDH and SONET): 1 - 64000
    Default:
    The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392
11. ptype – Port Type
    This identifies the port type of the AID.
    Type: alphanumeric value set.
    Range: OC48T.

12. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor

    For RTRV-OC48T this parameter refers to the incoming (ingress) direction.
13. rstimmonout - RS TIM Monitor Enable in Outgoing direction
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0) in outgoing (egress) direction. This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set
    Range: ENABLE - enable TIM Monitor, DISABLE (default) - disable TIM Monitor
14. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
15. sltca – Section and Line TCA Profile Pointer
    Definition of the section and line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
16. sonet – SONET ASAP
    This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH Alarm Severity Assignment Profile for SDH ports (*sdhpn*) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
17. spm – Section PM Enable
    Enable or disable section performance monitoring.
    Type: alphanumeric value set.

Range:

- ENABLE
- DISABLE (default).

For RTRV-OC48T this parameter refers to the incoming (ingress) direction.

18. spmout - Section PM Enable in Outgoing Direction
    Enable or disable section performance monitoring for the outgoing (egress) direction.
    Type: alphanumeric value set.
    Range: ENABLE, DISABLE (default).
19. strc – Value of incoming J0
    This parameter shows the value of the Section Trace Identifier on the incoming section overhead J0 byte of a port. The length of the string depends on the value of the parameter *strcfmt*. The status of this value is contained in parameter *strcst*. If *strcst* indicates NORMAL, then strc contains a valid value. If *strcst* indicates UNAVAILABLE or AIS, then no incoming section trace identifier could be obtained by the system, e.g. due to a signal-fail condition, and the output parameter strc is omitted from the response.
    Type: hexadecimal (each byte is expressed as two hexadecimal digits. An example of a byte is 6D).
    Range: 1 byte string, 16 byte string, 64 byte string (dependent on the strcfmt parameter).
    For RTRV-OC48T this parameter refers to the incoming (ingress) direction.
20. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).

    For RTRV-OC48T this parameter refers to the incoming (ingress) direction.
21. strcfmtout - Format of outgoing J0
    The read format of J0 in outgoing (egress) direction, the outgoing section trace (strcout) and the expected section trace (exprstrcout).
    Type: numeric string
    Range:
    - 1, for specific repeating byte (SONET)
    - 2 (default), for non-specific repeating byte (ITU/ETSI mode 2)

- 16, for 16 byte specific string (ITU/ETSI mode 1)
- 64, for 64 byte string (SONET).

22. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
23. strcst - Format of incoming J0
    This parameter shows the status of the value of the incoming RS/Section Trace Identifier which is available with parameter *strc*.
    Type: alphanumeric value set.
    Range: NORMAL: strc contains a valid value; UNAVAILABLE: no value for strc could be obtained by the system; AIS: no value for strc due to an SF condition.
24. strcstout - Status of outgoing J0
    This parameter shows the status of the value of the RS/Section Trace Identifier in outgoing (egress) direction which is available with parameter strcout.
    alphanumeric value set
    Range:
    - NORMAL, strcout contains a valid value
    - UNAVAILABLE, no value for strcout could be obtained by the system
    - AIS, no value for strcout due to an SF condition

Detailed behavior description

The command retrieves the parameters as described above.

The RTRV-OC48T command does not generate a REPT DBCHG message.

Example input/output

The following example shows the successful execution of a RTRV-OC48T command. Not all output parameters are listed (missing ones indicated by …):

```
RTRV-OC48T:LT-UNITE:1-1-#-#-1-1:123456;
   LT-UNITE 00-11-27 08:00:00
M  123456 COMPLD
   "1-1-#-#-1-1:ptype=OC48T,pmode=MON,.....,
   pmrsneses=30,pmrsnesesout=30"
   ;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-OC48T command.

Check CCB against *ptype* and *istd*

See definition of error response in "RTRV-STM16: Retrieve STM16 port" (p. 4-2099).

References

GR-199-CORE (RTRV-*rr*)

□

RTRV-OC192: Retrieve OC192 port

The RTRV-OC192 command is used to retrieve all parameters related to the optical OC192 port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-OC192`:*tid:aid:ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   Access Identifier of an OC192 port.
   Type: AID.
   Range: SPortAID of OC192 port.
   The keyword `all` is allowed up to shelf level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

In response to a valid RTRV-OC192 command, the following output report is returned:

```
   sid date time
M  ctag COMPLD
   "aid[:spec_block]"
        ...
        ...
   "aid[:spec_block]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. aid – Access Identifier
   Access Identifier of the OC192 port.
   Type: AID.
   Range: SPortAID of OC192 port.
   The keyword `all` is not allowed.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....255
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. It is the pointer processor setup if adaptive mode (*trbmd* = ADAPTIVE) is selected.
   When switching *trbmd* from FIXED to ADAPTIVE or when creating a port newly *crstat* inherits the current value of *inputsig* until the system delivers an up-to-date value from the pointer processor. If no value is available from the pointer processor the latest known value is retained.
   For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the tributary input rate signal list.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 1, 3, 12, 48, 192 representing STS1, STS3C, STS12C, STS48C, STS192C.

5. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
6. fec – FEC Enable
   Forward Error Correction Enable. Enable to include the FEC information in the outgoing signal.
   Type: alphanumeric value set.
   Range:
   DISABLE (only) for:
   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics
   - OC192 / STM64 low cost intra office 1310nm optics
   - Basic OC768 / STM256 low cost intra office (2 km).

   ENABLE / DISABLE for:
   - OC192 / STM64 OLS800G compatible 80 colour optics
   - OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G
   - OC768 / STM256 Long Reach / Long Haul 1.5æ optics with strong FEC (80km)
   - OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

   Default:
   DISABLE (only) for:
   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics
   - OC192 / STM64 low cost intra office 1310nm optics
   - Basic OC768 / STM256 low cost intra office (2 km).

ENABLE / DISABLE for:

- OC192 / STM64 OLS800G compatible 80 colour optics
- OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G
- OC768 / STM256 Long Reach / Long Haul 1.5æ optics with strong FEC (80km)
- OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

7. felpm – Far-end Line PM Enable
   Enable or disable of the performance monitoring of the Far-end Line.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
8. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE: (set a forced DUS/DNU)
   - DISABLE (default): (clear a forced DUS/DNU).
9. fsflpbkstat – Far Side Facililiy Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output *aid.*
   A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
   Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).
10. inputsig – Tributary Input Signal Rate List
    This parameter is a list of STSn rates across the port's bandwidth.
    If *trbmd* is FIXED, then *inputsig* constrains the cross-connection rates that can be entered for the port. If *trbmd* is ADAPTIVE, then *inputsig* is settable and retrievable as in fixed mode but does not influence the port behavior.
    Type: numeric value set.
    Range: NX-NX-NX-...
    N is the number of Xs. X can be 1, 3, 12, 48, 192 representing STS1, STS3C, STS12C, STS48C or STS192C.
    Default: 1921.

11. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET.
    Type: alphanumeric value set.
    Range: SONET.
    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
12. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
13. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS192 (default), STS48, STS12, STS3, STS1.
14. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: STS1 (default), STS3, STS12, STS48, STS192.
15. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.

16. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
17. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN. If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″
18. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborPortID is introduced specifically for use by NN application.
    Type: Four dash separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0-0-0-0.
    Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.

19. msrei – MS-REI mode
    Definition: An special extended MS REI mode is standardized for STM64/OC192 interfaces. To support the interworking with older STM64/OC192 interfaces the single byte mode (non-extended) should also be supported.
    Type: alphanumeric value set.
    Range:
    - SINGLE
    - EXTENDED (default).
20. nelpm – Near-End Line PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
21. och – optical channel enable
    Enable or disable of the optical channel. If the optical channel is disabled the further optical channel parameters don't have any impact on transmission.
    Type: alphanumeric value set.
    Range:
    - for OP10 packs, which support to enable or disable OCH: ENABLE: enable optical channel; DISABLE: disable optical channel
    - for OP40 packs, which cannot support OCH: DISABLE: disable optical channel
    - for OP40 packs, which only support OCH: ENABLE: enable optical channel.

    Default:
    - for OP10 packs, which cannot support OCH: DISABLE
    - for OP40 packs, which cannot support OCH: DISABLE
    - for OP40 packs, which only support OCH: ENABLE.
22. opdis – Optical Distance
    It shows the type of application for which the optical transmitter on this port is suited.
    Type: alphanumeric value set.
    Range:
    - VERY-SHORT-REACH
    - SHORT-REACH
    - INTERMEDIATE-REACH
    - LONG-REACH
    - VERY-LONG-REACH
    - OLS_PASSIVE

- OLS_400G
- OLS_800G
- XTREME.

23. opwl – Optical Wavelength
    Optical Wavelength in nanometers. It shows the type of optics that is used on this port.
    Type: numeric value set.
    Range (wavelength in [nm]): 0 (i.e. undefined), 1310; 1550; 1530.334 ... 1562.640 (i.e. C-Band); 1553.731 ... 1608.329 (i.e. L-Band). The value undefined is used e.g. in the context of optical modules if the retrieval of the inventory data is not yet supported.
24. outql – Outgoing timing quality
    This parameter provides the outgoing quality level message on the S1 SONET line overhead byte.
    Type: alphanumeric value set.
    Range:
    - PRS
    - STU
    - ST2
    - ST3
    - DUS (default).
25. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.

26. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.
27. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
28. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000
    Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392

- SONET OC192: 8554
- SONET OC768: 22776.

29. polynomial - Optical Channel Scrambling Polynomial
    This parameter is used by the Wavewrapper scrambler on the optical channel. This parameter is relevant only if the optical channel is enabled (och == ENABLE).
    Type: numeric value set.
    Range: 1x7 + x + 1; 2x16 + x12 + x3 + x + 1.
    Default: 2.
30. portClass – Port Class
    This identifies the port class of the AID.
    portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.
31. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
    portControl is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.
32. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(sedault) ...25. The unit of this value is ″milliseconds″.
33. ptype – Port Type
    This identifies the port type of the AID.
    It is derived from the functional name and functional qualifier of a circuit pack. If the functional qualifier indicates a pack with 10GE_WANPHY interfaces the port type has the value 10GE_WANPHY, else OC192.
    Type: alphanumeric value set.
    Range: OC192.

34. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable consequent action for TIM
    - DISABLE (default): disable consequent action for TIM.
35. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
36. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST
    - POISSON (default).
37. sdthr – Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
38. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.

39. sfthr – Signal Failure Threshold
    Signal failure threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
40. sltca – Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
41. sonet – SONET ASAP
    This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH Alarm Severity Assignment Profile for SDH ports (*sdhpn*) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
42. spm – Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
43. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    srlgList is introduced specifically for use by ONNS application. The order of the three identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only one or two identities are provisioned, the remaing one shall be set to the default value 0, e.g. 3-0-0.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0.

44. strc – Value of incoming J0
    This parameter shows the value of the Section Trace Identifier on the incoming section overhead J0 byte of a port. The length of the string depends on the value of the parameter *strcfmt*. The status of this value is contained in parameter *strcst*. If *strcst* indicates NORMAL, then strc contains a valid value. If *strcst* indicates UNAVAILABLE or AIS, then no incoming section trace identifier could be obtained by the system, e.g. due to a signal-fail condition, and the output parameter strc is omitted from the response.
    Type: hexadecimal (each byte is expressed as two hexadecimal digits. An example of a byte is 6D).
    Range: 1 byte string, 16 byte string, 64 byte string (dependent on the strcfmt parameter).
45. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
46. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex

47. strcst – Status of incoming J0
    This parameter shows the status of the value of the incoming RS/Section Trace Identifier which is available with parameter *strc*.
    Type: alphanumeric value set.
    Range: NORMAL: strc contains a valid value; UNAVAILABLE: no value for strc could be obtained by the system; AIS: no value for strc due to an SF condition.
48. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
49. unequiposig – Unequipped Output Signal List
    This parameter is a list of STSn rates across the port's bandwidth. It determines the rate(s) of the *unequipped* signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need to have the identical setting. Mixed rates for tx and rx side of the port is allowed. If *trbmd* is ADAPTIVE, then *unequiposig* is settable and retrievable as in fixed mode but does not influence the port behavior.
    Type: numeric value set.
    Range: NX-NX-NX-...
    N is the number of Xs. X can be 1, 3, 12, 48 or 192 representing STS1, STS3C, STS12C, STS48C or STS192C.
    Default: 1921 = all STS1 (fixed).

Detailed behavior description

The command retrieves the parameters as described above.

The RTRV-OC192 command does not generate a REPT DBCHG message.

Example input/output

The following example shows the successful execution of a RTRV-OC192 command. Not all output parameters are listed (missing ones indicated by ...):

```
RTRV-OC192:LT-UNITE:1-1-#-#-1-1:123456;
   LT-UNITE 00-11-27 08:00:00
M  123456 COMPLD
   "1-1-#-#-1-1:ptype=OC192,frcdus=DISABLE,sfthr=-3,
   sdthr=-6,emi=TRUE, pmode=MON,..... pmmsneses=15,
   pmrsneses=30"
```

;

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-OC192 command.

Check CCB against ptype and istd

See definition of error response in "RTRV-STM16: Retrieve STM16 port" (p. 4-2099).

References

GR-199-CORE (RTRV-*rr*)

□

RTRV-OC768: Retrieve OC768 port

The RTRV-OC768 command is used to retrieve all parameters related to the optical OC768 port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-OC768`:*tid:aid:ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   Description: Access Identifier of an OC768 port.
   Type: AID.
   Range: SPortAID of OC768 port.
   The keyword `all` is allowed up to shelf level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

In response to a valid RTRV-OC768 command, the following output report is returned:

```
   sid date time
M  ctag COMPLD
   "aid[:spec_block]"
        ...
        ...
   "aid[:spec_block]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. aid – Access Identifier
   Access Identifier of the OC768 port.
   Type: AID.
   Range: SPortAID of OC768 port.
   The keyword `all` is not allowed.

Spec block parameters

Refer to spec block description of the "RTRV-OC48: Retrieve OC48 port" (p. 4-1894) command

1. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
2. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
3. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. It is the pointer processor setup if adaptive mode (*trbmd* = ADAPTIVE) is selected.
   When switching *trbmd* from FIXED to ADAPTIVE or when creating a port newly *crstat* inherits the current value of *inputsig* until the system delivers an up-to-date value from the pointer processor. If no value is available from the pointer processor the latest known value is retained.
   For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the tributary input rate signal list.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 1, 3, 12, 48, 192 representing STS1, STS3C, STS12C, STS48C, STS192C.
4. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.

Type: Hexadecimal digits
Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
Default: 89hex followed by 15 bytes 00hex

5. fec – FEC Enable
   Forward Error Correction Enable. Enable to include the FEC information in the outgoing signal.
   Type: alphanumeric value set.
   Range:
   DISABLE (only) for:
   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics
   - OC192 / STM64 low cost intra office 1310nm optics
   - Basic OC768 / STM256 low cost intra office (2 km).

   ENABLE / DISABLE for:
   - OC192 / STM64 OLS800G compatible 80 colour optics
   - OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G
   - OC768 / STM256 Long Reach / Long Haul 1.5æ optics with strong FEC (80km)
   - OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

   Default:
   DISABLE (only) for:
   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics
   - OC192 / STM64 low cost intra office 1310nm optics
   - Basic OC768 / STM256 low cost intra office (2 km).

   ENABLE / DISABLE for:
   - OC192 / STM64 OLS800G compatible 80 colour optics
   - OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G
   - OC768 / STM256 Long Reach / Long Haul 1.5æ optics with strong FEC (80km)
   - OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

6. felpm – Far-end Line PM Enable
   Enable or disable of the performance monitoring of the Far-end Line.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
7. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU
8. fsflpbkstat – Far Side Facililiy Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output *aid.*
   A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
   Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).
9. inputsig – Tributary Input Signal Rate List
   This parameter is a list of STSn rates across the port's bandwidth.
   If *trbmd* is FIXED, then *inputsig* constrains the cross-connection rates that can be entered for the port. If *trbmd* is ADAPTIVE, then *inputsig* is settable and retrievable as in fixed mode but does not influence the port behavior.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 1, 3, 12, 48, 192 representing STS1, STS3C, STS12C, STS48C or STS192C.
   Default: 7681.
10. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET.
    Type: alphanumeric value set.
    Range: SONET.
    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).

11. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
12. nelpm – Near-End Line PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
13. och – optical channel enable
    Enable or disable of the optical channel. If the optical channel is disabled the further optical channel parameters don't have any impact on transmission.
    Type: alphanumeric value set.
    Range:
    - for OP10 packs, which support to enable or disable OCH: ENABLE: enable optical channel; DISABLE: disable optical channel
    - for OP40 packs, which cannot support OCH: DISABLE: disable optical channel
    - for OP40 packs, which only support OCH: ENABLE: enable optical channel.

    Default:
    - for OP10 packs, which cannot support OCH: DISABLE
    - for OP40 packs, which cannot support OCH: DISABLE
    - for OP40 packs, which only support OCH: ENABLE.
14. opdis – Optical Distance
    It shows the type of application for which the optical transmitter on this port is suited.
    Type: alphanumeric value set.
    Range:
    - VERY-SHORT-REACH
    - SHORT-REACH
    - INTERMEDIATE-REACH
    - LONG-REACH
    - VERY-LONG-REACH

- OLS_PASSIVE
- OLS_400G
- OLS_800G
- XTREME.

15. opwl – Optical Wavelength
    Optical Wavelength in nanometers. It shows the type of optics that is used on this port.
    Type: numeric value set.
    Range (wavelength in [nm]): 0 (i.e. undefined), 1310; 1550; 1530.334 ... 1562.640 (i.e. C-Band); 1553.731 ... 1608.329 (i.e. L-Band). The value undefined is used e.g. in the context of optical modules if the retrieval of the inventory data is not yet supported.
16. outql – Outgoing timing quality
    This parameter provides the outgoing quality level message on the S1 SONET line overhead byte.
    Type: alphanumeric value set.
    Range:
    - PRS
    - STU
    - ST2
    - ST3
    - DUS (default).
17. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459

- SONET OC192: 9835
- SONET OC768: 39340.

18. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.
19. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
20. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000

Default: The default values differ for SDH and SONET and the different rates:

- SDH (all rates): 2400
- SONET OC48: 2392
- SONET OC192: 8554
- SONET OC768: 22776.

21. ptype – Port Type
    This identifies the port type of the AID.
    Type: alphanumeric value set.
    Range: OC768.
22. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable consequent action for TIM
    - DISABLE (default): disable consequent action for TIM.
23. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
24. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST
    - POISSON (default).
25. sdthr – Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.

26. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
27. sfthr – Signal Failure Threshold
    Signal failure threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
    Type: numeric value set.
    Range (as exponents of 10): –5; –6; –7; –8; –9.
    Default: –6.
28. sltca – Section and Line TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
29. sonet – SONET ASAP
    This parameter sets a SONET ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SDH ASAP for SDH ports (*sdhpn*) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
30. spm – Section PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
31. strc – Value of incoming J0
    This parameter shows the value of the Section Trace Identifier on the incoming section overhead J0 byte of a port. The length of the string depends on the value of the parameter *strcfmt*. The status of this value is contained in parameter *strcst*. If *strcst* indicates NORMAL, then strc contains a valid value. If *strcst* indicates UNAVAILABLE or AIS, then no incoming section trace identifier could be obtained by the system, e.g. due to a signal-fail condition, and the output parameter strc is omitted from the response.
    Type: hexadecimal (each byte is expressed as two hexadecimal digits. An example of a byte is 6D).
    Range: 1 byte string, 16 byte string, 64 byte string (dependent on the strcfmt parameter).

32. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
33. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
34. strcst – Status of incoming J0
    This parameter shows the status of the value of the incoming RS/Section Trace Identifier which is available with parameter *strc*.
    Type: alphanumeric value set.
    Range: NORMAL: strc contains a valid value; UNAVAILABLE: no value for strc could be obtained by the system; AIS: no value for strc due to an SF condition.
35. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)

- 16: for 16 byte specific string (ITU/ETSI mode 1).
- 64: for 64 byte string (SONET).

36. unequiposig – Unequipped Output Signal List
    This parameter is a list of STSn rates across the port's bandwidth. It determines the rate(s) of the *unequipped* signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need to have the identical setting. Mixed rates for *tx* and *rx* side of the port is allowed. If *trbmd* is ADAPTIVE, then *unequiposig* is settable and retrievable as in fixed mode but does not influence the port behavior.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 1, 3, 12, 48 or 192 representing STS1, STS3C, STS12C, STS48C or STS192C.
    Default: 7681 = all STS1 (fixed).

Detailed behavior description

The command retrieves the parameters as described above.

The RTRV-OC768 command does not generate a REPT DBCHG message.

Example input/output

The following example shows the successful execution of a RTRV-OC768 command. Not all output parameters are listed (missing ones indicated by …):

```
RTRV-OC768:LT-UNITE:1-1-#-#-1-1:123456;
   LT-UNITE 00-11-27 08:00:00
M  123456 COMPLD
   "1-1-#-#-1-1:ptype=OC768,frcdus=DISABLE,sfthr=-3,
   sdthr=-6,emi=TRUE, pmode=MON,..... pmmsneses=15,
   pmrsneses=30"
;
```

Error Responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-OC768 command.

Check CCB against ptype and istd

See definition of error response in "RTRV-STM16: Retrieve STM16 port" (p. 4-2099).

Related TL1 messages

"ED-OC768: Edit OC768 port" (p. 4-496)

References

GR-199-CORE (RTRV-*rr*)

□

RTRV-OW: Retrieve Orderwire and User Bytes

General

The RTRV-OW command can be initiated by a user to retrieve the overhead access ports and any associated optical port (OPn) in the NE.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-OW`:*tid*:*aid*:*ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
2. aid – Access Identifier
   The parameter aid (Access Identifier) specifies the overhead access port.
   Type: UserBytePortAID.
   Range: As given by the *UserBytePortAID* definition, the value ″ubioall″ is supported.
3. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the network element in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters Note: Current implementation also allows ’0’ as valid CTAG, which is an extension to GR-831.

Output format

In response to a valid RTRV-OW command, the following output is returned:

```
   sid date time
M  ctag COMPLD
```

```
   "aid:spec_block"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are described in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter specifies the overhead access port for which the following spec_block parameters are returned.
   Type: UserBytePortAID.
   Range: As given by the UserBytePortAID definition, the value "ubioall" is not allowed.

Spec block parameters

1. intfctype – Interface Type
   This parameter specifies which electrical interface standard of the overhead access port is used.
   Two different settings are possible:
   - electrical interface according to G.703
   - electrical interface according to V.11.

   Note: The overhead access ports with AIDs ubio1, .. ubio4 are configurable to either G703 or V11. The overhead access ports with AIDs ubio5, ubio6 are fixed to V11.
   Type: Alphanumeric value set.
   Range: G703, V11.
   Default: G703 (for the overhead access ports given by the AIDs ubio1 .. ubio4); V11 (for the overhead access ports given by the AIDs ubio5, ubio6 - fixed to V11).
2. ohbyte – Overhead-Byte
   This parameter specifies which of the overhead bytes is used.

Three channels are possible:

- E1 and F1 in the RSOH (section overhead)
- E2 in the MSOH (line overhead).

Type: Alphanumeric value set.
Range: E1, F1, E2.
Default: E1.
Note: In output direction the empty string appears as \"\".

3. portaid
   This parameter specifies the optical port (of an OPn) with which the overhead access port (given by the output parameter aid) is associated.
   The parameter value NOCONNECT is used to indicate that the port given by portaid is not associated to the overhead access port given by the parameter aid.
   Type: In case an association is established: SPortAID; In case an association is no established: Alphanumeric value set (i.e. the string ″NOCONNECT″).
   Range: In case an association is established: SPortAID (No ″all″ value is supported); in case an association is no established: NOCONNECT.
   Default: NOCONNECT.

Detailed behavior description

The RTRV-OW command retrieves the overhead access ports and any associated optical port (OPn) in the NE.

Example input/output

Example 1

Suppose the UserByte port ubio6 is associated with the port-4 of an OP2G5 in slot03 (the intfctype is fixed to V11 for ubio5 and ubio6):

```
RTRV-OW:UNITE-NE:1-1-ubio6:123456
   sid date time
M  ctag COMPLD
   ″1-1-ubio6:portaid=1-1-#-#-3-4,ohbyte=E1,intfctype=V11″
;
```

Example 2

Suppose the

- UserByte port ubio1 (V11,E1) is associated with the port-4 of an OP2G5 in slot03
- UserByte port ubio3 (G703,E2) is associated with the port-1 of an OP10G in slot07
- UserByte port ubio6 (V11,F1) is associated with the port-4 of an OP10G in slot34
- The other UserByte ports (ubio2, ubio4, ob05) are not associated:

```
RTRV-OW:UNITE-NE:1-1-ubioall:123456
   sid date time
M  ctag COMPLD
```

```
   "1-1-ubio1:portaid=1-1-#-#-3-4,ohbyte=E1,intfctype=V11"
   "1-1-ubio2:portaid=NOCONNECT,ohbyte=E1,intfctype=G703"
   "1-1-ubio3:portaid=1-1-#-#-7-1,ohbyte=E2,intfctype=G703"
   "1-1-ubio4:portaid=NOCONNECT,ohbyte=E1,intfctype=G703"
   "1-1-ubio5:portaid=NOCONNECT,ohbyte=E1,intfctype=V11"
   "1-1-ubio6:portaid=1-1-#-#-34-4,ohbyte=F1,intfctype=V11"
;
```

Related TL1 messages

- "SET-OW: Set Orderwire and User Bytes" (p. 4-2308)

□

RTRV-OUC: Retrieve ONNS to UPSR/SNCP constructs

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes.

Input format

Command Syntax:

RTRV-OUC:*tid:wrk_aid:ctag[::ouc_dir];*

Input parameters

Command parameters

1. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The *tid* is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
2. wrk_aid – Working Tributary Access Identifier
   This parameter specifies the working tributary of the OUC.
   Type: STS1NumAID
   Range:
   - The *1-1-#-#-all-all-all*-value shall be accepted in general for this parameter.
   - The *all* value shall not be accepted, if specified only for the slot-, port- or trib-part of this parameter.
   - The *1-1-#-#-all-all-all*-value shall not be accepted, if the parameter ouc_dir is present.
3. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the network element in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters. Note: Current implementation also allows ’0’ as valid CTAG, which is an extension to GR-831.
4. ouc_dir – OUC Directionality
   Directionality of the OUC
   Type: alphanumeric value set

Range:

- BIDIR
- UNIDIR-ADD
- UNIDIR-DROP.

Output format

In response to a valid RTRV-OUC command, the following output shall be returned:

```
   sid date time
M  ctag COMPLD
   "wrk_aid,prt_aid:ouc_dir"
;
or in case of more than one OUC retrieved:
   sid date time
M  ctag COMPLD
   "wrk_aid,prt_aid:ouc_dir"
       ...
       ...
   "wrk_aid,prt_aid:ouc_dir"
;
```

The output parameters *sid, date, time* and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. wrk_aid – Working Tributary Access Identifier
   This parameter specifies the working tributary of the OUC.
   Type: STS1NumAID
   Range: n.a. (*all* values shall never occur as part of an output parameter)
2. prt_aid – Protection Tributary Access Identifier
   This parameter specifies the protection tributary of the OUC.
   Type: STSNumAID
   Range: n.a. (*all* values shall never occur as part of an output parameter)
3. ouc_dir – OUC Directionality
   Directionality of the OUC
   Type: alphanumeric value set
   Range:
   - BIDIR (default)
   - UNIDIR-ADD
   - UNIDIR-DROP

Example input/output

Retrieval of the single bidirectional OUC with working tributary 1-1-#-#-1-1-4:

```
RTRV-OUC:UNITE-NE:1-1-#-#-1-1-4:123456::BIDIR;
   UNITE-NE 00-11-14 12:00:00
M  123456 COMPLD
   "1-1-#-#-1-1-4,1-1-#-#-2-2-12:BIDIR"
;
```

Retrieval of all OUCs in an NE:

```
RTRV-OUC:UNITE-NE:1-1-#-#-1-1-4:123456::BIDIR;
   UNITE-NE 00-11-14 12:00:00
M  123456 COMPLD
   "1-1-#-#-1-1-4,1-1-#-#-2-2-4:BIDIR"
   "1-1-#-#-1-1-7,1-1-#-#-2-4-7:UNIDIR-DROP"
   "1-1-#-#-1-1-10,1-1-#-#-2-2-10:UNIDIR-ADD"
;
```

Error responses

Validation rule: Invalid wildcarding

OUC command processing shall verify that no wildcard is applied for *wrk_aid* on slot, port or trib level or if *ouc_dir* is present.

Error code: `IDNV - Input, Data Not Valid, Invalid Wildcarding for wrk_aid`

□

RTRV-PATH: Retrieve ONNS connection data

Overview

The RTRV-PATH command requests information on an ONNS path which begins in the source node to which the message was addressed. The ONNS source node determines the status of the connection from the information stored in the Network Navigator databases.

The query must be directed to the source node. Querying an existing ONNS path by its *ConnectionID* or *ConnAlias* alone will return the status on all paths associated with the *ConnectionID*. The query response includes a status message like Connected and OK (CON&OK), the list of network element nodes that the path utilizes, and the list of constraint parameters for the connection.

ONNS supports querying all connections by sending RTRV-PATH with *connID* = ALL When all of the records of the connection data repository are retrieved by RTRV-PATH with *connID* = ALL, each connection record will be the same format as the RTRV-PATH ConnID response message format.

ONNS supports querying all connections of a connection group, i.e. all connections starting at VCGTRIBs of one single VCG, by sending RTRV-PATH with the ALL qualifier for the tributary number within the connID. When several records of the connection data repository are retrieved by RTRV-PATH with qualifier ALL for the tributary number in connID, each connection record will be the same format as the standard RTRV-PATH *ConnID* response message format. The connAlias will not be accepted as input to retrieve the connections of a group and will be ignored, if set.

ONNS supports querying all connections of an M:N protection group, i.e. working as well as protecting connections, by sending RTRV-PATH with the M:N protection group ID within the *connID*. In this case each connection record will be in the same format as the standard RTRV-PATH ConnID response message format.

The connection records will be sorted by their route membership. The connection records of each route will be headlined by a route indicator, the number of connections per route and an group asymmetry indicator.

Additionally querying of single working or protecting connections of an M:N protection group is supported by sending RTRV-PATH with the ID of the corresponding connection within the *connID*.

RTRV-PATH RetrieveDetail_Route parameters

The RTRV-PATH command supports the RetrieveDetail_Route function. RetrieveDetail_Route is only available when a single connection ID (connID) is requested. The RetrieveDetail_Route function retrieves data from the network. RetrieveDetail_Route data is not be stored in the ONNS source node or any other

node. RetrieveDetail_Route only operates on stable ONNS connections, with no other ONNS operations pending (including pending RetrieveDetail_Route operations).

RetrieveDetail_Route request is sent to the source node for the specific connection. The message data from individual nodes on the nodelist of the path that is traced is returned to the source node. Each node shall send the node ID, portID, and the timeslot (trib), for each connPoint involved in the path connection specified by pathID. The ability to trace the path though an intermediate node that has had its path cross connection deleted is supported.

The message data from path nodes is collected, sort by nodeList order, organized by path, and sent as a second response block to the RTRV-PATH command. The initial RTRV-PATH response block contains the current connection data from the ONNS connection database, uses the RTRV completion code, and is terminated with a ″>″. The second RTRV-PATH response block has the same header line and is terminated with a ″;″.

The ONNS process that controls and receives the RetrieveDetail_Route signaling request responses waits for up to 60 seconds to accumulate the signaling request response messages and then send the data received via TL1 as the second and concluding response block to the RTRV-PATH command. The RetrieveDetail_Route response indicates any nodes that did not return path data by an node ID entry with no data, and indicates missing cross-connections as needed.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Abortable: No.

Input format

A user defined connection alias (an alternate name) may be optionally specified with the RTRV-PATH command. The alias is specified in the spec block as ConnAlias=″.....″ (upto 83 printable ASCII characters+NULL; excluded are the following characters: colon, semicolon, double-quotes, comma). If no *connAlias* is specified, the *connID* is used as the key. If both *connAlias* and *connID* are specified then *connID* is used as the key. If neither is specified the command is denied.

Command Syntax: `RTRV-PATH:`*srcTid:[srcAid]:ctag::[servID]:[connID][:specBlock]*;

Input parameters

Command parameters

1. srcTid
   Target Identifier of the source node is the logical name of the Host NE. ONNS uses the same *tid* used by Host NE.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: The *srcTid* parameter is a case insensitive ASCII character string of up to 20 characters with the allowed character set as described above.
2. srcAid
   Source node ONNS application access identifier of the ONNS controller OS command interface port.
   Range: Source node Access IDentifier parameter of the source node controller ONNS command interface entity has the allowed values shown here: snn.
3. ctag – Correlation Tag
   This parameter is included in the command by the TL1 user and is repeated by the NE in the response to allow the TL1 user to associate the command and response messages.
   The *ctag* parameter is a character strings of up to 6 ASCII characters. The allowed ASCII character string is comprised of alphanumeric characters beginning with a letter, or decimal numerals (a decimal numeral is a string of decimal digits with an optional non-trailing “.”).
4. srvID – Service Identifier
   This parameter is a logical tag for the group of connections associated with a service defined by the Service Manager system (or other management entity).
   The *srvID* parameter is an integer value range = 1 - 20,000,000. Only one *srvID* is accepted. ALL is not supported.
5. connID – Connection ID for an existing ONNS optical path connection service
   This parameter reports only the connections originating at the specified source node. *connID* is formed from the *SrcNodeIP* and IngressPort# and an index # where LambdaUNITE uses bay = 1 = shelf.
   Type: Character string of length up to 35.
   Range: ALL - special value to retrieve all connection records | nodeID&Tributary AID&Index - to retrieve a specific entry, with
   - nodeID: four dot separated numeric strings: each string 0..255
   - Tributary AID: five dash seperated numeric strings representing Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # with:
     Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).
   - Index: Numeric string

   Example: 135.13.196.203&1-5-13-4-1&1

nodeID&Tributary AID range - if port # specifies a VCG to retrieve a connection group, with:

- nodeID: four dot separated numeric strings: each string 0..255
- Tributary AID: five dash seperated numeric strings representing Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # with:

  Bay/Frame #(1), Shelf #(1), Slot/Pack #(1..39), Port #(1..4), Tributary #ALL - special value to retrieve all connection records associated with the port ID.

Example: 135.13.196.203&1-5-13-4-ALL. The port AID 1-5-13-4 must denote a VCG.

nodeID Tributary AID&Index - to retrieve a protecting connection of an M:N connection group, with:

- nodeID: four dot separated numeric strings: each string 0..255
- defaultTributary AID: five dash seperated numeric strings with:

  Bay/Frame #(1), Shelf #(1), Slot/Pack ##, Port ##, Tributary ##
- Index: Numeric string nodeID&groupindex -to retrieve all connections belonging to an M:N protected connection group, with:

  nodeID: four dot separated numeric strings: each string 0..255; groupIndex: integer value specifying a connection group within nodeID.

Spec block parameters

1. DetailRoute

   DetailRoute = ON will return the portID / trib information from all nodes in each path of the *connID* specified in the second block of the response message.
   DetailRoute is ignored if *connID* = ALL.
   The command is rejected, if *DetailRoute*=ON and *connID* contains a tributary ID with qualifier ALL instead of a single Tributary number.
   Range: OFF (default), ON.
2. connAlias - connection alias

   This parameter specifies a user defined string as an alternate name for the connection instead of *connID*.
   Type: Character string up to length 83.
   Range: The string consists of printable ASCII characters+NULL. The following characters cannot be used in the string: colon, semi-colon, comma, double quotes, equal, ampersand, greater than. Additionally the string shall start with a letter.

Output format

If the RTRV-PATH request completes successfully with a normal NCDR record, then the following completion response is returned:

```
   srcTid date time
M  ctag COMPLD
   "ConnID=connID,PathID=pathID1,ConnAlias=connAlias,:
   srcNIP,srcInPortID,-X-,srcOutPortID,:
   node1-IP,node1-InPortID,-X-,node1-OutPortID,:
   node2IP,node2InPortID,-X-,node2OutPortID,:
```

```
   node3IP,node3InPortID,-X-,node3OutPortID,:
   Node72IP, , , ,NO_REPLY:
   ......
   node7IP,node7InPortID,-X-,node7OutPortID,:
   destNIP,destInPortID,-X-,destOutPortID,"
   "ConnID=connID,PathID=pathID2,ConnAlias=connAlias,:
   srcNIP,srcInPortID,-X-,srcOutPortID,:
   node6IP,node6InPortID,-X-,node6OutPortID,:
   node8IP,node8InPortID,-X-,node8OutPortID,:
   node9IP,node9InPortID,-X-,node9OutPortID,:
   node55IP,node55InPortID, ,node55OutPortID,:
   destNIP,destInPortID,-X-,destOutPortID,"
;
```

If the RTRV-PATH request with *connID* = ALL completes successfully, then the following normal completion response is returned:

```
   srcTid date time
M  ctag RTRV
   "ConnectionID1_dataRecord"
   ...
   "ConnectionID4_dataRecord"
   srcTid date time
M  ctag RTRV
   "ConnectionID5_dataRecord"
>
   srcTid date time
M  ctag COMPLD
   "ConnectionID6_dataRecord"
   ...
   "ConnectionID11_dataRecord"
;
```

The RTRV PATH (connID=ALL) command will send a maximum of 8 connection records per block. On all large output message blocks but the last, the continuation RTRV completion code is used and the semicolon(;) is replaced with a (>) terminator. Then on the last record block, the COMPLD completion code is used with the final semicolon (;) data block terminator.

Note: This RTRV PATH <ALL> command can produce large amounts of data. This will require proper sizing of the receive buffer of the OS system.

Output parameters

Command parameters

1. srcTid – Source Node Identifier
   See definition of this parameter in Input Parameters section.
2. date
   This parameter is set to the date when the output message is generate: YY-MM-DD where YY=00-99, MM=01-12, DD=01-31.
3. time
   This parameter is set to the time when the output message is generated: HH:MM:SS where HH=00-23,MM=00-59, SS=00-59.
4. ctag – Correlation Tag
   See the parameter description in the Input parameters section above.
5. completionCode
   Standard TL1 completion code result.
   Type: value set
   Range: COMPLD (default) for success: RTRV for data continuation.
6. route - M:N Route
   Indicates the M:N route in front of a group of M:N protected connections with the same node list. This parameter is only used for retrival of all connections belonging to an M:N protected group.
   Type: alphanumeric string
   Range: WorkerRoute1, WorkerRoute2, WorkerRoute3, ProtectionRoute1
7. groupAsymmetry - M:N Group Asymmetry
   GroupAsymmetry = x indicates the connection asymmetry between the routes of a M:N protection group. This parameter is only used for retrival of all connections belonging to an M:N protected group.
   Type: integer
   Range: na = not applicable (value of asymmetry for the protection route); 0 - 255 indicates the difference between the number of actual worker connections within this route and the ceiling average value of worker connections per route based on the protection group.
8. connID
   See the parameter description in the Input parameters section above.
9. connAlias
   See the parameter description in the Input parameters section above.
10. connStatus
    ConnStatus = pst&sst[&tst Connection status is the overall status of the connection connID which may be different than the status of an individual *pathID* in that connection.

connStatus is composed out of

- pst (PrimaryState)
- sst (SecondaryState)
- tst (TertiaryState, optional).

Type: up to three &-seperated value sets.

Range *pst* values:

- CON: Connected
- DLT: Deleted
- NOCON: Not Connected
- MAINT: Maintenence Mode
- UNKNOWN: Conn state unknown.

Range *sst* & *tst* values:

- OK: Conn good
- FAILED: Conn failed
- SETUP: Conn SetUp occurring
- TRDOWN: Conn teardown occurring
- NO-IN: Conn failed, signal in bad
- RSTOR: path restore occurring
- RSTRD: Conn restored
- RSTRFL: Conn restore failed
- DLT-FL: Delete operation Failed
- UNKNOWN: Conn state unknown
- WTORSTR: Waiting to restore path
- PREMPT: Path pre-empted
- SETUPFL: Connection SetUp Failed
- FL-NVM: Not saved in NVM
- WTORV: Waiting to revert path
- EPRTFLEDGE: Port Failed
- BAD-IN Conn failed, Bad signal in
- BRDGD Path bridged

Note: Some states listed in this list will only occur within a DLT-PATH command response or within a REPT PTHCHG or REPT PTHEVT notification message.

Range *sst* & *tst* values:

- STBY: Standby (for protecting connections within an M:N protection group, when connection is not protecting a working connection)
- USED: Used (for protecting connections within an M:N protection group, when connection is currently protecting a working connection)

11. pdir – Path Direction Topology
    Uni-direction A-Z (1WAY) or Bi-direction - (2WAY).
    Range: 1WAY (default), 2WAY
12. protectionClass
    This parameter defines the type of restoration protection assigned to the path connection during path setup or after path modification.
    Range:
    - UNPROT (path from source to destination is un-protected)
    - AUTONR (path from source to destination is a non-revertive auto-reroute path connection)
    - N1PLUS1 (paths from source to destination is set up as a network 1+1 connection)
    - AUTORV (path from source to destination is a revertive auto-reroute path connection)
    - YCONN (paths from the same source to two different destinations are set up as a bridged connection).
    - MBYNWRK (working connection in an M:N connection group)
    - MBYNPRT (protecting connection in an M:N connection group)
13. bandwidth - Requested bandwidth/signalRate
    Link *signalRate* is equal to or greater than the minimum cross-connect rate *minXCrate* of the port_type.
    Range: STS1, STS3, STS12 STS48, STS192.
14. maxDelay - Maximum transport delay
    Maximum transport delay through all nodes in the path. Total path delay must not exceed this value.
    Range: 0 (default), is used to select no delay limit; 1 - 32767, maximum transport delay in milliseconds.
15. srvID - Service Identifier
    This parameter is a logical tag for the group of connections associated with a service defined by the Service Manager system (or other management entity).
    The *srvID* parameter is an integer value range = 1 - 20,000,000. Only one *srvID* is accepted. ALL is not supported.
16. nodeListUsage1
    For connection setup NN used/uses the list of nodes included in the *nodeList1* array block in a manner specified by the *nodeListUsage1* variable. Both, *nodeListUsage1* and *nodeList1*, fields belong together and shall be reported when supplied as input to the ENT-PATH command. An EXCLUDE list usage applies to all paths created (as in a N1PLUS1NR or N1PLUS1RV). A non-existent *nodeID* will be ignored in EXCLUDE *nodeList1* during path setup. A non-existent *nodeID* will cause setup failure in EXPLICIT *nodeList1* during path setup.

Range:

- EXPLICIT, *nodeList1* contains the intermediate NE nodes of the path in the explicit order they are to be used. (An empty list will force a direct path from source to destination.)
- EXCLUDE, nodes in the *nodeList1* must all be excluded from the path created. In the case when the *protectionClass* is either YCONN, N1PLUS1NR or N1PLUS1RV the nodes in the *nodeList1* below also apply to the second or restoration path.

17. nodeList1
    When *nodeListUsage1* = EXPLICIT: List of intermediate nodes that specify the path in the exact node order specified in the input. Source and destination nodes are assumed to be included implicitly. The *nodeID* values are shown in the form: nid1([&nid2& ...&nidx]).
    When *nodeListUsage1* = EXCLUDE: List of nodes that must all be excluded from both paths. The *nodeID* values are shown in the from: nid1([&nid2& ...&nidx]).
    If the preceding required *nodeListUsage1* field is not supplied, this field must not be present. If user specifies empty EXCLUDE *nodeList1*, the connection should use indirect path from source node to destination node (i.e., at least one intermediate node is needed). If user specifies empty EXPLICIT *nodeList1*, the connection should use a direct path from source to destination node (i.e., no intermediate node is allowed).
    Type: &-seperated list of nodeIDs. A *nodeID* is represented as four dot seperated numeric string with each numeric string between 0 - 255.
    Example: 135.13.196.203&135.13.42.23&135.213.242.133&135.13.196.123
    Range: nid1([&nidx])* or empty list (where X <= 25 when *nodeListUsage1* = EXPLICIT) (where X <= 25 when *nodeListUsage1* = EXCLUSIVE)
18. nodeListUsage2
    For connection setup NN used/uses the list of nodes included in the *nodeList2* array block in a manner specified by the *nodeListUsage2* variable. Both, *nodeListUsage2* and *nodeList2*, fields belong together and shall be reported when supplied as input to the ENT-PATH command. A non-existent *nodeID* will cause setup failure in EXPLICIT *nodeList1* during path setup. This parameter is only be used when *protectionClass* is N1PLUS1 or YCONN.
    Range: EXPLICIT, *nodeList2* contains the intermediate NE nodes of the path in the explicit order they are to be used. (An empty list will force a direct path from source to destination.).
19. nodeList2
    When nodeListUsage2=EXPLICIT: List of intermediate nodes that specify the path in the exact node order specified in the input. Source and destination nodes are assumed to be included implicitly. The nodeID values are shown in the form: nid1([[&nid2& ...&nidx]]).
    If the preceding required *nodeListUsage2* field is not supplied, this field must not be present. If user specifies empty EXPLICIT *nodeList2*, the connection should use a direct path from source to destination node (i.e., no intermediate node is

allowed). This parameter is only be used when *protectionClass* is N1PLUS1 or YCONN.
Type: &-seperated list of *nodeIDs*. A *nodeID* is represented as four dot seperated numeric string with each numeric string between 0 - 255.
Example: 135.13.196.203&135.13.42.23&135.213.242.133&135.13.196.123
Range: nid1([&nidX])* or empty list where X <= 8 when *nodeListUsage1* = EXPLICIT.

20. srlgExcludeList - SRLG Exclude List
List of Shared Risk Link Group identifiers that are to be used to exclude links from the connection path(s) being created.
Type: &-seperated list of numeric strings | empty | 0
Example: 33&49&64
Range: up to 10 numeric strings, each in the range 1 - 65535. The value 0 (default) or an empty field indicates no constraint are applied.

21. srcNID - Source nodeID
ONNS source nodeID. Together with the following srcPortID field defines the associated Ingress connPoint that connects the source node to the edge/gateway switch or client router.
Rangfe: Four dot seperated numeric strings. 0 - 255 for each numeric string.

22. srcPortID - Source PortID
ONNS source node ingress portID. The portID consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # of the *srcNID* ingress *connPoint*. ONNS assumes a bidirectional port pair.
Value: dash-seperated list of 5 numeric strings
Example: 1-1-3-1-4
Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).
Range: Bay/Frame # (1), Shelf # (1), Slot/Pack ##, Port # #, Tributary ##. This range is valid for protecting connections in M:N connection groups

23. destNID - Destination nodeID
ONNS destination nodeID. Together with the following *destPortID* field defines the associated Engress *connPoint* that connects the destination node to the edge/gateway switch or client router.
Type: Four dot seperated numeric strings. 0 - 255 for each numeric string.

24. destPortID - Destination PortID
ONNS destination node egress portID. The portID consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # of the destNID egress *connPoint*.
Value: dash-seperated list of 5 numeric strings
Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).
Range: Bay/Frame # (1), Shelf # (1), Slot/Pack ##, Port ##, Tributary ##. This range is valid for protecting connections in M:N connection groups
See the parameter description in the "ENT-PATH: Create ONNS path connection" (p. 4-1190) Input parameters section.

25. brDestNID - Bridged Destination NodeID
    ONNS bridged destination nodeID. Together with the following brDestPortID field defines the second associated Egress connPoint that connects the destination node to the edge/gateway switch or client router in case of protectionClass YCONN.
    Type: Four dot seperated numeric strings. 0 - 255 for each numeric string.
26. brDestPortID - Bridged Destination PortID
    ONNS bridged destination node egress *portID* in case *protectionClass* = YCONN. The *portID* consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary # of the brDestNID egress connPoint. 4.1; 5; 6
    Value: dash-seperated list of 5 numeric strings
    Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).
27. pathID1 - Path ID 1
    The PathID of the 1st path that was created.
    Type: character string of length up to 20.
    Range: nodeID-Index (nodeID: four dot separated numeric strings: each string 0 - 255) (Index: Numeric string).
    Example: 135.13.196.203-432165
28. pathState1 - Path State 1
    Path State1 = *pst*& *sst*[*&tst*]. pathState1 represents the status of the first path of the connection which may be different than the status of the overall connection in *connStatus*.
    PathState1 is composed out of *pst* (PrimaryState), *sst* (SecondaryState) and *tst* (TertiaryState, optional) Up to two of the allowed values are simultaneously permitted as a sst/tst parameter.The two values must be separated by an ampersand (″&″). Individual status values are 7 characters or less.
    Type: up to three &-seperated value sets.
    Range *pst* values:
    - CON: Connected
    - NOCON: Not Connected
    - DLT: Deleted
    - MAINT: Maintenance mode.

    Range *sst* & *tst* values
    - OK: Conn good
    - FAILED-PATH: failed
    - SETUP: Conn SetUp occurring
    - TRDOWN: Conn teardown occurring
    - NO-IN: Conn failed, signal in bad
    - RSTOR: path restore occurring
    - RSTRD: Conn restored
    - RSTRFL: Conn restore failed

- DLT-FL: Delete operation Failed
- UNKNOWN: Conn state unknown
- WTORSTR: Waiting to restore path
- SETUPFL: Connection SetUp Failed
- RVRTFL: Conn revert failed
- PREMPTD: Preempted
- WTORV: Waiting to revert path
- BRDGD: Path bridged
- EPRTFLEDGE: Port Failed
- BAD-IN: path failed, Bad signal in
- FLT: Fault.

Note: Some states listed in this list will only occur within a DLT-PATH command response or in a REPT-PTHCHG / PTHEVT notification.

Range *pst* values:

- RSVD: Reserved, for paths associated to protecting connections within an M:N protection group, while not protecting a working traffic.

29. pNodeList1 - Path Node List 1
    The path node list contains the list of nodes that the 1st path (*pathID1*) traverses in A-Z order from the source node.
    Type: &-seperated list of nodeIDs. A nodeID is represented as four dot seperated numeric string with each numeric string between 0 - 255.
    Range: nid1([&nidX])*
    Example: 135.13.196.203&135.13.42.23&135.213.242.133&135.13.196.123
30. pathID2 - Path ID 2
    The PathID of the 2nd path (if existing) that was created.
    Type: character string of length up to 20.
    Range: nodeID-Index (nodeID: four dot separated numeric strings: each string 0 - 255), (Index: Numeric string).
    Example: 135.13.196.203-432165
31. pathState2 - Path State 2
    pathState2 = pst&sst[&tst]. *pathState2* represents the status of the second path (if existing) of the connection which may be different than the status of the overall connection in *connStatus*.

PathState2 is composed out of

- pst (PrimaryState)
- sst (SecondaryState)
- tst (TertiaryState, optional).

Up to two of the allowed values are simultaneously permitted as a sst/tst parameter.The two values must be separated by an ampersand (″&″). Individual status values are 7 characters or less.
Type: up to three &-seperated value sets

Range *pst* values:

- CON: Connected
- NOCON: Not Connected
- DLT: Deleted
- MAINT: Maintenance mode.

Range *sst* & *tst* values

- OK: Conn good
- FAILED-PATH: failed
- SETUP: Conn SetUp occurring
- TRDOWN: Conn teardown occurring
- NO-IN: Conn failed, signal in bad
- RSTOR: path restore occurring
- RSTRD: Conn restored
- RSTRFL: Conn restore failed
- DLT-FL: Delete operation Failed
- UNKNOWN: Conn state unknown
- WTORSTR: Waiting to restore path
- SETUPFL: Connection SetUp Failed
- RVRTFL: Conn revert failed
- PREMPTD: Preempted
- WTORV: Waiting to revert path
- BRDGD: Path bridged
- EPRTFLEDGE: Port Failed

- BAD-IN: path failed, Bad signal in
- FLT: Fault.

Note: Some states listed in this list will only occur within a DLT-PATH command response or in a REPT-PTHCHG / PTHEVT notification.

32. pNodeList2 - Path Node List 2
    The path node list contains the list of nodes that the 2nd path (pathID1, if existing) traverses in A-Z order from the source node.
    Type: &-seperated list of nodeIDs. A *nodeID* is represented as four dot seperated numeric string with each numeric string between 0 - 255.
    Range: nid1([&nidX])*
    Example: 135.13.196.203&135.13.42.23&135.213.242.133&135.13.196.123

Spec block parameters

1. connMode - Connection Mode
   The connection mode determines ONNS treatment of the failed path after an auto-reroute restoration.
   Example: *connMode* = NONREVERTIVE causes path setup to be auto-reroute non-revertive.
   Range:
   - UNPROT: converts a auto connection to a unprotected
   - N1PLUS1: Network 1+1 protected connection
   - NONREVERTIVE: Auto-reroute non-revertive
   - REVERTIVE: Auto-reroute revertive
   - YCONN: Y-connection
   - BRIDGEY: Y connection Protection
   - MBYNWRK: Working connection within an M:N protection group
   - MBYNPRT: Protecting connection within an M:N protection group.
2. rstrPriority - Restoration Priority
   This parameter describes the restoration priority of the connection.
   Range: 0 (default) - 7. Lower values represent higher priority.
3. detailRoute
   See definition of this parameter in Input parameters section above.
4. connectionPriority - Connection Priority
   Connection priority allows connection setup of a higher priority connection to utilize the existing path through the network when the existing connection is pre-emptible.
   Range: 0 (default) - 7. 0 = locked, 1 - 7 = Priority, Connection may be pre-empted.
5. disjointness
   The actual level of disjointness of the calculated and established connection. The parameter is not filled when protectionClass is UNPROT.
   Type: alphanumeric value set

Range:

- COMPLETE: fully node and SRLG disjoint path
- FULLYSRLG: maximal node and fully SRLG disjoint path
- MAXIMAL: maximal node disjoint path.

The value ″FULLYNODE″ for fully node disjoint path is a possible future enhancment.

6. connGrpID
   Connection Group ID for an existing ONNS connection to report the connection group the connection is member of or ″UNDEFINED″, if connection is not member of a group.
   For connection roups identified by A VCG EDGE port, connGrpID is formed from the *SrcNodeID* and the Ingress Port #, where LambdaUNITE uses bay =1= shelf. The connection group ID is automatically assigned to a connection, when it is setup. The connection group ID will consist of the *nodeID* and the EDGE port AID in case the EDGE port is a VCG. The connection group ID will be ″UNDEFINED″ otherwise. For M:N protected connection groups, *connGrpID* is formed from the *SrcNodeID* and a group index chosen by the source node to be unique within this node. The connection group ID is automatically assigned to a connection, when it is setup. The connection group ID will consist of the node ID and a group index in case the connection is member of an M:N connection group. The connection group ID will be ″UNDEFINED″ otherwise.
   Type: Character string of length up to 25.
   Range: UNDEFINED - special value for connections not being member of a group/nodeID&Prt AID - with
   - nodeID: four dot separated numeric strings: each string 0..255
   - Port AID: four dash seperated numeric strings representing Bay/Frame #, Shelf #, Slot/Pack #, Port # with: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1..39), Port # (1..4).

   Range: UNDEFINED - special value for connections not being member of a group/nodeID&groupindex - with
   - nodeID: four dot separated numeric strings: each string 0..255
   - groupIndex: integer value specifying an M:N connection group
7. protRatio - Protection ratio
   For each working or protecting connection of an M:N protected connection group this parameter will report the concrete protection ratio as specified on creation of the group. For connections not being member of an M:N protected connection group, this parameter shall not be reported at all.
   Type:alphanumeric value set
   Range. BY1 (ratio of 1 to 1 in number of protecting and working connections), 1BY2 (ratio of 1 to 2 in number of protecting and working connections), 1BY3 (ratio of 1 to 3 in number of protecting and working connections).

8. assocConnID - Associated Connection ID
   Associated Connection ID for an existing ONNS connection of an M:N connection group to report the connection ID of the associated connection within the group, when a protection switch is active, i.e. for a working connection the ID of the associated protecting connection and for a protecting connection the ID of the associated working connection is reported. The associated connection ID will be ″OPEN″ for connections of an M:N connection group not involved in a protection switch. The associated connection ID will not be reported for connections not being member of an M:N connection group.
9. detailPath Record
   One or two detailPath records will be reported when *detailRoute* = ON.
   a. connID - Connection ID
      See description in the Input parameters section below.
   b. pathID - Path ID
      See description in the Output parameters section below.
   c. connAlias - connection alias
      See description in the Input parameters section below.
   d. xcon Record
      An xcon record will be reported for each node in the path when *DetailRoute* = ON. Records are ordered in A-Z direction from the source node:
      nodeID: ID of the node which reports the xcon record; Type: Four dot seperated numeric strings; Range: 0 - 255 for each numeric string.
      connPtID1 - Connection Point ID 1: ONNS connection point identifier for the ingress connection point of the cross-connection. It consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary #. Type: dash-seperated list of 5 numeric strings; Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).
      Slot/Pack ##, Port ##, Tributary ##. Value # for Slot/Pack, Port and Tributary indicates default tributary AIDs used for reporting open ends in not existing xcons in the A-node or Z-node for a protecting NN connection of an M:N protected connection group.
      connInd - Connection Indicator: Indicator whether cross-connection is setup. Type: alphanumeric value set; Range: -X- (cross-connection setup) (not present, cross-connection missing).
      connPtID2 - Connection Point ID 2: ONNS connection point identifier for the egress connection point of the cross connection. It consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #, Tributary #. Type: dash-seperated list of 5 numeric strings; Range: Bay/Frame # (1), Shelf # (1), Slot/Pack # (1 - 39), Port # (1 - 16), Tributary # (1 - 128).
      detailRouteStatus - Detail Route Node/XC Status: This parameter indicates the status of a node and/or its cross-connection. Range: NO_REPLY (no reply from node); NO_XCONN (no cross-connection found) (not present, node and cross-connection ok).

Example input/output

The following is an example shows a successful execution of the RTRV-PATH command for an unprotected connection:

```
   LT-ONNS9 2001-01-01 08:00:00
M  113456 COMPLD
   "ConnID=135.13.196.203&1-6-5-3-1&1,ConnStatus=CON&OK,
   1WAY,UNPROT,STS48,ConnAlias=AEXP-NY-BOS-ckt,
   MaxDelay=155,SrvID=13514823,Exclude=135.13.42.3&
   135.213.242.123& 135.13.198.22,,,,
   RstrPriority=1,,SrcNID=135.13.196.203:1-6-5-3-1,
   DestNID=135.13.242.103:1-2-5-5-1:
   PathID=135.13.196.203-432165,State=CON&OK,
   NodeList=135.13.196.203&135.13.196.123&135.13.42.3&
   135.13.242.103"
;
```

If the RTRV-PATH ALL request completes successfully with an empty NCDR, then the following normal completion response is returned:

```
   srcTid date time
M  ctag COMPLD
;
```

The following example shows the successful completion of a RTRV-PATH command by the NE for an 1+1 connection:

```
   LT-ONNS-9 2001-06-01 08:00:00
M 14345 COMPLD
   "ConnID=135.13.196.203&1-6-5-3-1&1,ConnStatus=CON&OK,
   2WAY,N1PLUS1,STS48,ConnAlias=AEXP-NY-BOS-ckt,
   MaxDelay=55,SrvID=13513794,Explicit=135.13.196.123&
   135.13.42.3,Explicit=135.13.198.23&135.13.196.3&
   135.13.198.213,SrlgExclude=135&1432&222,DetailRoute=ON,
   SrcNID=135.13.196.203,1-6-5-3-1,DestNID=135.13.196.123,
   1-2-5-5-1&1-2-5-5-1:PathID=135.13.196.203-432165,State=CON&OK,
   NodeList=135.13.196.203&135.13.196.123&135.13.42.3&
   135.13.242.103:PathID=135.13.196.203-432177,State=CON&FAILED,
   NodeList=135.13.196.203&135.13.198.23&135.13.196.3&
   135.13.198.213&135.13.242.123"
;
```

The following example shows the successful completion of a RTRV-PATH command with the Path *DetailRoute* = ON by the NE.

```
   LT-ONNS-9 2002-06-04 08:00:00
M  14345 COMPLD
   "ConnID=135.14.196.203&1-6-5-3-1&1,
   PathID=135.14.196.203-32165,:
   135.14.196.203,1-6-5-3-1,-X-,1-2-4-3-1,:
```

```
   135.13.196.123,1-1-5-3-1,-X-,1-2-2-3-1,:
   135.13.42.63,1-1-3-1-1,-X-,1-1-4-4-1,:
   135.13.18.23,1-1-4-4-1,-X-,1-2-1-3-1,:
   135.13.242.103,1-1-2-7-1,-X-,1-2-5-1-1,"
;
```

This example shows the detailPath record of an RTRV-PATH with DetailRoute=ON, when intermediate nodes do not respond or can not retrieve the cross-connect information:

```
   LT-ONNS-9 2002-06-04 08:00:00
M  14345 COMPLD
   "ConnID=135.14.196.203&1-6-5-3-1&1,
   PathID=135.14.196.203-32165,:
   135.14.196.203,1-6-5-3-1,-X-,1-2-4-3-1,:
   135.13.22.3,,,NO_REPLY:
   135.13.196.123,1-1-5-3-1,-X-,1-2-2-3-1,:
   135.13.44.93,1-2-2-2-1,,1-1-4-2-1,NO_XCON:
   135.13.42.63,1-1-4-4-1,-X-,1-2-1-3-1,:
   135.13.242.103,1-1-2-7-1,-X-,1-2-5-1-1,"
;
```

Error responses

connID Non-Existant (ICNE)

If the source node receives a command and the specified *connID* does not exist, then the following error response is returned:

Error code: `E220:13513794 - Input, ConnectionID Non-Existent`

Invalid *srvID*

If the source node receives a command with an invalid ServiceID (srvID) parameter value, then the following error response is returned:

Error code: `"E030:SMcon135*7.92468:\"Syntax, Parameter Data Imvalid\",Invalid_parameter=SrvID"`

Invalid command

If an unrecognized or unsupported command is received, then the following error response is returned:

Error code: `E235 - Input, Invalid CoMmand, Command not found or recognized`

Syntax, Invalid punctuation

If a command is received that contains incorrect punctuation, then one of the following error responses is returned:

Error code: `E240 - Syntax, InValid Punctuation`

Syntax invalid or unimplemented parameter

If a command is received that contains an empty field that requires a parameter, or if a parameter input has not an allowed value for the field, then the following error response is returned:

Error code: `E246 - Syntax, Parameter Not Implemented`

The following list identifies conditions that will cause similiar error responses :

Error code: `E030 - SPDI Error - Syntax, Parameter Data Invalid, invalid_parameter=fieldName`

Error code: `E037 - INCS Error - Input, Neither ConnID nor ConnAlias Specified`

Error code: `E040 - SDNC Error - Syntax, Data Not Consistent`

Error code: `E221 - IANE Error - Input, ConnectionAlias Non-Existent`

Invalid target identifier

If a command is received with an invalid Target Identifier, then one of the following error responses is returned:

Error code: `E250 - Input, Invalid TArget Identifier`

Error code: `E805 - Input, Missing Target Identifier (TID)`

Invalid access identifier

If a command is received with an invalid access identifier, then the following error response is returned:

Error code: `E260 - Input, Invalid ACcess identifier`

Invalid correlation tag (CTAG) or RequestID

If a command is received with an invalid correlation tag, then one of the following error responses is returned:

Error code: `E265 - Input, Invalid Correlation Tag`

Error code: `E266 - Input, Missing Correlation Tag`

Status, All Resources Busy

If a command can not be completed due to insufficient processing resources or the system is in maintenance mode, then the following error response is returned:

Error code: `E280 - Status, All Resources Busy`

The following list identifies conditions that will cause similiar error responses:

- Error code: `E281 - Status, Busy, NVM Write in Progress for same connection`
- Error code: `E282 - Status, Conn State Invalid for this Operation`

Requested Operation Failed (SROF)

If a command can not be completed due an internal hardware or software failure, then the following error response is returned:

Error code: `E290 - Status, Requested Operation Failed`

Error Responses Specific to RTRV-PATH

The following list identifies conditions that will cause error responses specific to RTRV-PATH commands:

Error code: `E226 - IDNA - Input, RetrieveDetail_Route Not allowed for RTRV-PATH ALL`

The following list identifies conditions that will cause error responses specific to RTRV-PATH commands sent with detail_route option:

`E227 - SRDE -Status, RetrieveDetail_Route Error`

`E283 - SCRP - Status, Conn/Path Retrieve in Progress`

Retrieve path - Invalid connection ID for group retrieval

If the source node Network Element receives a TL1 command containing a connID with tributary# = ALL, but the corresponding port is not a VCG, then one of the following error response is returned:

Error code: `E050 - IICG - Input, Invalid connection ID for connection group/conn ID`

Error code: `E051 - IIDG - Input, detailRoute invalid for group retrieve`

Example: The command RTRV-PATH:LT-SNNS9:snn:123456:::123.198.42.233&1-2-32-4-ALL:detailRoute=ON; will produce the output E051.

Related TL1 messages

- "ED-PATH: Modify alias of ONNS connection" (p. 4-522)
- "ENT-PATH: Create ONNS path connection" (p. 4-1190)
- "DLT-PATH: Delete ONNS path Connection" (p. 4-148)
- "REPT-PTHEVT Notification: Report ONNS Path Events" (p. 4-1554)
- "REPT-PTHCHG Notification: Report path change" (p. 4-1540)
- "REPT-NNCHG Notification: Report ONNS data repository changes" (p. 4-1531)
- "ED-NNCNFG: Edit ONNS configuration data" (p. 4-329)
- "RTRV-NNCNFG: Retrieve ONNS configuration data" (p. 4-1831)
- "RTRV-NNDR: Retrieve ONNS neighbor nodal data repository" (p. 4-1836)
- "RTRV-NTDR: Retrieve ONNS network topology data repository" (p. 4-1857)
- "REPT-NNEVT Notification: Report ONNS internal events" (p. 4-1536)

RTRV-PM: Retrieve performance monitoring

The RTRV-PM command is initiated by a user to request the NE to send the current and/or historical Performance Monitoring (PM) data associated with one or more facilities. For each value in the *montype* parameter of the RTRV-PM Input parameters section PM counter values will be stored in the current 15-minute period, the 32 previous 15-minute periods (past 8 hours worth of data), current day, and previous day periods.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): PM1

Priority: 1

Abortable: Yes.

Input format

Command Syntax:

`RTRV-PM-`*modifier*:*tid*:*aid*:*ctag*::[*montype*], [*monlev*], [*locn*],,*tmper*, [*mondat*], [*montm*];

Input parameters

Command parameters

1. modifier
   This parameter indicates the port type or tributary on which the RTRV-PM command is to act on.
   Type: alphanumeric value set
   Range: The following values are for SONET only: STS1, STS3C, STS12C, STS48C, STS192C, OC3, OC12, OC48, OC48T, OC192, OC768, T3.
   The following values are for SDH only: VC3, VC4, VC44C, VC416C, VC464C, STM1E, STM1, STM4, STM16, STM16T, STM64, STM256, ODU1.
   Although the ODU layer is independent of SONET/SDH, the ODU1 modifier is listed here in the SDH section. This is because the ODU1 function is used for the Transparency feature, which is only supported for SDH.
2. tid – Target Identifier
   See definition in "RTRV-HDR: Retrieve header" (p. 4-1736).
3. aid – Access Identifier
   Type: AID
   Range: For STM<N>, STM<N>T, OC<N>, EC1 and OC<N>T modifiers: SPortAID.
   For T3 modifier: APortAID
   For ODU<N> modifiers: VCGAID
   For VC3, VC4, VC44C, VC416C, VC464C, STS1, STS3C, STS12C, STS48C and

STS192C modifiers only: STS1NumAID.
And for VC4 and STS1 modifiers also: VCGNumAID.
Range is supported up to shelf level or system level; i.e.
ALL-ALL-#-#-ALL-ALL (on port level).
ALL-ALL-#-#-ALL-ALL-ALL (on tributary level).

4. ctag – Correlation Tag
   See definition in "RTRV-HDR: Retrieve header" (p. 4-1736).

5. montype – Monitored parameter type
   This is the monitored parameter type for which data is requested. If the value is omitted, this parameter defaults to ALL.
   Type: value set
   Range: The following values are for all OC<N> and the EC1 modifiers: CVS, ESS, SESS, SEFS-S, LOSS-S, CVL, ESL, SESL, UASL, AISS-L, FC-L, CV-LFE, ES-LFE, SES-LFE, UAS-LFE, FC-LFE.
   The following values are for all OC<N>T modifiers: CVS, ESS, SESS, SEFS-S, LOSS-S.
   The following values are for all OC<N>T modifiers only: CVS-EGR, ESS-EGR, SESS-EGR, SEFS-S-EGR.
   The following values are also for OC192 and OC768 modifiers only: FECC-L.
   The following values are for STS1 (path) and are also applicable to STS3C, STS12C, STS48C and STS192C modifiers only: CVP, ESP, SESP, UASP, FC-P, CV-PFE, ES-PFE, SES-PFE, UAS-PFE, FC-PFE.
   The following values are for all STM<N> modifiers: RS-N-ES, RS-N-SES, RS-N-BBE, RS-N-UAS, MS-N-ES, MS-N-SES, MS-N-BBE, MS-N-UAS, MS-F-ES, MS-F-SES, MS-F-BBE, MS-F-UAS.
   The following values are for all STM<N>T modifiers: RS-N-ES, RS-N-SES, RS-N-BBE, RS-N-UAS
   The following values are for all STM<N>T modifiers only: RS-N-ES-EGR, RS-N-SES-EGR, RS-N-BBE-EGR, RS-N-UAS-EGR
   The following values also are for STM64 and STM256 modifiers only: MS-N-FECC.
   The following values are for T3 modifier: CVL, ESL, ESA-L, ESB-L, SESL, LOSS-L, CVP, ESP, ESA-P, ESB-P, SESP, UASP, FC-P, SEFS-P, SAS-P, AISS-P, CV-PFE, ES-PFE, ESA-PFE, ESB-PFE, SES-PFE, UAS-PFE, FC-PFE, SAS-PFE, CVP-EGR, ESP-EGR, ESA-P-EGR, ESB-P-EGR, SESP-EGR, UASP-EGR, FC-P-EGR, SEFS-P-EGR, SAS-P-EGR, AISS-P-EGR, CV-PFE-EGR, ES-PFE-EGR, ESA-PFE-EGR, ESB-PFE-EGR, SES-PFE-EGR, UAS-PFE-EGR, FC-PFE-EGR, SAS-PFE-EGR
   The following values are for all ODU<N> modifiers only: ODU-N-ES, ODU-N-SES, ODU-N-BBE, ODU-N-UAS, ODU-F-ES, ODU-F-SES, ODU-F-BBE, ODU-F-UAS

The following values are for VC3, VC4, VC44C, VC416C and VC464C modifiers only: VC-N-ES, VC-N-SES, VC-N-BBE, VC-N-UAS, VC-F-ES, VC-F-SES, VC-F-BBE, VC-F-UAS.
The following value is also allowed for all input modifiers: ALL.
Default: ALL.

6. monlev – Monitored Level
   This parameter provides the level for the monitored PM parameter. The parameter is only evaluated if the value of *montype* parameter is ALL.
   Type: value set.
   Range:
   - 1-UP: Means the NE will report, non-zero data only.
   - 0-UP: Means the NE will report zero and all positive data.

   If *monlev* is 0-UP, AID ranging must be below slot level.
   Default: 1-UP.
7. locn – Location
   Location for which the PM data is monitored. The parameter value is only considered if the *montype* value is ALL; otherwise it is ignored for the calculation of the command reply (i.e has no impact on the command).
   Type: value set.
   Range:
   - NEND: Near-End PM data is requested.
   - FEND: Far-End PM data is requested.
   - ALL: All near-end and far-end data is requested. It applies only to input direction.

   Default: ALL.
8. tmper – Time Period
   This requests PM data for a specified time interval.
   Type: value set.
   Range:
   - 15-MIN: This requests PM data in 15-minute intervals
   - 1-DAY: This requests daily PM data.
9. mondat – Monitored Date
   This requests the beginning date of the interval for which the PM data is to be reported. For both values of tmper parameter, the maximum allowable range of valid dates includes the current and previous one day.
   Type: value set.
   Range:
   - MM-DD: Month-Day. A leading zero (first M or first D) is optional and may be omitted.
   - ALL: Current and previous day.

   Default: Current date

10. montm – Monitored Time

    This parameter specifies the beginning time of day of the requested PM period that was set by *tmper* parameter. The user is able to specify a monitored time in three modes:

    a. A monitored time interval (i.e., from hour-minutes to hour-minutes: HOD-MOH&&THOD-TMOH).

    b. A single time interval (i.e., the hour and minutes for the appropriate 15 minute data: HOD-MOH).

    c. All applicable beginning times for the given *mondat* value (i.e., all).

    Where HOD-MOH represents the start of the requested PM retrieval period (hours and minutes) and THOD-TMOH represents the end of the requested PM retrieval period. The value ALL must be used if the *mondat* value provided is ALL.
    Type: character string.
    Range:

    - HOD-MOH: This specifies the beginning time of day of the requested PM period that was set by *tmper* parameter. This parameter may be omitted or have one of the following values: Hour Of Day- Minute Of Hour, where HOD ranges from 0 to 23 and MOH is 0, 15, 30 and 45. A leading zero is optional. For example, 00 means 0.
    - THOD-TMOH: To Hour Of Day-To Minute Of Hour, where THOD ranges from 0 to 23 and TMOH is 0, 15, 30 and 45. A leading zero is optional. For example, 00 means 0. Parameter grouping is used when specifying THOD-TMOH. For example, 08-15&&09-00 specifies the HOD-MOH and THOD-TMOH of 08-15 and 09-00, respectively. THOD-TMOH of $$-$$indicates the current Hour Of Day-Minute Of Hour. THOD-TMOH of ##-##indicates the previous 15-min interval.
    - ALL: All applicable beginning times for the given *mondat* value.

    If the *tmper* value is 1-DAY, the *montm* parameter will not be used.
    Default:
    If THOD-TMOH is not specified, only the PM data for the retrieval period specified by HOD-MOH will be retrieved.
    If HOD-MOH is omitted, the PM period for the current time will be reported.

Output format

If the NE fully complies with the RTRV-PM request, the following normal completion response is returned:

```
    sid date time
M  ctag COMPLD
   "aid:montype,monval,[validity],[tca],[locn],,tmper,
   [mondat],[montm]"
   . . . . .
   . . . . .
   . . . . .
```

```
;
```

Note: The trailing comma has to be present even if the optional parameter is not supported for a dedicated release.

The output parameters *sid, date, time* and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Normal completion message – empty reply

If there is no PM data stored within the NE, then the following response is returned:

```
   sid date time
M  ctag COMPLD
;
```

Output parameters

1. aid – Access Identifier
   Description: Access identifier.
   Type: AID
   Range: For STM<N>, STM<N>T, OC<N>, EC1 and OC<N>T modifiers only: SPortAID.
   For T3 modifier: APortAID
   For ODU<N> modifiers only: VCGAID
   For VC3, VC4, VC44C, VC416C, VC464C, STS1, STS3C, STS12C, STS48C and STS192C modifiers only: STS1NumAID.
   And for VC4 and STS1 modifiers also: VCGNumAID
2. montype – Monitored Parameter Type
   See montype in the input parameters section.
3. monval – Monitored Value
   This parameter specifies the measured value of the parameter specified in montype.
   Type: integer.
   Range: 0-4294967295
   The specified range is the maximal range taking all PM parameters into consideration. Specific PM parameters may have a smaller range.
   W.r.t. value range for the specific PM parameters see
   - Ouput Parameters section in "RTRV-TCA-PROF: Retrieve TCA Profile" (p. 4-2184) (if thresholding is applicable for that parameter)
   - PM parameter introduction section (if thresholding is not applicable for that parameter).
4. validity – validity indicator
   This parameter indicates the validity of the PM data.
   Type: integer.
   Range: 1: valid; (omitted): non-valid.

5. tca – Threshold Crossing Alert
   Type: value set.
   Range for the current interval:
   - in TCA mode TR, that the current value exceeds the provisioned threshold
   - in TCA mode TR-RTR, that a *tca* occurred since the beginning of this; interval or that the tca reset condition was not fulfilled in any previous; interval since the last tca occurred

   f the value is omitted, it indicates
   - in TCA mode TR, that the current value is below the provisioned threshold
   - in TCA mode TR-RTR, that no tca occurred since the beginning of this; interval and that the tca reset condition was fulfilled at least in one previous , interval

   For previous intervals, the tca parameter indicates the state at the end of the interval.
6. locn – Location
   Location for which the PM data is monitored.
   Type: value set.
   Range:
   - NEND: Near-End PM data is requested
   - FEND: Far-End PM data is requested.
7. tmper – Time Period
   See in the input parameters section.
8. mondat – Monitored Date
   This parameter specifies the beginning date of the interval for which the PM data is reported. The parameter can be omitted in case of current date.
   Type: value set.
   Range: MM-DD: Month-Day
   Default: Current date
9. montm – Monitored Time
   This parameter specifies the beginning time of day for the reported pm register. The parameter is optional and may be omitted for the reporting of current bins (registers).
   Type: character string.
   Range: HOD-MOH: HOD ranges from 0 to 23; MOH is 0, 15, 30 and 45. A leading zero is optional. For example, 00 means 0.

Example input/output

The following example shows the successful completion of a RTRV-PM command by the NE for a VC3:

```
RTRV-PM-vc3:UNITE-NE:1-1-#-#-5-1-27:123456::vc-f-es,1-up,,,15-min ,,
00-00&&08-00;
   UNITE-NE 00-01-01 08:00:00
M  123456 COMPLD
```

```
   "1-1-#-#-5-1-27:vc-f-es,17,,tca,,,15-min,,00-00"
   "1-1-#-#-5-1-27:vc-f-es,10,,tca,,,15-min,,00-15"
   . . .
   "1-1-#-#-5-1-27:vc-f-es,15,,tca,,,15-min,,08-00"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-PM command. See also subsection 'Partial Completion on RTRV Commands' w.r.t. handling of internal error (e.g. communication to XC320 fails) for a subset of replies.

Related TL1 messages

- "RTRV-EPM: Ethernet performance monitoring" (p. 4-1679)
- "DLT-TCA-PROF: Delete TCA Profile" (p. 4-186)
- "ED-TCA-PROF: Edit TCA profile" (p. 4-852)
- "ENT-TCA-PROF: Enter TCA Profile" (p. 4-1345)
- "RTRV-TCA-PROF: Retrieve TCA Profile" (p. 4-2184)

References

GR-833-CORE

□

RTRV-PREDEFRAG: Perform an ONNS fragmentation analysis

Overview

This command is used by an operator in preparation for doing a defrag operation on a port or between multiple ports in a link between two nodes.

The command causes the receiving node to do an analysis of the level of fragmentation that currently exists on the specified port or link. An analysis is performed of how much usable bandwidth will be gained if defragmetation were to be done, and the time slot structure as it would be following a defragmentation operation is computed. Note that all this is done in an analysis mode. No real defragmentation is done until a subsequent “operate defrag” command is issued. The rtrv-predefrag command causes the network element to send the results of the defrag analysis in a status report back to the management system in a TL1 response.

As above stated the RTRV-PREDEFRAG is done in an analysis mode and does not guarantee the same result for Gain and *PostLDGrouping* after real defragmentation.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Abortable: No.

Input format

Command syntax: `RTRV-PREDEFRAG:`*src-Tid:src-Aid:ctag::scope:targetID*;

Input parameters

Command parameters

1. srcTid
   Target Identifier of the source node is the logical name of the Host NE. ONNS uses the same *tid* used by Host NE.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: The *srcTid* parameter is a case insensitive ASCII character string of up to 20 characters with the allowed character set as described above.
2. ctag – Correlation Tag
   This parameter is included in the command by the TL1 user and is repeated by the NE in the response to allow the TL1 user to associate the command and response messages.
   The *ctag* parameter is a character strings of up to 6 ASCII characters. The allowed ASCII character string is comprised of alphanumeric characters beginning with a letter, or decimal numerals (a decimal numeral is a string of decimal digits with an optional non-trailing “.”).

3. srcAid
   Source node ONNS application access identifier of the ONNS controller OS command interface port.
   Range: Source node Access IDentifier parameter of the source node controller ONNS command interface entity has the allowed values shown here: snn.
4. scope
   This parameter specifies the scope of the defrag operation: intra port or inter port (intra link).
   Range
   - PORT: specifies the defrag is intra-fiber operation on a specific port. In this case *targetID* specifies the local port id same as the *portAID*. The corresponding neighbor node and neighbor *portAID* can be deduced from the *targetID*.
   - LINK: specifies the link defrag is inter fiber but within a link bundle. Also, the link defrag operation is performed on all the bundles between the two neighboring nodes. TargetID specifies the neighbor nodes ASTN node ID.
5. targetID
   The specification of the *targetID* depends on the setting of the parameter scope: PORT specifies the AID of the port on the local node that is to be defragmented;LINK specifies the ASTN node ID of the neighbor node of the link that is to be defragmented.
   Type: Four dash separated numeric string for the portAID. Four dot seperated numeric string for the neighbor ASTN node ID.
   Range. Each numeric string: 0...255.

Output format

If the RTRV-PREDEFRAG request completes successfully, the following normal completion response is returned:

```
   src-Tid date time
M  ctag COMPLD
   PreLDGrouping=NuM&NaM&....
   PostLDGrouping=NuM&NuM&...
   Gain=NSTSn&..
;
```

The pre and post defrag time slot structure is indicated by two strings consisting of ″&″ separated substrings. The substrings have the form NuM or NaM where N is a number indicating the number of STS1s that make up that slot and M indicates the rate (3C, 12C etc..). The letters ″u″ and ″a″ indicate whether the time slot is used or is available respectively. The value of M while specifying the number of available STS1s is always blank. Thus 2a means two STS1 slots are available.

The gain parameter indicates number of additional time slots that will become available once defrag is done.The highest rate time slots are indicated first, followed

by the lower rates, with each signal rate substring being separated by an &. The fractional STS1s that form the remainder are not indicated. If there is nothing to be gained from the defrag operation, the gain parameter will say NONE.

Normal system response to RTRV-PREDEFRAG for inter port (link) defragmentation

If the RTRV-PREDEFRAG request completes successfully, the following normal completion response is returned:

```
   src-Tid date time
M  ctag COMPLD
   ″BundleID=bundlID_1,Gain=NSTSn&....″
   ″PortID=portID_1,
   PreLDGrouping=NuM&NaM&....
   PostLDGrouping=NuM&NuM&...
   ...
   ″PortID=portID_m,
    PreLDGrouping=NuM&Na&....
    PostLDGrouping=NuM&Na&....″
   ...
   ″BundlID=bundleID_m,Gain=NSTSn&....″
   ″PortID=portID_1,
    PreLDGrouping=NuM&Na&....
    PostLDGrouping=NuM&Na&....″
   ...
   ″PortID=portID_m,
    PreLDGrouping=NuM&Na&....
    PostLDGrouping=NuM&Na&....″
;
```

The pre and post defrag time slot structure is indicated by two strings consisting of ″&″ separated substrings. The substrings have the form NuM or Na where N is a number indicating the number of STS1s that make up that slot and M indicates the rate (3C, 12C etc..). The letters ″u″ and ″a″ indicate whether the time slot is used or is available respectively. The available timeslots are ever shown in STS1s and no additional rate value M is needed. Thus 2a means two STS1 slots are available.

The gain parameter indicates number of additional time slots that will become available once defrag is done.The highest rate time slots are indicated first, followed by the lower rates, with each signal rate substring being separated by an &. The fractional STS1s that form the remainder are not indicated. If there is nothing to be gained from the defrag operation, the gain parameter will say NONE.

The inter port defragmentation record will be send in data blocks that are less than 4096 characters. A data block will end with the pre and post defrag timeslot structure. On all messages but the last, a RTRV completion code is used and the semicolon (;) is replaced with a (>) terminator. Then, on the last record block, the COMPLD completion code is used with the final semicolon (;) terminator.

Output parameters

The output parameters *srcTid*, *date*, *time*, *ctag*, completion code and their syntax are included in the Output parameters section of the "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950) command.

1. bundleID
   A unique numeric ID assigned to the link bundle on this node.
   Type: Integer
   Range: >0
2. portID
   portID of the port for which data in the PortRecord is reported. It consists of Bay/Frame #, Shelf #, Slot/Pack #, Port #.
   Type: dash-seperated list of 4 numeric strings
   Range: Bay/Frame #(1), Shelf #(1), Slot/Pack #(1..39), Port #(1..16).
3. PreLDGrouping
   An ordered & separated string of numbers indicating the availability or unavailability of a group of time slots of different rates. The unit of measure is STS1. Availability is indicated by "a" and unavailability (used) by "u". Thus 1u3 indicates that one STS3c slot is used up, and 2a indicates that two STS1 slots are available. Notice that the available timeslots are always specified in terms of the number of STS1s. Hence, the "1" at the end is understood and not included to conserve space.
   Type: &-seperated list of numbers.
   Example for an OC12 port:
   PreLDGrouping=1u3&2a&1u1&1u3&1u1,2a, indicates one used STS3c, two available STS1, one used STS1, one used STS3c, 1 used STS1, two available STS1.
   The size of the output string will vary depending on whether the port is OC3, OC12, OC48, OC192, OC768 and also on the distribution of the used/available time slots. For an OC192 port, the output string would indicate the STS48c, STS12c, STS3c and STS1 slots used up and the remaining unused STS1 slots.
4. PostLDGrouping
   An ordered string formatted the same way as the *PreLinkDefragGrouping* string, indicating the time slot structure once the defrag operation is completed.
   Type: &-seperated list of numbers
   Example for the above case of the OC12 port, the PostLDGrouping=2u3&2u1&4a, indicating that two STS3c slots are used, two STS1 are used and four STS1 slots are available. Thus another STS3c can be accommodated.
5. Gain
   A parameter indicating whether the defrag will result in an improvement or not. ″NONE″ indicates no improvement, any other value indicates the ″delta″ improvement over the existing time slot structure. The delta is computed in terms of the additional signals that can be accommodated as a result of the defrag starting with the highest signal rate possible for that port. The improvement is represented

as a string composed of one or more of the following substrings: ″STS3c″, ″STS12c″, ″STS48c″, ″STS192c″. Each substring has a numeric string preceding it indicating the number of timeslots of that type that will be available once defrag is performed. The highest signal rate is stated first, then the next highest rate and so on.
Type: &-seperated list of numbers concatenated with value set or the special value NONE.
Range: The value is ″NONE″ if no gain. Else it indicates the additional timeslot that are now available. In the above example: Gain=1STS3C. Gain will be an & separated list if there are multiple gains. E.g: 1STS12c& 3STS3c would mean that 1 STS12c and 3 STS3c connections could be accommodated on that port once the defrag is done. Note only the additional available timeslots are included in the response.

Example input/output

The following example shows a successful completion of a RTRV-PREDEFRAG command: *NN001:snn:ed01::PORT,1-1-2-1;*

```
   NN001 2002-01-12 01:03:16
M  ctag COMPLD
   ″PreLDGrouping=1u3&2a&1u1&1u3&1u1&2a
    PostLDGrouping=2u3&2u1&4a
    Gain=1STS3C″
;
```

Error responses

Refer to Error response section of the RTRV-PATH command. The error responses listed there apply also to the RTRV-PREDEFRAG command.

Invalid *PortID*

If the NE receives an RTRV-PREDEFRAG command with an *PortID* parameter value that is invalid the following error response is returned:

Error code: `E410 - Input, Invalid PortID`

Invalid *ASTNNodeID*

If the NE receives an RTRV-PREDEFRAG command with an *ASTNNodeID* parameter value that is invalid the following error response is returned.

Error code: `E512 - Input, Invalid Neighbor node ID`

Related TL1 message

- “OPR-DEFRAG: Perform defragmentation ” (p. 4-1451)

□

RTRV-PRMTR-DATA: Retrieve parameter data

The RTRV-PRMTR-DATA command retrieves information about the databases being in NVM. It identifies the databases' release numbers and provides also other information such as their states.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S1

Priority: 2

Abortable: No

Input format

Command Syntax: `RTRV-PRMTR-DATA`:*tid*::*ctag*::*[amount]*;

Input parameters

Command parameters

1. tid- Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
3. amount – Amount Of Data To Return
   This parameter specifies whether the current generic or previous generic or both shall be returned. If a value is omitted, then the current (active) generic is returned.
   Type: alphanumeric value set.
   Range: CURRENT (default), PREVIOUS, ALL.
   Default: CURRENT.

Output format

The following normal completion response is returned, if the RTRV-PRMTR-DATA request completes successfully:

```
   sid date time
M  ctag COMPLD
   "nvm:spec_block"
       ...
       ...
   "nvm:spec_block"
;
```

Output parameters

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Output parameters section for a normal completion response. The output parameters listed there also apply to the RTRV-PRMTR-DATA command. Additional parameters that specifically apply to this command are defined in the following:

1. nvm – Non Volatile Memory Identifier
   This parameter specifies the region of non volatile memory data (current or previous).
   Type: Value set.
   Range:
   - NVM-A: for current NVM Data
   - NVM-B: for previous NVM-Data.

   Default: Only current NVM data is reported except for *amount* having been specified to ALL.

Spec block parameters

This parameter provides information about the stored database. It contains the parameters *release, size, backuptime, restoretime, backupfile, restorefile, priorbackuptime, priorbackupfile, priorrestoretime, priorrestorefile, state*, *tid* and *serialnumber*.

When software is being downloaded to previous NVM, the database parameters for NVM-B do not need initialization because they still reflect information pertaining to the currently executing generic.

During installation, the following parameters are omitted (initialized to a blank field) for NVM-A:

backuptime, restoretime, backupfile, restorefile, priorbackuptime, prioirrestoretime, priorbackupfile, priorrestorefile.

When a backup is performed for the database in current NVM, the values of *restoretime, restorefile, priorbackuptime, priorbackupfile* shall not be modified.

1. release – Release Number
   This parameter represents the release number contained in the file. The parameter will be omitted if state is 'INITIAL'.
   Type: value set of the form x.y.z
   Range: x, y, z are integer numbers from 00 to 99 in two-digit form, that means leading zeros are not suppressed. x shall not be 00.
2. size – Size Of Allocated NVM
   This parameter indicates the allocated NVM size in bytes.
   It is not dynamically updated within the generic until data migration or software upgrade which may change the budget of NVM space used for database files.
   Type: numeric string
   Range: 0 to 99999999
   Default: In case the software generic on the NVM is empty, the value 0 is reported.
3. backuptime
   This parameter provides time and date when the last backup to a remote file store has been finished. It is omitted if the system has never been backed up.
   The NE updates *backuptime* at the OS just before file transfer starts and then update the value of current NVM's *backuptime* when the backup finishes.
   This implies the value of *backuptime* contained in backupfile at the OS will represent a slightly earlier time than the value contained in current NVM's database.
   backuptime is updated whether or not the file transfer was successful.
   Type: value set of the format: YY-MM-DD HH-MM-SS.
   Range: Y, M, D are numbers in two-digit format (i.e. leading zeros are not suppressed). YY represents the last two digits of the year, MM the month, DD the day of the month. H, M, S are numbers in two-digit format (i.e. leading zeros are not suppressed). HH represents the hour, MM the minutes, SS the seconds.
4. restoretime
   This parameter reflects the time and date when the last restore from a remote file store has been finished. It is omitted, if the system has never been restored.
   When a backup is performed for the database in current NVM, the values of *restoretime* (in current NVM, previous NVM) are not modified.
   Only database files at the current or previous NVMs shall have values for *restoretime*.
   Type: value set of the format: YY-MM-DD HH-MM-SS
   Range: Y, M, D are numbers in two-digit format (i.e. leading zeros are not suppressed). YY represents the last two digits of the year, MM the month, DD the day of the month. H, M, S are numbers in two-digit format (i.e. leading zeros are not suppressed). HH represents the hour, MM the minutes, SS the seconds.

5. backupfile
   This parameter indicates the remote location where the last backup is stored. Omitted if never backed up.
   The NE will update *backupfile* before the file transfer starts.
   Thus, both the source (current NVM) and the destination (*Navis*® Optical EMS or CIT) will have the same value for *backupfile*.
   Type: text string.
   Range: The parameter has one of the following formats:
   - *"CIT,filename"*
   - *"EMS,filename"*
   - *"FTTD","FTP URL"*

   The syntax contained in *filename* should be consistent with the file system. For a DOS file system, back slashes (\) should be used. For a UNIX file-system, forward slashes (/) should be used.
   Because a (\) is interpreted as the escape character, it will be represented in the output reply as a double backslash (\\).
   The FTP URL must be in the format:
   ftp://[<login>[:<password>]@]<host>[:<port>]/<file_name>
   - <login>: default value: "anonymous"
   - <password>: default for <login> "anonymous" is "" (empty). For security reasons, the <password> portion of the FTP file format must be masked prior to generating any autonomous messages.
   - <host>: the <host> portion is an internet address of the form a.b.c.d with a, b, c and d in the range of 0..255.
   - <port>: this is the port number of the FTP server, given when deviating from the standard port number 21.
   - <file_name>: the complete path name of the file.

6. restorefile
   This parameter reflects the remote location where the last restore came from. Omitted if never restored.
   When a backup is performed for the database in current NVM, the values of *restorefile* (in current NVM, previous NVM, the destination) will not be modified. *restorefile* is updated whether or not the file transfer was successful.
   Type: text string.

Range: *restorefile* has one of the following formats:

- *"CIT,filename"*
- *"EMS,filename"*
- *"FTTD",FTP URL"*

The syntax contained in *filename* should be consistent with the file system. For a DOS file system, back slashes (\) should be used. For a UNIX file-system, forward slashes (/) should be used.
Because a (\) is interpreted as the escape character, it will be represented in the output as a double backslash (\\).

The FTP URL must be in the format:
ftp://[<login>[:<password>]@]<host>[:<port>]/<file_name>

- <login>: default value: "anonymous"
- <password>: default for <login> "anonymous" is "" (empty). For security reasons, the <password> portion of the FTP file format must be masked prior to generating any autonomous messages.
- <host>: the <host> portion is an internet address of the form a.b.c.d with a, b, c and d in the range of 0..255.
- <port>: this is the port number of the FTP server, given when deviating from the standard port number 21.
- <file_name>: the complete path name of the file.

7. priorbackuptime
   This parameter gives the time and date when the next-to-last backup to a remote file store finished. It is omitted, if there is no next-to-last-backup.
   When a backup is performed for the database in current NVM, the values of *priorbackuptime* (in current NVM, previous NVM, the destination) will not be modified.
   Type: value set of the format: YY-MM-DD HH-MM-SS
   Range: Y, M, D are numbers in two-digit format (i.e. leading zeros are not suppressed). YY represents the last two digits of the year, MM the month, DD the day of the month. H, M, S are numbers in two-digit format (i.e. leading zeros are not suppressed). HH represents the hour, MM the minutes, SS the seconds.
   Default: n. a.
8. priorrestoretime
   This parameter specifies the time and date when the next-to-last restore from a remote file store finished. It is omitted, if there is no next-to-last restore.
   Type: value set of the format: YY-MM-DD HH-MM-SS.
   Range: Y, M, D are numbers in two-digit format (i.e. leading zeros are not suppressed). YY represents the last two digits of the year, MM the month, DD the day of the month. H, M, S are numbers in two-digit format (i.e. leading zeros are not suppressed). HH represents the hour, MM the minutes, SS the seconds.

9. priorbackupfile
   This parameter indicates the remote location where the next-to-last backup is stored. It is omitted, if there is no next-to-last backup.
   When a backup is performed for the database in current NVM, the values of *priorbackupfile* (in current NVM, previous NVM, the destination) will not be modified.
   Type: text string
   Range: *priorbackupfile* has one of the following formats:
   - *"CIT,filename"*
   - *"EMS,filename"*
   - *"FTTD",FTP URL"*

   The syntax contained in *filename* should be consistent with the file system. For a DOS file system, back slashes (\) should be used. For a UNIX file system, forward slashes (/) should be used.
   Because a (\) is interpreted as the escape character, it will be represented in the output reply as a double backslash (\\).
   The FTP URL must be in the format:
   ftp://[<login>[:<password>]@]<host>[:<port>]/<file_name>
   - <login>: default value: "anonymous"
   - <password>: default for <login> "anonymous" is "" (empty).For security reasons, the <password> portion of the FTP file format must be masked prior to generating any autonomous messages.
   - <host>: the <host> portion is an internet address of the form a.b.c.d with a, b, c and d in the range of 0..255.
   - <port>: this is the port number of the FTP server, given when deviating from the standard port number 21.
   - <file_name>: the complete path name of the file.

10. priorrestorefile
    This parameter reflects the remote location where the next-to-last restore came from. It is omitted, if the is no next-to-last restore.
    Type: text string
    Range: *priorrestorefile* has one of the following formats:
    - *"CIT,filename"*
    - *"EMS,filename"*
    - *"FTTD",FTP URL"*

    The syntax contained in *filename* should be consistent with the file system. For a DOS file system, back slashes (\) should be used. For a UNIX file-system, forward slashes (/) should be used.
    Because a (\) is interpreted as the escape character, it will be represented in the output reply as a double backslash (\\).

The FTP URL must be in the format:
ftp://[<login>[:<password>]@]<host>[:<port>]/<file_name>

- <login>: default value: ″anonymous″
- <password>: default for <login> ″anonymous″ is ″″ (empty).For security reasons, the <password> portion of the FTP file format must be masked prior to generating any autonomous messages.
- <host>: the <host> portion is an internet address of the form a.b.c.d with a, b, c and d in the range of 0..255.
- <port>: this is the port number of the FTP server, given when deviating from the standard port number 21.
- <file_name>: the complete path name of the file.

11. state – State of the Database

    This parameter describes the state of the database per NVM region:

    - CORRUPT (current, previous): Unavailable for invocation or execution.(e.g. corrupted check sum)
    - DOWNLOADED (previous): Applies to the previous bin of database. Database just downloaded or ready for installation.
    - INITIAL (current): Nothing in NVM.
    - INITIAL (previous): Nothing in previous partition of NVM.
    - INPROGRESS (current): Backup or restore in progress.
    - INPROGRESS (previous): Restore is in progress.
    - PREVIOUS (previous): A previously active database.
    - PRESERVED (previous): Previously active database during trial state
    - RUNNING (current): The currently active database.

    The normal database states of current NVM are: RUNNING and INPROGRESS. Most of the time its state is equal to RUNNING, signifying that it contains a copy of the database that is currently in use. When a backup or a restore makes the NVM inaccessible, current NVM will have a database state of INPROGRESS.
    The normal database states of previous NVM are: PREVIOUS and INPROGRESS. Most of the time its state is equal to PREVIOUS, signifying that it contains a copy of the database that was used with the previous generic. The state PRESERVED indicates a copy of the previously active database after application of a new SW generic, while the new SW generic is in trial phase. During the trial phase a switch back to the previously installed SW generic and the previously active database is possible.When a restore makes the NVM inaccessible, previous NVM will have a database state of INPROGRESS.
    If an NVM has never contained a database, then the RTRV-PRMTR-DATA output for that NVM will consist of *state* INITIAL and size 0.
    If an NVM is failed or missing, then RTRV-PRMTR-DATA will report only the

state output variable for that NVM. *state* will have the value CORRUPT.
Type: alphanumeric value set.
Range: CORRUPT, DOWNLOADED, INITIAL, INPROGRESS, PREVIOUS, PRESERVED, RUNNING.
Default: INITIAL

12. tid – target identifier
    This parameter gives the TID that was stored in this NVM. The parameter will be omitted if state is INITIAL.
    This parameter is not evaluated in the NE. *serialnumber* will be used to check whether database belongs to correct NE.
    See "RTRV-HDR: Retrieve header" (p. 4-1736) for allowable tid values and details.
13. serialnumber – serial number
    This parameter gives the NE serial number from the database control information showing to which NE the database belongs to. Comparing this serial number with the actual NE serial number from the backplane EEPROM may help troubleshooting when being in maintenance mode. The parameter will be omitted if state is INITIAL.
    Type: alphanumeric value set.
    Range: 12 times the space character or the 12 byte serial number of electronic label.
    Default: 12 times the space character.

Example input/output

In the following example for the RTRV-PRMTR-DATA command, current NVM contains a copy of the RUNNING database. The database was last backuped at 9:00 and the backup was to CIT:

```
RTRV-PRMTR-DATA:LT-UNITE::123456;
   LT-UNITE 00-11-01 09:45:28
M  123456 COMPLD
   "NVM-A:release=01.02.04,size=8234567,backuptime=
   00-11-01 09-00-00,backupfile=\"CIT,\\data\\00_11_01B
   \",priorbackuptime=00-11-01 08-00-00,priorbackupfile=
   \"CIT,\\data\\00_11_01A\",state=running,tid=LT-UNITE,
   serialnumber=01NB12345678"
;
```

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command's error responses section. The error responses listed there apply also to the RTRV-PRMTR-DATA command.

Related TL1 messages

- "APPLY: Apply software generic" (p. 4-25)
- "CPY-MEM: Copy memory" (p. 4-76)
- "RTRV-PRMTR-SFTWR: Retrieve parameter software" (p. 4-1991)

□

RTRV-PRMTR-SFTWR: Retrieve parameter software

The RTRV-PRMTR-SFTWR command retrieves information about the software generics being in NVM. It identifies the generics' release number and provides also other information such as its state.

RTRV-PRMTR-SFTWR can be used to determine what generic is currently executing. It can also be used to determine what generic was previously executing. If a generic was downloaded but not installed, then the output describes the downloaded generic instead of the previously executing generic.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S1

Priority: 2

Abortable: No

Input format

Command Syntax: `RTRV-PRMTR-SFTWR`:*tid*::*ctag*::*[amount]*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
3. amount – Amount Of Data To Return
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

If the NE fully complies with the RTRV-PRMTR-SFTWR command and the *amount* request is specified to all, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
   "nvm:spec_block"
        ...
        ...
   "nvm:spec_block"
;
```

Output parameters

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736)command output parameters section for a normal completion response. The output parameters listed there also apply to the RTRV-PRMTR-SFTWR command. Additional parameters that specifically apply to this command are defined in the following:

1. nvm – non volatile memory identifier
   This parameter specifies the version of NVM software (current or previous).
   Type: value set.
   Range: NVM-A for Current NVM-Software, NVM-B for Previous NVM-Software.
   Default: Only current NVM software is reported except for *amount* having been specified to ALL.

Spec block parameters

This parameter provides information about the stored software. It contains the parameters *release, size, supplier, type, delivered, installed, path, state*.

1. release – Release Number
   Type: value set of the form x.y.z
   Range: x, y, z are integer numbers from 00 to 99 in two-digit form, that means a leading zeros are not suppressed. x shall not be 00.
   Default: 01.00.00.
2. buildnmbr - Build Number
   This parameter identifies the software load contained in the file. The Build Number is reported for the SW load in the current NVM. For the previous NVM the default value is reported. In contrast to the release parameter, which is the same for all software loads for a product release, the *buildnmbr* is different for all loads which are produced e.g. for test purposes.
   Type: Text string
   Range: Up to 20 characters The buildnmbr shall contain the load number and optional information to identify the specific SW load.
   Default: UNKNOWN.
3. size – Program Size
   This parameter indicates the software generic size in bytes.
   Type: numeric string.
   Range: 0 to 99999999.
   Default: In case the software generic on the NVM is empty, the value 0 is reported.
4. supplier
   This parameter provides the supplier of generic.
   Type: value set.
   Range: 0 to 128 characters
   Default: Lucent..

5. type – System Type
   This parameter specifies the type of system.
   Type: value set
   Range: WaveStar_UNITE
   Default: WaveStar_UNITE.
6. delivered
   This parameter specifies the time and date when the download finished.
   Type: value set of the format: YY-MM-DD HH-MM-SS.
   Range: Y, M, D are numbers in two-digit format (i.e. leading zeros are not suppressed). YY represents the last two digits of the year, MM the month, DD the day of the month. H, M, S are numbers in two-digit format (i.e. leading zeros are not suppressed). HH represents the hour, MM the minutes, SS the seconds.
   Default: 00-01-01 00-00-00.
7. installed
   This parameter specifies date and time when the installation started.
   Type: value set of the format: YY-MM-DD HH-MM-SS
   Range: Y, M, D are numbers in two-digit format (i.e. leading zeros are not suppressed). YY represents the last two digits of the year, MM the month, DD the day of the month. H, M, S are numbers in two-digit format (i.e. leading zeros are not suppressed). HH represents the hour, MM the minutes, SS the seconds.
   Default: 00-01-01 00-00-00.
8. path
   This parameter specifies the location in a remote file system from where the SW Generic has been downloaded. In the case of a factory installed SW generic the parameter shall have the value ″LUCENT″.
   Type: text string.
   Range: The path parameter has one of the following formats (see description for details):
   - ″CIT,psel,ssel,tsel,nsap,filename″
   - ″EMS,psel,ssel,tsel,nsap,filename″
   - ″FTTD,psel,ssel,tsel,nsap,FTP URL″
   - ″LUCENT″

   The sizes for *psel, ssel, tsel, nsap* are as follows:
   - *psel* (path selector): 0-4 bytes (0-8 hex characters)
   - *ssel* (section selector): 0-4 bytes (0-8 hex characters)
   - *tsel* (transport selector): 0-16 bytes (0-32 hex characters)
   - *nsap* (network service access point): 20 bytes (40 hex characters).

   There can only be an even number of hex characters since they are generated from bytes and each byte corresponds to 2 hex characters.
   From MSB (Most Significant Byte) to LSB (Least Significant Byte), these bytes are (the number in parenthesis equals the number of bytes): IDP(3), DFI(1), ORG(3), RES(2), RD(2), AREA(2), SYS(6), SEL(1). The SEL field of the *nsap* is

also called the NSEL.
The syntax contained in *filename* should be consistent with the file system. For a DOS file system, back slashes (\) should be used. For a UNIX file-system, forward slashes (/) should be used.
Because a (\) is interpreted as the escape character, it will be represented in the RTRV-PRMTR-SFTWR output as a double backslash (\\).
When the CIT is used to enter a file name for download backup, or restore, the craft is not required to enter a double backslash; the CIT software will enter the extra backslash into the TL1 CPY-MEM command.
For FT-TD *psel*, *ssel*, *tsel* and *nsap* of the GNE is reported. The FTP URL contains the CIT or EMS and the filename.
The FTP URL must be in the format:
ftp://[<login>[:<password>]@]<host>[:<port>]/<file_name>

- <login>: default value: ″anonymous″
- <password>: default for <login> ″anonymous″ is ″″ (empty).For security reasons, the <password> portion of the FTP file format must be masked prior to generating any autonomous messages.
- <host>: the <host> portion is an internet address of the form a.b.c.d with a, b, c and d in the range of 0..255.
- <port>: this is the port number of the FTP server, given when deviating from the standard port number 21.
- <file_name>: the complete path name of the file.

9. state
This parameter describes the state of the generic per NVM region:
state (NVM):description
   - CORRUPT (current, previous): Unavailable for invocation or execution.(e.g. corrupted check sum)
   - DOWNLOADED (previous): Applies to the previous bin of database. Database just downloaded or ready for installation.
   - INITIAL (current): Nothing in NVM.
   - INITIAL (previous): Nothing in previous partition of NVM.
   - INPROGRESS (current): Installation is in progress..
   - INPROGRESS (previous): Previously executing generic. Available for installation
   - RUNNING (current): Currently executing generic.
   - PRESERVED (previous): Previously executing generic in trial phase
   - PREVIOUS (previous): Previously executing generic.

   The normal (as contrasted with CORRUPT) states of current NVM are: RUNNING and INPROGRESS. The state is usually equal to RUNNING, signifying that it contains a copy of the generic that is currently executing. When an installation is in progress, current NVM will have a state of INPROGRESS.

The normal states of previous NVM are: PREVIOUS, DOWNLOADED and INPROGRESS. INPROGRESS means that a download is in progress. When the download terminates successfully, the state transitions to generic is installed, the NVM pointer is adjusted, and the NVM partition then identified as previous NVM will have the state set to PREVIOUS. The state PRESERVED indicates the trial phase after application of a new SW generic. During the trial phase a switch back to the previously installed SW generic and the previously active database is possible.
If an NVM has never contained a software generic, then the RTRV-PRMTR-SFTWR output for that NVM will consist of State=INITIAL.
If an NVM is corrupt, failed or missing, the RTRV-PRMTR-SFTWR output for that NVM will consist only of a single line containing State=CORRUPT.
Type: alphanumeric value set.
Range: CORRUPT, DOWNLOADED, INITIAL, INPROGRESS, PREVIOUS, PRESERVED, RUNNING.
Default: INITIAL.

Example input/output

In the following example for the RTRV-PRMTR-SFTWR command, current NVM has a copy of the executing program (normal condition), and previous NVM has a copy of the previous generic. Also, it was assumed, that the CIT is DOS based and *Navis*® Optical EMS UNIX based. This was done to illustrate the different formats for path. Notice that the current and previous NVM indicate the same number for free (and also unavailable) space since current and previous information is stored in the same physical NVM.

```
RTRV-PRMTR-SFTWR:LT-UNITE::123456::ALL;
   LT-UNITE 00-11-01 09:45:28
M  123456 COMPLD
   "NVM-A:release=01.02.04,size=11423175,supplier=Lucent,
   type=Unite,delivered=00-11-02 08-00-10,
   installed=00-11-02 08-00-13,path=\"CIT,01,01,03,
   39840F8000000000000000000008006A11234500,\\unite\\
   generic\\1_2_04.pgm\",state=running"
   "NVM-B:release=01.02.03,size=11343236,supplier=Lucent,
   type=Unite,delivered=00-11-01 18-30-10,
   installed=00-11-01 22-45-30,path=\"EMS,01,01,02,
   39840F8000000000000000000008006A11118500,/unite/
   generic/1_2_03.pgm\",state=previous"
;
```

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command error responses section. The error responses listed there also apply to the RTRV-PRMTR-SFTWR command.

Error responses

Refer to the RTRV-HDR command error responses section. The error responses listed there also apply to the RTRV-PRMTR-SFTWR command.

Related TL1 messages

- "APPLY: Apply software generic" (p. 4-25)
- "CPY-MEM: Copy memory" (p. 4-76)
- "RTRV-PRMTR-DATA: Retrieve parameter data" (p. 4-1982)

□

RTRV-PROTN-GRP: Retrieve protection group

The RTRV-PROTN-GRP command retrieves protection group information for all existing protection group entities. The command can be used to retrieve also sets of protection groups by using ranges. The general format can be used to retrieve protection group information for different protection group types.

Input parameters for RTRV-PROTN-GRP identify the type of protection group that is of interest and also a specific member (or perhaps a range of members) of that protection group. If the specified member does not belong to a protection group, then the command returns COMPLD, but contains no information about the protection group. This means that the AID is unprotected.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M1

Priority: 1

Abortable: Yes

Input format

1+1 equipment protection group

Command Syntax: `RTRV-PROTN-GRP`:*tid*:*aid*:*ctag*::*protype*;

multiplex section/line protection group

Command Syntax: `RTRV-PROTN-GRP`:*tid*:*aid*:*ctag*::*protype*;

2-/4-fibre MS-SPRing/BLSR protection group

Command Syntax: `RTRV-PROTN-GRP`:*tid*:*[aid]*:*ctag*::*protype,[rid]*;

Path protection group

Command Syntax: `RTRV-PROTN-GRP`:*tid*:*[aid]*:*ctag*::*protype, , [ppgname][,aid1]*;

The second comma in front of *ppgname* is needed since *rid* is omitted.

The parameter *ppgname* is kept for compatibility reasons only. Because of limitations of the path protection group name aliasing, the use of *ppgname* is not recommended.

> **Important!** The TL1 command RTRV-PROTN-PPG which retrieves all used path protection group names is not supported. Therefore its difficult to get an overview about all already used/defined protection group names.
>
> The operator can use the TL1 command RTRV-PROTN-GRP and use bay-shelf-#-#-all-all-all as value for the input parameter *aid* in order to derive all path protection groups (see *aid* - Access Identifier in "Command parameters (path protection group)" (p. 4-2001)). Then he gets the used path protection group names per protection group in the command reply.

Input parameters

Command parameters (1+1 Equipment protection group)

1. tid – Target Identifier
   This is the currently active name of the NE to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters (see [23] SRD_SecurityManagement ID95 and ID178) are allowed
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
2. aid – Access Identifier
   Description: The parameter specifies the aid of 1+1 equipment protection group.
   Type: AID
   Range: 1-1-eall or SwitchAndTmgProtGrpAID or CtlProtGroupAID or EP155ProtGroupAID or EP51ProtGroupAID or LOXCProtGroupAID.
   When using aid 1-1-eall, all actual existing equipment protection groups will be returned:
   - for high order switch fabric and timing group (referenced by SwitchAndTmgProtGrpAID)
   - for system controller group (referenced by CtlProtGroupAID)
   - for electrical 155 MBit/s groups (referenced by EP155ProtGroupAID)
   - for electrical 51 MBit/s groups (referenced by EP51ProtGroupAID)
   - for low order switch farbic groups (referenced by LOXCProtGroupAID).
3. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the NE in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters Note: Current implementation also allows ’0’ as valid CTAG, which is an extension to GR-831.
4. protype – Protection Type
   The parameter specifies the type of the 1+1 equipment protection group for retrieving the information.
   Type: alphanumeric value set.
   Range:
   - ALL, if *aid* is 1-1-eall;
   - EQPTSWFBR, if *aid* is SwitchAndTmgProtGrpAID;
   - EQPTCTL, if *aid* is CtlProtGroupAID;
   - EQPTEP155, if aid is EP155ProtGroupAID;
   - EQPTEP51, if aid is EP51ProtGroupAID;
   - EQPTLOXC, if aid is LOXCProtGroupAID.

Command parameters (multiplex section/line protection group)

1. tid – Target Identifier
   This is the currently active name of the NE to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters (see [23] SRD_SecurityManagement ID95 and ID178) are allowed
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
2. aid – Access Identifier
   This parameter specifies the *aid* of a 1+1 multiplex section/line protection group or the *aid* of a 1:1 multiplex section/line protection group (only R3.0 and later) or an port *aid* being a member of the group.
   Type: AID
   Range: *bay-shelf*-oall (ranged over OnePlusOne_ProtGrpAID) or OnePlusOne_ProtGrpAID (not ranged) or NByOne_ProtGrpAID (not ranged) or SPortAID (not ranged)
3. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the NE in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters Note: Current implementation also allows ’0’ as valid CTAG, which is an extension to GR-831.
4. protype – Protection Type
   This parameter specifies the architecture (type) of the protection group. The value for the 1+1 line/MS protection group is 1+1. The value for the 1:1 line/MS protection group is 1xNOPT (only R3.0 and later)
   Type: value set
   Range: 1+1 or 1xNOPT

Command parameters (2-/4-fibre MS-SPRing/BLSR protection group)

1. tid – Target Identifier
   This is the currently active name of the NE to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters (see [23] SRD_SecurityManagement ID95 and ID178) are allowed
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
2. aid – Access Identifier
   This parameter specifies the aid of a MS-SPRing/BLSR protection group or an port aid being a member of the group.
   Option: If *rid* is specified, then *aid* can be omitted.
   Type: AID
   Range: *bay-shelf*-tall (ranged over TwoFibre_ProtGrpAID) or bay-shelf-fall (ranged over FourFibre_ProtGrpAID) or TwoFibre_ProtGrpAID (not ranged) or FourFibre_ProtGrpAID (not ranged) or SPortAID (not ranged).
3. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the NE in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters Note: Current implementation also allows ’0’ as valid CTAG, which is an extension to GR-831.
4. protype – Protection Type
   This parameter specifies the protection group type for which the information is retrieved.
   Type: alphanumeric value set
   Range: 2F or 4F
5. rid – Ring Identification
   This parameter specifies the ring identification name. Storage and retrieval of the *rid* is case sensitive, but actual use of the rid to determine the corresponding protection group is case insensitive. The parameter is used as an alias to identify exactly one MS-SPRing/BLSR protection group of any type. Therefore the value shall be unique for all protection groups of type 2F or 4F within the NE.
   Type: text string of chars allowed for TID strings.
   Range: 1 to 15 characters.
   Default: NONE.
   Option: If *aid* is specified, then *rid* can be omitted.

Command parameters (path protection group)

1. tid – Target Identifier
   This is the currently active name of the NE to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters (see [23] SRD_SecurityManagement ID95 and ID178) are allowed
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
2. aid – Access Identifier
   This parameter specifies a path protection group *aid* or an input tributary *aid* being a member of the group in combination with *ppgname.*
   This parameter specifies an input tributary *aid* when used in combination with parameter *aid1*.
   Option: If *ppgname* is specified, then *aid* can be omitted or used as an input tributary aid.
   As *ppgname* is not supported for low order path protections, the aid parameter must specify a path protection group AID for those protection groups.
   The parameter *ppgname* is kept for compatibility reasons only. Because of limitations of the path protection group name aliasing, the use of *ppgname* is not recommended.
   If parameters *aid* specifies a HO tributary on a port of port class EDGE and this tributary is combined with another HO tributary within an OUC, then RTRV-PROTN-GRP shall operate on all protection groups of type PATHDRI identified by these two HO tributaries, if existing.
   When parameter *aid* is used in combination with parameter *aid1*, then RTRV-PROTN-GRP shall operate on all protection groups of type PATHDRI having the AIDs given in parameters *aid* and *aid1* as input tributaries. In this option the use of wildcards shall not be allowed.
   Type: AID
   Range: STS1NumAID or VCGNumAID or GenLOTribAID.
   The usage of wild cards shall not be restricted. This range equals to the definition of Path_ProtGrpAID. ny defined wild cards (e.g. ″all″ or ″vall″ or ″usall″ in various positions) are allowed.
3. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the NE in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters Note: Current implementation also allows ’0’ as valid CTAG, which is an extension to GR-831.
4. protype – Protection Type
   This parameter specifies the protection group type for which the information is retrieved.
   Type: alphanumeric value set
   Range: PATHDRI

5. ppgname – Path protection group Name
   The parameter shall specify the path protection group name. Storage and retrieval of the ppgname shall be case sensitive, but actual use of the ppgname to determine the corresponding protection group is case insensitive.
   Option for high order path protection groups:
   For high order path protections, if aid is specified, then *ppgname* can be omitted. For low order path protections, the *ppgname* shall be omitted as not being supported at all.
   If an input value is specified for *ppgname* and none is specified for *aid*, then RTRV-PROTN-GRP operates on all protection groups of type PATHDRI that have the specified path protection group name.
   If input values are specified for *aid* and *ppgname* then RTRV-PROTN-GRP operates on all protection groups of type PATHDRI that have the specified *aid*, *ppgname* pair.
   The command will complete successfully if there is no protection group described by *aid*, *ppgname*, but no data will be returned.
   The parameter *ppgname* is kept for compatibility reasons only. Because of limitations of the path protection group name aliasing, the use of *ppgname* is not recommended.
   Type: text string
   Range: 1 to 24 characters
6. aid1 – Access Identifier 1
   When parameter *aid1* is applied together with parameter *aid*, these parameters shall specify a pair of input tributaries for accessing emulated selector bridges in one command.
   If input values are specified for aid and *aid1* then RTRV-PROTN-GRP operates on all protection groups of type PATHDRI that have these specified tributaries as inputs. If an input value is specified for *aid1*, no value must be specified for ppgname.
   The command will complete successfully if there is no protection group described by aid and *aid1*, but no data will be returned. The parameter ppgname is kept for compatibility reasons only. Because of limitations of the path protection group name aliasing, the use of ppgname is not recommended.
   Type: AID
   Range: STS1NumAID
   The usage of wild cards shall not be allowed.

Output format

After receiving the RTRV-PROTN-GRP command, the following normal completion response is returned in case of protypes unequal to PATHDRI::

```
   sid date time
M  ctag COMPLD
   "aid:[spec_block]"
       ...
       ...
```

```
   "aid:[spec_block]"
;
```

After receiving the RTRV-PROTN-GRP command, the following normal completion response is returned in case of PATHDRI protection group:

```
   sid date time
M  ctag COMPLD
   "aid:[spec_block]"
   "outtribaid,CML:<CML block>"
        .
        .
   "outtribaid,CML:<CML block>"
        ...
        ...
   "aid:[spec_block]"
   "outtribaid,CML:<CML block>"
        .
        .
   "outtribaid,CML:<CML block>"
;
```

Both completion formats have a common generic format for the third and the following lines. This generic format is: "aid[,CML]:[spec_block]" Nevertheless it was decided to specify them differently to express that – spec block may be either the spec block for the protection group parameters or the spec block for the CML parameters – *aid* may be either the protection group aid or the output tributary aid

If no protection group entity exists matching the specified values of the input parameters *aid*, *rid* then the following response is returned:

```
   sid date time
M  ctag COMPLD
;
```

If no protection group entity exists matching the specified *ppgname* value, then no response shall be returned.

Output parameters

Command parameters (1+1 Equipment protection group)

1. aid – Access Identifier
   This parameter specifies the AID of the 1+1 protection equipment group.
   Type: AID
   Range: SwitchAndTmgProtGrpAID or CtlProtGroupAID or EP155ProtGroupAID or EP51ProtGroupAID or LOXCProtGroupAID.

All actual existing equipment protection groups will be returned with a specific AID:

- SwitchAndTmgProtGrpAID for high order switch fabric and timing group
- CtlProtGroupAID for system controller group
- EP155ProtGroupAID for electrical 155 MBit/s groups
- EP51ProtGroupAID for electrical 51 MBit/s groups
- LOXCProtGroupAID for low order switch farbic groups..

Command parameters (multiplex section/line protection group)

1. aid – Access Identifier
   This parameter specifies the aid of a 1+1 multiplex section/line protection group or the aid of a 1:1 multiplex section/line protection group (only R3.0 and later).
   Type: AID
   Range: OnePlusOne_ProtGrpAID or NByOne_ProtGrpAID

Command parameters (2-fibre MS-SPRing/BLSR protection group)

1. aid – Access Identifier
   This parameter specifies the AID of the 2 fibre MS-SPRing/BLSR protection group.
   Type: AID
   Range: TwoFibre_ProtGrpAID
   Default: No default

Command parameters (4-fibre MS-SPRing/BLSR protection group)

1. aid – Access Identifier
   This parameter specifies the AID of the 4 fibre MS-SPRing/BLSR protection group.
   Type: AID
   Range: FourFibre_ProtGrpAID

Command parameters (Path protection group)

1. aid – Access Identifier
   This parameter specifies the AID of the path protection group.
   Type: AID
   Range: STS1NumAID or VCGNumAID or GenLOTribAID
   The usage of wild cards shall not be allowed for any part of the AID. This range equals to the definition of Path_ProtGrpAID.
2. outtribaid – Output Tributary Access Identifier
   This parameter specifies the output tributary AID for a constituent signal within the protection group. One value is returned for each constituent signal together with the corresponding CML (Constituent Member List) block.
   Type: AID
   Range: STS1NumAID or VCGNumAID or GenLOTribAID
   The usage of wild cards shall not be allowed for any part of the AID. This range equals to the definition of Path_ProtGrpAID.

Spec block parameters (1+1 Equipment protection group)

1. actunit – Active Unit State
   This parameter specifies which unit is currently selected within the protection group as active unit.
   The value WKG specifies that the worker unit is active.
   The value PROTN specifies that the protection unit is active.
   Type: alphanumeric value set
   Range: WKG, PROTN
   Default: For switching protection group instance: The first provisioned/auto-created circuit pack shall be the default active unit. For controller protection group instance: the active controller unit at the moment of creation of the CTL protection group. For EP155 protection group instance: The worker shall be the default active unit.
2. protn – Protection Unit
   The parameter specifies the protection circuit pack AID being a member of the 1+1 equipment protection group.
   Type: AID
   Range: CpAID, if *protype* is not EQPTLOXC or LoxcAID, if *protype* is EQPTLOXC.
   Default:
   - 1-1-#-#-xcp-cp (if protype is EQPTSWFBR)
   - 1-1-#-#-ctlp-cp (if protype is EQPTCTL)

   For all other equipment protection groups there is no default value as the slot of the protection unit will be dynamically assigned during creation of the group. For rules applying to the selection of the slot for the protection unit refer to ENT-PROTN-GRP.
3. protnsiglvl – Protection Fault Status
   This parameter specifies the current fault status w.r.t. the protection unit as used by the protection state machine.
   The value EF (Equipment Failed) is used if an equipment defect used as switch criteria is currently present for the protection unit.
   The value NONE is used if no such defect is currently present.
   Type: alphanumeric value set
   Range: EF, NONE
   Default: NONE
4. protype – Protection Type
   This parameter specifies the type of the protection group.
   Type: alphanumeric value set
   Range:
   - EQPTSWFBR, if aid is SwitchAndTmgProtGrpAID
   - EQPTCTL, if aid is CtlProtGroupAID
   - EQPTEP155, if aid is EP155ProtGroupAID

- EQPTEP51, if aid is EP51ProtGroupAID
- EQPTLOXC, if aid is LOXCProtGroupAID.

5. swreq – Switch Request State
   This parameter specifies the current switch request state of the protection state machine.
   The value EQPTFAILED (Equipment Failed) is used if an equipment failed condition is the current state.
   The value FS (Forced Switch) is used if a forced switch is the current state.
   The value MS (Manual Switch) is used if a manual switch is the current state.
   The value NR (No Request) is used if no request is the current state.
   Type: alphanumeric value set
   Range: EQPTFAILED, FS, MS, NR for switch fabric protection and EP155 protection; EQPTFAILED, MS, NR for controller protection.
   Default: NR
6. wkg – Worker Unit
   This parameter specifies the worker circuit pack AID being a member of the 1+1 equipment protection group.
   Type: AID
   Range: CpAID, if *protype* is not EQPTLOXC or LoxcAID, if *protype* is EQPTLOXC.
   Default:
   - 1-1-#-#-xcw-cp (if protype is EQPTSWFBR)
   - 1-1-#-#-ctlw-cp (if protype is EQPTCTL)

   For all other equipment protection groups there is no default value as the slot of the worker unit will be dynamically assigned during creation of the group. For rules applying to the selection of the slot for the worker unit refer to ENT-PROTN-GRP.
7. wkgsiglvl – Worker Fault Status
   This parameter specifies the current fault status w.r.t. worker unit as used by the protection state machine.
   The value EF (Equipment Failed) is used if an equipment defect used as switch criteria is currently present for the worker unit.
   The value NONE is used if no such defect is currently present.
   Type: alphanumeric value set
   Range: EF, NONE
   Default: NONE; i.e. the default is the value ’NONE’

Spec block parameters (multiplex section/line protection group)

1. actunit – Active Unit State
   This parameter specifies which port is currently selected within the protection group as active port.
   The value WKG specifies that the worker port is active.
   The value PROTN specifies that the protection port is active.
   Type: alphanumeric value set
   Range: WKG, PROTN
   Default: WKG
2. actunitfe – Far-End Incoming Requested Selection
   This parameter is derived from the incoming K1 [5..8] overhead byte.
   The value WKG is used if accepted K byte value is equal to 0.
   The value PRTON is used if the accepted K byte value is equal to 1.
   The value UNAVAILABLE is used if an SF condition is active for the protection line.
   The value NONE shall be used if there is no request from the far end for 1+1 optimized (only R3.0 and later)
   The value INV (InValid) is used in all other cases.
   Type: alphanumeric value set
   Range: WKG, PROTN, UNAVAILABLE, NONE, INV
   Default: WKG
3. actunitne – Near-End Outgoing Requested Selection
   This parameter is derived from the sent K1 [5..8] overhead byte.
   The value WKG is used if sent K byte value is equal to 0.
   The value PRTON is used if the sent K byte value is equal to 1.
   Type: alphanumeric value set
   Range: WKG, PROTN
   Default: WKG
4. aps – Far-End Incoming APS
   This parameter is derived from the incoming K1 [1..4] overhead byte.
   It indicates the type of request as follows:
   - DNR: Do Not Revert
   - EXER: Exercise
   - INV: Invalid (unused codes)
   - UNAVAILABLE: Not Available (SF condition pending for protection line)
   - FS: Forced Switch
   - LO: Lockout of Protection
   - MS: Manual Switch
   - NR: No Request
   - RR: Reverse Request
   - SF-H: Signal Fail High

- SF-L: Signal Fail Low
- SD-H: Signal Degrade High
- SD-L: Signal Degrade Low
- WTR: Wait to restore (for MSP 1+1, MSP 1:1 / only used if protection group is revertive) / Wait to rename (for MSP 1+1 Optimized).

The APS code ″WTR″ has a different meaning depending on the protection type which shall be visible to the user. However, in the standards only ″Wait to restore″ is defined independent of the protection type.
The mapping of K1 overhead byte values to output parameter values is standards dependent. The correctness of the parameter values can only be guaranteed, if the system which sends the K1 bytes is based on the same standards.
Type: alphanumeric value set.
Range: DNR, EXER, INV, NA, FS, LO , MS, NR, RR, SF-H, SF-L, SD-L, SD-H, WTR
Default: NR

5. apsout – Near-End Outgoing APS
   This parameter is derived from the sent K1 [1..4] overhead byte.
   It indicates the type of request as follows:
   - DNR: Do Not Revert
   - FS: Forced Switch
   - LO: Lockout of Protection
   - MS: Manual Switch
   - NR: No Request
   - RR: Reverse Request
   - SF-H: Signal Fail High
   - SF-L: Signal Fail Low
   - SD-H: Signal Degrade High
   - SD-L: Signal Degrade Low
   - WTR: Wait to restore (for MSP 1+1, MSP 1:1 / only used if protection group is revertive). Wait to rename (for MSP 1+1 Optimized).

     The APS code ″WTR″ has a different meaning depending on the protection type which shall be visible to the user. However, in the standards only ″Wait to restore″ is defined independent of the protection type.

   Type: alphanumeric value set
   Range: DNR, FS, LO , MS, NR, RR, SF-H, SF-L, SD-H, SF-L, WTR
   Default: NR

6. apspn – MSP-APS ASAP Pointer
   This parameter specifies the value for the ASAP (alarm severity assignment profile) name of type MSP-APS (Multiplex Section Protection – Automatic protection switching).
   Type: alphanumeric string
   Range: 1-24 characters including character '-'.
   Default: DEFAULT
7. dcclmsprotmd – DCC Line/MS Protection Mode
   The parameter shall specify, whether the line/MS dcc channel is switched as part of the line/MS protection group. The value ENABLE shall be used, if dcc channel is switched as part of line/MS protection group; otherwise the value DISABLED shall be used.
   Type: alphanumeric value set 3;
   Range: ENABLE, DISABLE
   Default: DISABLE
8. dccsrsprotmd – DCC Sect/RS Protection Mode
   The parameter shall specify, whether the section/RS dcc channel is switched as part of the line/MS protection group. The value ENABLE shall be used, if dcc channel is switched as part of line/MS protection group; otherwise the value DISABLED shall be used.
   Type:alphanumeric value set
   Range: ENABLE, DISABLE
   Default: DISABLE
9. pgrate – protection group Rate
   This parameter is derived from the interface rate of the ports within the protection group. It indicates the same value as for the two ports.
   Type: alphanumeric value set
   Range: OC3, OC12, OC48, OC192, OC768, STM1, STM4, STM16, STM64, STM256
   Default: The default value is the interface rate of the worker port.
10. protn – Protection Unit
    This parameter specifies the protection port AID being a member of the line protection/ MS protection group.
    Type: AID
    Range: SPortAID
11. protnsiglvl – Protection Fault Status
    This parameter specifies the current fault status w.r.t. port as used by the protection state machine.
    The value SF (Signal Fail) is used if a defect defined as signal fail condition is currently present for the protection port.
    The value SD (Signal Degrade) is used if a defect defined as signal degraded

condition is currently present for the protection port.
The value NONE is used if no such defect is currently present.
Type: alphanumeric value set
Range: SF, SD, NONE
Default: NONE

12. protocol – APS Protocol
    This parameter specifies the protocol used by the protection state machine. The value 1+1_UNI is used for 1+1 unidirectional switching. The value 1xN_BIDIR is used for 1:1 bidirectional switching (N=1) (only R3.0 and later). The value 1+1_OPTM is used for 1+1 optimized, bidirectional switching (only R3.0 and later). The value 1+1_BIDIR is used for 1+1 bidirectional switching (only R4.0 and later).
    Type: alphanumeric value set
    Range: 1+1_UNI, 1xN_BIDIR, 1+1_OPTIt can also be used to convert a 2-side node to an asymmetric node and vice versa.
    In mind the 'N' in 1xN_BIDIR is considered to be always equal '1'. The value 1+1_OPTM implicitly specifies bidirectional operation mode.
    Default: 1+1_UNI, in case of protype = 1+1; 1xN_BIDIR, in case of protype = 1xNOPT (i.e. protection type 1:1).

13. protype – Protection Type
    This parameter specifies the type of the protection group. The value for the 1+1 line/MS protection group shall be 1+1. The value for the 1:1 line/MS protection group shall be 1xNOPT (only R3.0 and later).
    In mind the 'N' in 1xNOPT is considered to be always equal '1'. The 'OPT' in 1xNOPT is not related to MSP 1+1 optimized, but has any historical reasons. For MSP 1+1 optimized the protype is rather 1+1.
    Type: value set
    Range: 1+1 or 1xNOPT.
    Default: 1+1

14. rme – Protection Reversion
    The parameter specifies, whether revertive or non-revertive mode is used as operation mode of the protection group. The value ENABLE shall be used if the protection group operates in revertive mode. The value DISABLE shall be used if the protection group operates in non-revertive mode.
    Type: alphanumeric value set
    Range: ENABLE, DISABLE in case of protype = 1+1; ENABLE in case of protype = 1xNOPT. ENABLE is not valid for protocol = 1+1_OPTM
    Default: DISABLE, in case of protype = 1+1; ENABLE, in case of protype = 1xNOPT (i.e. protection type 1:1)
    The *protocol* = OPTM can only be chosen in case of *protype* = 1+1, thus default is DISABLE then.

15. ssi – Secondary Section Indication
    The parameter shall indicate the 'Secondary Section' (line).
    Type: AID
    Range: WKG, PROTN; WKG denotes working section 1, PROTN denotes working section 2 according ITU-T G.841 Annex B.
    Default: PROTN
16. swreq – Switch Request State
    This parameter specifies the current switch request state of the protection state machine.
    It shall have the following values:
    - DNR: Do Not Revert
    - FS: Forced Switch
    - LO: Lockout of Protection
    - MS: Manual Switch
    - SF: Signal Fail
    - SD: Signal Degrade
    - WTR: Wait to restore (for MSP 1+1, MSP 1:1 / only used if protection group is revertive). Wait to rename (for MSP 1+1 Optimized)
    - FOP: Failure Of Protocol
    - NR: No Request.

    The APS code ″WTR″ has a different meaning depending on the protection type which shall be visible to the user. However, in the standards only ″Wait to restore″ is defined independent of the protection type.
    Type: alphanumeric value set
    Range: DNR, FS, LO , MS, SF, SD, WTR, FOP, NR
    Default: NR
17. wkg – Worker Unit
    This parameter specifies the worker port AID being a member of the 1+1 line/MS protection group.
    Type: AID
    Range: SPortAID
18. wkgsiglvl – Worker Fault Status
    This parameter specifies the current fault status w.r.t. port as used by the protection state machine.
    The value SF (Signal Fail) is used if a defect defined as signal fail condition is currently present for the worker port.
    The value SD (Signal Degrade) is used if a defect defined as signal degraded

condition is currently present for the worker port.
The value NONE issued if no such defect is currently present.
Type: alphanumeric value set.
Range: SF, SD, NONE.
Default: NONE.

19. wtr – Wait To Restore Time / Wait to Rename Time
    The parameter shall specify the 'wait to restore' time used by the protection state machine operating in revertive mode (MSP1+1, MSP1:1). In case of MSP 1+1 Optimized the same parameter shall be used for the 'wait to rename' time.
    Type: numeric string [minute]
    Range: 0 - 60
    Default: 5.

Spec block parameters (2-fibre MS-SPRing/BLSR protection group)

1. ard – Automatic Ring Discovery
   If this parameter is enabled, the automatic ring discovery algorithm will assign nodeID values to each node in the ring and construct the necessary ring map information. All nodes in the ring must be Lucent. If disabled, the user will assign the NodeID value manually with ED-MAP-RING and supply the ring map information to each node on the ring for the BLSR protocol to operate. It is necessary to activate this user-provisioned information with SET-MAP-RING. Until all nodes on the ring have the same ring map, nodes will have most likely an outstanding NodeID mismatch alarm active.
   Type: alphanumeric string.
   Range: ENABLE, DISABLE.
   Default: ENABLE.
2. asmc – Automatic Squelch Map Calculation
   If this parameter is enabled, the automatic squelch map calculation is switched on. If disabled, the function is switched off.
   Type: alphanumeric string.
   Range: ENABLE, DISABLE (default).
3. blsrpn – MSSPRING-BLSR ASAP Pointer
   This parameter specifies the value for the ASAP (alarm severity assignment profile) name of type MSSPRING-BLSR.
   Type: alphanumeric string
   Range: 1-24 characters including character '-'.
   Default: DEFAULT
4. eapschst – Incoming East APS Channel Status
   This parameter is derived from the incoming K2 [6..8] overhead byte of the east port.
   It indicates the status as follows:
   - IDLE: Idle
   - BRIDGED: Bridged
   - BANDS: Bridged & Switched

- XTRFC: Extra Traffic on protection channels
- NOTUSED: Not Used – Reserved for future use
- RDIL: RDI-L/MS-RDI (Remote Defect Indication -Line/Multiplex Section)
- AISL: AIS-L/MS-AIS (Alarm Indication Signal – Line/Multiplex Section)

Type: alphanumeric value set
Range: IDLE, BRIDGED, BANDS, XTRFC, NOTUSED, RDIL, AISL
Default: IDLE

5. eapsdnid – Incoming East APS Destination Node Id
   This parameter is derived from the incoming K1 [5..8] overhead byte of the east port. It specifies the node ID for which the K1 byte is destined.
   The value UNAVAILABLE is used in case of an pending SF condition.
   Type: alphanumeric value set
   Range: 0-15 or UNAVAILABLE
   Default: 0
6. eapsprotn – Incoming East APS Protection Path
   This parameter is derived from the incoming K2 overhead byte of the east port.
   It indicates the protection path as follows:
   - 0: short path code (S)
   - 1: long path code (L)

   The value UNAVAILABLE is used in case of an pending SF condition.
   Type: alphanumeric value set
   Range: 0, 1, UNAVAILABLE
   Default: 0
7. eapssnid – Incoming East APS Source Node Id
   This parameter is derived from the incoming K2 [1..4] overhead byte of the east port. It specifies the node ID which sourced the K1 byte.
   The value UNAVAILABLE is used in case of an pending SF condition.
   Range: 0-15 or UNAVAILABLE
   Default: 0
8. eapssw – Incoming East APS Switch Priority
   This parameter is derived from the incoming K1 [1..4] overhead byte of the east port.
   It indicates the switch priority/bridge request code as follows:
   - LPS: Lockout of Protection Span
   - FSS: Forced Switch Span (4F only)
   - FSR: Forced Switch Ring
   - SFS: Signal Fail Span (4F only)
   - SFR: Signal Fail Ring
   - SDP: Signal Degrade Protection (4F only)
   - SDS: Signal Degrade Span (4F only)

- SDR: Signal Degrade Ring
- MSS: Manual Switch Span (4F only)
- MSR: Manual Switch Ring
- WTR: Wait to Restore
- EXERS: Exerciser Span (4F only)
- EXERR: Exerciser Ring
- RRS: Reverse Request Span
- RRR: Reverse Request Ring
- NR: No Request.

The value UNAVAILABLE is used in case of an pending SF condition.
Range: LPS, FSS, FSR, SFS, SFR, SDP, SDS, SDR, MSS, MSR, WTR, EXERS, EXERR, RRS, RRR, NR, UNAVAILABLE.
Default: NR.

9. east – East Port
   This parameter specifies the port being a member in the role of the east port for a 2-fibre MS-SPRing/BLSR protection group.
   Type: AID
   Range: SPortAID
10. elprotnsw – East Last protection switch Attempt
    This parameter specifies, whether the last switch request for the east side succeeded or not.

    The values have the following semantics:

    - SUCCESS: last request did succeed
    - DENY: last request was denied due a validation rule
    - FAILURE: last request could not be completed because far end node did not response with proper K-byte.

    Type: alphanumeric value set.
    Range: SUCCESS, DENY, FAILURE
    Default: SUCCESS.
11. eswreq – East Switch Request State
    This parameter specifies the active switch request state of the protection state machine for the east side. If the east side is an associated side of a switching node, the value will be derived from the request currently associated with the concerned side, and accepted in the protocol as highest or coexisting priority. For all other cases, the value shall be 'NR'.

    It has the following values:

    - LPS: Lockout of Protection Span
    - FSR: Forced Switch of Service to Protection – Ring
    - SFR: Signal Fail – Ring
    - SDR: Signal Degrade – Ring

- MSR: Manual Switch of Service to Protection – Ring
- WTR: Wait to Restore
- NR: No Request.

Type: alphanumeric value set.
Range LPS, FSR, SFR, SDR, MSR, WTR, NR.
Default: NR.

12. pgrate – protection group Rate
    This parameter is derived from the interface rate of the ports within the protection group. It indicates the same value as for the two ports.
    Type: alphanumeric value set.
    Range: OC48, OC192, OC768, STM16, STM64, STM256
    Default: The default value shall be the interface rate of the east port.
13. protype – Protection Type
    This parameter specifies the type of the protection group. The value for the 2-fibre MS-SPRing/BLSR protection group is 2F.
    Type: alphanumeric value set.
    Range: 2F.
14. rcamode – Ring Circuit Alarm Mode
    Type: alphanumeric value set.
    Range: ENABLE (default), DISABLE
15. rid – Ring Identification
    This parameter specifies the ring identification name. Storage and retrieval of the *rid* is case sensitive, but actual use of the rid to determine the corresponding protection group is case insensitive. The parameter is used as an alias to identify exactly one MS-SPRing/BLSR protection group of any type. Therefore the value shall be unique for all protection groups of type 2F or 4F within the NE.
    Type: text string of chars allowed for TID strings.
    Range: 1 to 15 characters.
    Default: NONE.
16. ringndst – Ring Node APS State
    This parameter specifies the ring node APS state.
    It shall have the following values under normal conditions: IDLE, SWITCHING, PASSTHROUGH
    It shall have in addition the following values if protection state machine is suspended: SUSPENDED-IDLE, SUSPENDED-SWITCHING, SUSPENDED-PASSTHROUGH
    Type: alphanumeric value set.
    Range: IDLE, SWITCHING, PASSTHROUGH, SUSPENDED-IDLE, SUSPENDED-SWITCHING, SUSPENDED-PASSTHROUGH.
    Default: SUSPENDED-IDLE.
17. wapschst – Incoming West APS Channel Status
    This parameter is derived from the incoming K2 [6..8] overhead byte of the west port.

It indicates the status as follows:

- IDLE: Idle BRIDGED Bridged
- BANDS: Bridged & Switched
- XTRFC: Extra Traffic on protection channels
- NOTUSED: Not Used – Reserved for future use
- RDIL: RDI-L/MS-RDI (Remote Defect Indication – Line/Multiplex Section).
- AISL: AIS-L/MS-AIS (Alarm Indication Signal – Line/Multiplex Section).

Type: alphanumeric value set.
Range: IDLE, BRIDGED, BANDS, XTRFC, NOTUSED, RDIL, AISL.
Default: IDLE.

18. wapsdnid – Incoming West APS Destination Node Id
    This parameter is derived from the incoming K1 [5..8] overhead byte of the west port. It specifies the node ID for which the K1 byte is destined. The value UNAVAILABLE is used in case of an pending SF condition.
    Type: alphanumeric string.
    Range: 0-15 or UNAVAILABLE.
    Default: 0.
19. wapsprotn – Incoming West APS Protection Path
    This parameter is derived from the incoming K2 overhead byte of the west port.
    It indicates the protection path as follows:
    - 0: short path code (S)
    - 1: long path code (L)

    The value UNAVAILABLE is used in case of an pending SF condition.
    Type: alphanumeric value set.
    Range: 0, 1, UNAVAILABLE.
    Default: 0.
20. wapssnid – Incoming West APS Source Node Id
    This parameter is derived from the incoming K2 [1..4] overhead byte of the west port. It specifies the node ID which sourced the K1 byte. The value UNAVAILABLE is used in case of an pending SF condition.
    Type: alphanumeric string.
    Range: 0-15 or UNAVAILABLE.
    Default: 0.
21. wapssw – Incoming West APS Switch Priority
    This parameter is derived from the incoming K1 [1..4] overhead byte of the west port.
    It indicates the switch priority/bridge request code as follows:
    - LPS: Lockout of Protection Span
    - FSS: Forced Switch Span (4F only)
    - FSR: Forced Switch Ring
    - SFS: Signal Fail Span (4F only)

- SFR: Signal Fail Ring
- SDP: Signal Degrade Protection (4F only)
- SDS: Signal Degrade Span (4F only)
- SDR: Signal Degrade Ring
- MSS: Manual Switch Span (4F only)
- MSR: Manual Switch Ring
- WTR: Wait to Restore
- EXERS: Exerciser Span (4F only)
- EXERR: Exerciser Ring
- RRS: Reverse Request Span
- RRR: Reverse Request Ring
- NR: No Request.

The value UNAVAILABLE is used in case of an pending SF condition.
Type: alphanumeric value set.
Range: LPS, FSS, FSR, SFS, SFR, SDP, SDS, SDR, MSS, MSR, WTR, EXERS, EXERR, RRS, RRR, NR, UNAVAILABLE.
Default: NR.

22. west – West Port
    This parameter specifies the port being a member in the role of the west port for a 2-fibre MS-SPRing/BLSR protection group.
    Type: AID.
    Range: SPortAID.
    Default: None.
23. wlprotnsw – West Last protection switch Attempt
    This parameter specifies, whether the last switch request for the west side succeeded or not.

    The values have the following semantics:

    - SUCCESS: last request did succeed
    - DENY: last request was denied due a validation rule
    - FAILURE: last request could not be completed because far end node did not response with proper K-byte.

    Type: alphanumeric value set.
    Range: SUCCESS, DENY, FAILURE
    Default: SUCCESS.
24. wswreq – West Switch Request State
    This parameter specifies the active switch request state of the protection state machine for the east side. If the east side is an associated side of a switching node, the value is derived from the request currently associated with the concerned side, and accepted in the protocol as highest or coexisting priority. For all other cases, the value shall be 'NR'.

It have the following values:

- LPS: Lockout of Protection Span
- FSR: Forced Switch of Service to Protection – Ring
- SFR: Signal Fail – Ring
- SDR: Signal Degrade – Ring
- MSR: Manual Switch of Service to Protection – Ring
- WTR: Wait to Restore
- NR: No Request.

Type: alphanumeric value set.
Range LPS, FSR, SFR, SDR, MSR, WTR, NR.
Default: NR.

25. wtr – Wait To Restore Time
    This parameter specifies the wait to restore time for ring switches used by the protection state machine operating in revertive mode. The protection operates in revertive mode if the wait-to-restore time is in the range 0-12. The protection operates in non-revertive mode if the wait-to-restore time has the value 99 representing the infinite value.
    Note: If *wtr* time is set to infinite, the switch request state shall be WTR until a higher request occurs.
    Type: numeric string [minute].
    Range: 0 – 12 in 1 minute increments and 99.
    Default: 5.

Spec block parameters (4-fibre MS-SPRing/BLSR protection group)

1. ard – Automatic Ring Discovery
   If this parameter is enabled, the automatic ring discovery algorithm will assign nodeID values to each node in the ring and construct the necessary ring map information. All nodes in the ring must be Lucent. If disabled, the user will assign the NodeID value and supply the ring map information to each node on the ring for the BLSR protocol to operate. Until all nodes on the ring have the same ring map, nodes will have most likely an outstanding NodeID mismatch alarm active.
   Type: alphanumeric string.
   Range: ENABLE, DISABLE.
   Default: ENABLE.
2. asmc – Automatic Squelch Map Calculation
   If this parameter is enabled, the automatic squelch map calculation is switched on. If disabled, the function is switched off.
   Type: alphanumeric string.
   Range: ENABLE, DISABLE (default).

3. blsrpn – MSSPRING-BLSR ASAP Pointer
   This parameter specifies the value for the ASAP (alarm severity assignment profile) name of type MSSPRING-BLSR.
   Type: alphanumeric string.
   Range: 1-24 characters including character '-'.
   Default: DEFAULT.
4. eactunit - East Active Unit State
   The parameter shall specify whether the traffic associated with the east worker port is physically running over the east worker port (i.e. value WKG is used in that case) or over a protection port (i.e. value PROTN is used in that case). The protection port can be the east protection port in case of span switch or the west protection port in case of a loopback switch. The value of the parameter is derived from the internal handled active line state of the service port and the active line state of the protection ports. *eactunit* = WKG: active line state of east worker port is active. *eactunit* = PROTN: active line state of east worker port is standby.
   Type: alphanumeric value set.
   Range: WKG, PROTN.
   Default: WKG.
5. eapschst – Incoming East APS Channel Status
   This parameter is derived from the incoming K2 [6..8] overhead byte of the east port.
   It indicates the status as follows:
   - IDLE: Idle
   - BRIDGED: Bridged
   - BANDS: Bridged & Switched
   - XTRFC: Extra Traffic on protection channels
   - NOTUSED: Not Used – Reserved for future use
   - RDIL: RDI-L/MS-RDI (Remote Defect Indication -Line/MultiplexSection)
   - AISL: AIS-L/MS-AIS (Alarm Indication Signal – Line/Multiplex Section)
   - in case of *protnmode* = TOPEX (only R3.0 and R3.1): ACT command to ACT to complete the Switch.

   Type: alphanumeric value set.
   Range: IDLE, BRIDGED, BANDS, XTRFC, NOTUSED, ACT, RDIL, AISL.
   Default: IDLE.
6. eapsdnid – Incoming East APS Destination Node Id
   This parameter is derived from the incoming K1 [5..8] overhead byte of the east port. It specifies the node ID for which the K1 byte is destined.
   The value UNAVAILABLE is used in case of an pending SF condition.
   Type: alphanumeric string.
   Range: 0-15 or UNAVAILABLE.
   Default: 0.

7. eapsprotn – Incoming East APS Protection Path
   This parameter is derived from the incoming K2 overhead byte of the east port.
   It indicates the protection path as follows:
   - 0: short path code (S)
   - 1: long path code (L)

   The value UNAVAILABLE is used in case of an pending SF condition.
   Type: alphanumeric value set.
   Range: 0, 1, UNAVAILABLE.
   Default: 0.
8. eapssnid – Incoming East APS Source Node Id
   This parameter is derived from the incoming K2 [1..4] overhead byte of the east port. It specifies the node ID which sourced the K1 byte.
   The value UNAVAILABLE is used in case of an pending SF condition.
   Type: alphanumeric string.
   Range: 0-15 or UNAVAILABLE.
   Default: 0.
9. eapssw – Incoming East APS Switch Priority
   This parameter is derived from the incoming K1 [1..4] overhead byte of the east port.
   It indicates the switch priority/bridge request code as follows:
   - LPS: Lockout of Protection Span
   - FSS: Forced Switch Span (4F only)
   - FSR: Forced Switch Ring
   - SFS: Signal Fail Span (4F only)
   - SFR: Signal Fail Ring
   - SDP: Signal Degrade Protection (4F only)
   - SDS: Signal Degrade Span (4F only)
   - SDR: Signal Degrade Ring
   - MSS: Manual Switch Span (4F only)
   - MSR: Manual Switch Ring
   - WTR: Wait to Restore
   - EXERS: Exerciser Span (4F only)
   - EXERR: Exerciser Ring
   - RRS: Reverse Request Span

- RRR: Reverse Request Ring
- NR: No Request.

The value UNAVAILABLE is used in case of an pending SF condition.
The bridge request LPS and SFP (Signal Fail Protection) share a common code value. Therefore they cannot be distinguished. The value 'LPS' will be used in that context.
Type: alphanumeric value set.
Range: LPS, FSS, FSR, SFS, SFR, SDP, SDS, SDR, MSS, MSR, WTR, EXERS, EXERR, RRS, RRR, NR, UNAVAILABLE.
Default: NR.

10. eastprotn - East Protection Port
    This parameter shall specifies the port being a member in the role of the east protection port for a 4-fibre MS-SPRing/BLSR protection group.
    Type: AID
    Range: SPortAID
11. eastwkg - East Worker Port
    This parameter specifies the port being a member in the role of the east worker port for a 4-fibre MS-SPRing/BLSR protection group.
    Type: In case of an asymmetric ring: alphanumeric string; in all other cases: AID.
    Range: In case of an asymmetric ring: NOTUSED. In all other cases: SPortAID.
12. elprotnsw – East Last protection switch Attempt
    This parameter specifies, whether the last switch request for the east side succeeded or not.

    The values have the following semantics:

    - SUCCESS: last request did succeed
    - DENY: last request was denied due a validation rule
    - FAILURE: last request could not be completed because far end node did not response with proper K-byte.

    Type: alphanumeric value set.
    Range: SUCCESS, DENY, FAILURE.
    Default: SUCCESS.
13. eswreq - East Switch Request State
    This parameter specifies the active switch request state of the protection state machine for the east side. If the east side is an associated side of a switching node, the value shall be derived from the request currently associated with the concerned side, and accepted in the protocol as highest or coexisting priority. For all other cases, the value shall be 'NR'.

    It has the following values:

    - LPS: Lockout of Protection Span
    - FSS: Forced Switch of Service to Protection - Span
    - FSR: Forced Switch of Service to Protection - Ring
    - SFS: Signal Fail - Span

- SFR: Signal Fail - Ring
- SDS: Signal Degrade - Span
- SDR: Signal Degrade - Ring
- SDP : Signal Degrade - Protection
- MSS: Manual Switch of Service to Protection - Span
- MSR: Manual Switch of Service to Protection - Ring
- WTR: Wait to Restore
- NR: No Request.

Type: alphanumeric value set.
Range: LPS, FSS, FSR, SFS, SFR, SDS, SDR, SDP, MSS, MSR, WTR, NR The bridge request LPS and SFP (Signal Fail Protection) share a common code value. Therefore they cannot be distinguished. The value 'LPS' will be used in that context.
Default: NR.

14. pgrate – protection group rate
    This parameter is derived from the interface rate of the ports within the protection group. It indicates the same value as for the four ports.
    Type: alphanumeric value set.
    Range: OC48, OC192, STM16, STM64.
    Default: The default value is the interface rate of the east port.
15. protnmode - Protection Switch Mode
    The parameter specifies the protection switch mode. The value LOOPBACK shall be used for the classical ring application. The value SHORTENED shall be used for transmission delay sensitive applications. The value TOPEX (only R3.0 and ^R3.1) shall be used for the so called transoceanic application, which allows extra traffic, improves restorability and improves delay as well as in SHORTENED mode.
    In case of a ring switch ... LOOPBACK performs the bridge and switch function in that nodes which are most close to the failed span. SHORTENED performs the bridge function at the add node repectively the switch function at the drop node of each ring circuit. It is an application only similar to the transoceanic protocol. TOPEX allows, compared to SHORTENED mode, additionally the traffic restoration of not affected spans. It is the transoceanic protocol application.
    Type: alphanumeric value set.
    Range: LOOPBACK, SHORTENED.
    Default: LOOPBACK.
16. protype – Protection Type
    This parameter specifies the type of the protection group. The value for the 4-fibre MS-SPRing/BLSR protection group is 4F.
    Type: alphanumeric value set.
    Range: 4F.

17. rcamode – Ring Circuit Alarm Mode
    Type: alphanumeric value set
    Range: ENABLE (default), DISABLE
18. rid – Ring Identification
    This parameter specifies the ring identification name. Storage and retrieval of the *rid* is case sensitive, but actual use of the rid to determine the corresponding protection group is case insensitive. The parameter is used as an alias to identify exactly one MS-SPRing/BLSR protection group of any type. Therefore the value shall be unique for all protection groups of type 2F or 4F within the NE.
    Type: text string of chars allowed for TID strings.
    Range: 1 to 15 characters.
    Default: NONE
19. ringndst – Ring Node APS State
    This parameter specifies the ring node APS state.
    It shall have the following values under normal conditions: IDLE, SWITCHING, PASSTHROUGH
    It shall have in addition the following values if protection state machine is suspended: SUSPENDED-IDLE, SUSPENDED-SWITCHING, SUSPENDED-PASSTHROUGH.
    Type: alphanumeric value set.
    Range: IDLE, SWITCHING, PASSTHROUGH, SUSPENDED-IDLE, SUSPENDED-SWITCHING, SUSPENDED-PASSTHROUGH.
    Default: SUSPENDED-IDLE.
20. swtr - Span Wait To Restore Time
    The parameter specifies the wait to restore time for span switches used by the protection state machine operating in revertive mode. The protection shall operate in revertive mode if the wait-to-restore time is in the range 0-12. The protection shall operate in non-revertive mode if the wait-to-restore time has the value 99 representing the infinite value.
    Note: If *wtr* time is set to infinite, the switch request state shall be WTR until a higher request occurs.
    Type: numeric string [minute].
    Range: 0 - 12 in 1 minute increments and 99.
    Default: 5.
21. wactunit - West Active Unit State
    The parameter specifies whether the traffic associated with the west worker port is physically running over the west worker port (i.e. value WKG is used in that case) or over a protection port (i.e. value PROTN is used in that case). The protection port can be the west protection port in case of span switch or the east protection port in case of a loopback switch. The value of the parameter is derived from the internal handled active line state of the service port and the active line state of the

protection ports. wactunit = WKG: active line state of west worker port is active wactunit = PROTN: active line state of west worker port is standby.
Type: alphanumeric value set.
Range: WKG, PROTN.
Default: WKG.

22. wapschst – Incoming West APS Channel Status
    This parameter is derived from the incoming K2 [6..8] overhead byte of the west port.
    It indicates the status as follows:
    - IDLE: Idle
    - BRIDGED: Bridged
    - BANDS: Bridged & Switched
    - XTRFC: Extra Traffic on protection channels
    - NOTUSED: Not Used – Reserved for future use
    - RDIL: RDI-L/MS-RDI (Remote Defect Indication – Line/Multiplex Section)
    - AISL: AIS-L/MS-AIS (Alarm Indication Signal – Line/Multiplex Section)
    - in case of *protnmode* = TOPEX (only R3.0 and R3.1): ACT command to ACT to complete the Switch.

    Type: alphanumeric value set.
    Range: IDLE, BRIDGED, BANDS, XTRFC, NOTUSED, ACT, RDIL, AISL.
    Default: IDLE.
23. wapsdnid – Incoming West APS Destination Node Id
    This parameter is derived from the incoming K1 [5..8] overhead byte of the west port. It specifies the node ID for which the K1 byte is destined. The value UNAVAILABLE is used in case of an pending SF condition.
    Type: alphanumeric string.
    Range: 0-15 or UNAVAILABLE.
    Default: 0.
24. wapsprotn – Incoming West APS Protection Path
    This parameter is derived from the incoming K2 overhead byte of the west port.
    It indicates the protection path as follows:
    - 0: short path code (S)
    - 1: long path code (L)

    The value UNAVAILABLE is used in case of an pending SF condition.
    Type: alphanumeric value set.
    Range: 0, 1, UNAVAILABLE.
    Default: 0.

25. wapssnid – Incoming West APS Source Node Id
    This parameter is derived from the incoming K2 [1..4] overhead byte of the west port. It specifies the node ID which sourced the K1 byte. The value UNAVAILABLE is used in case of an pending SF condition.
    Type: alphanumeric string.
    Range: 0-15 or UNAVAILABLE.
    Default: 0.
26. wapssw – Incoming West APS Switch Priority
    This parameter is derived from the incoming K1 [1..4] overhead byte of the west port.
    It indicates the switch priority/bridge request code as follows:
    - LPS: Lockout of Protection Span
    - FSS: Forced Switch Span
    - FSR: Forced Switch Ring
    - SFS: Signal Fail Span
    - SFR: Signal Fail Ring
    - SDP: Signal Degrade Protection
    - SDS: Signal Degrade Span
    - SDR: Signal Degrade Ring
    - MSS: Manual Switch Span
    - MSR: Manual Switch Ring
    - WTR: Wait to Restore
    - EXERS: Exerciser Span
    - EXERR: Exerciser Ring
    - RRS: Reverse Request Span
    - RRR: Reverse Request Ring
    - NR: No Request

    The value UNAVAILABLE is used in case of an pending SF condition.
    The bridge request LPS and SFP (Signal Fail Protection) share a common code value. Therefore they cannot be distinguished. The value 'LPS' will be used in that context.
    Type: alphanumeric value set.
    Range: LPS, FSS, FSR, SFS, SFR, SDP, SDS, SDR, MSS, MSR, WTR, EXERS, EXERR, RRS, RRR, NR, UNAVAILABLE.
    Default: NR.
27. westprotn - West Protection Port
    This parameter specifies the port being a member in the role of the west protection port for a 4-fibre MS-SPRing/BLSR protection group.
    Type: AID
    Range: SPortAID

28. westwkg - West Worker Port
    This parameter specifies the port being a member in the role of the west worker port for a 4-fibre MS-SPRing/BLSR protection group
    Type: In case of an asymmetric ring: alphanumeric string; in all other cases: AID
    Range: In case of an asymmetric ring: NOTUSED; in all other cases: SPortAID.
29. wlprotnsw – West Last protection switch Attempt
    This parameter specifies, whether the last switch request for the west side succeeded or not.

    The values have the following semantics:

    - SUCCESS: last request did succeed
    - DENY: last request was denied due a validation rule
    - FAILURE: last request could not be completed because far end node did not response with proper K-byte

    Type: alphanumeric value set.
    Range: SUCCESS, DENY, FAILURE.
    Default: SUCCESS.
30. wswreq – West Switch Request State
    This parameter specifies the active switch request state of the protection state machine for the east side. If the east side is an associated side of a switching node, the value is derived from the request currently associated with the concerned side, and accepted in the protocol as highest or coexisting priority. For all other cases, the value shall be 'NR'.

    It have the following values:

    - LPS: Lockout of Protection Span
    - FSS: Forced Switch of Service to Protection - Span
    - FSR: Forced Switch of Service to Protection – Ring
    - SFS: Signal Fail – Span
    - SFR: Signal Fail – Ring
    - SDS: Signal Degrade – Span
    - SDR: Signal Degrade – Ring
    - SDP: Signal Degrade - Protection
    - MSS: Manual Switch of Service to Protection - Span
    - MSR: Manual Switch of Service to Protection – Ring

- WTR: Wait to Restore
- NR: No Request.

Type: alphanumeric value set.
Range LPS, FSS, FSR, SFS, SFR, SDS, SDR, SDP, MSS, MSR, WTR, NR The bridge request LPS and SFP (Signal Fail Protection) share a common code value. Therefore they cannot be distinguished. The value 'LPS' will be used in that context.
Default: NR.

31. wtr – Wait To Restore Time
    This parameter specifies the wait to restore time for ring switches used by the protection state machine operating in revertive mode. The protection operates in revertive mode if the wait-to-restore time is in the range 0-12. The protection operates in non-revertive mode if the wait-to-restore time has the value 99 representing the infinite value.
    Note: If wtr time is set to infinite, the switch request state shall be WTR until a higher request occurs.
    Type: numeric string [minute].
    Range: 0 – 12 in 1 minute increments and 99.
    Default: 5.

Spec block parameters (path protection group)

1. cst – Constituent Signal Type
   This parameter specifies the rate of the path protection group.
   Type: alphanumeric value set
   Range: LOVT1, STS1, STS3C, STS12C, STS48C, STS192C, LOVC12, LOVC3, VC3, VC4, VC44C, VC416C, VC464C
2. dripathpn – SNCP-UPSR ASAP Pointer
   This parameter specifies the value for the ASAP (alarm severity assignment profile) name of type SNCP-UPSR.
   Type: alphanumeric string.
   Range: 1-24 characters including character '-'.
   Default: DEFAULT.
3. htmr – Hold-Off Time
   This parameter specifies the hold-off time for automatic protection switching used by the protection state machine.
   Type: numeric string [ms].
   Range for high order path protection groups: 0 .. 99 msec in 1 msec steps and 100 .. 10000 msec in 100 msec steps.
   Range for low order path protection groups: 0, 25, 50, 75 msec (in steps of 25 msec) and 100 .. 10000 msec in 100 msec steps.

4. ppgname – Path protection group Name
   This parameter specifies the path protection group name. Storage and retrieval of the *ppgname* is case sensitive, but actual use of the *ppgname* to determine the corresponding protection group is case insensitive.
   This parameter is omitted for low order path protection groups.
   Type: text string.
   Range: 0 to 24 characters.
   Default: empty string
5. protn – Protection Tributary
   This parameter specifies the protection input tributary AID being a member of the path protection group.
   Type: AID.
   Range: STS1NumAID or VCGNumAID or GenLOTribAID.
   The usage of wild cards shall not be allowed for any part of the AID.
6. protype – Protection Type
   This parameter specifies the type of the protection group. The value for the path protection group is PATHDRI.
   Type: alphanumeric value set.
   Range: PATHDRI.
   Default: PATHDRI.
7. rme – Protection Reversion
   This parameter specifies, whether revertive or non-revertive mode is used as operation mode of the protection group.
   The value ENABLE is used if the protection operates in revertive mode.
   The value DISABLE is used if the protection operates in non-revertive mode.
   Type: alphanumeric value set.
   Range: ENABLE, DISABLE.
8. snctype – SNC Protection Type
   This parameter specifies the type of the path protection w.r.t. switch criteria used by the protection state machine.
   The value SNCI (Inherent) is used if server signal fail is used as switch criteria.
   The value SNCN (Non-Instrusive) is used if server signal fail and defects supervised by a non-intrusive path monitor are used as switch criteria
   The value NA is used if one of the tributary inputs is related to a port operating in SONET mode.
   Type: alphanumeric value set.
   Range: SNCI, SNCN, NA.

9. wkg – Worker Tributary
   This parameter specifies the worker input tributary AID being a member of the path protection group.
   Type: AID.
   Range: STS1NumAID or VCGNumAID or GenLOTribAID.
   The usage of wild cards is not allowed for any part of the AID.
10. wtr – Wait To Restore Time
    This parameter specifies the wait to restore time used by the protection state machine operating in revertive mode.
    Type: numeric string [minute].
    Range: 0 – 60.

CML Block parameters (path protection group)

The CML (Constituent Member List) block is only used in the context of the path protection group. One block will be returned for each constituent signal within the protection group.

1. actunit – Active Unit State
   This parameter specifies which input tributary is currently selected within the protection group as active input.
   The value WKG specifies that the worker tributary is active.
   The value PROTN specifies that the protection tributary is active.
   Type: alphanumeric value set.
   Range: WKG, PROTN.
   Default: WKG.
2. actunitaid – Active Unit State AID
   This parameter specifies the input tributary AID of the constituent signal which is currently selected within the protection group as active input for the dedicated constituent tributary output (see parameter outtribaid).
   Type: AID.
   Range: STS1NumAID or VCGNumAID or GenLOTribAID.
   The usage of wild cards is not allowed for any part of the AID.
   Default: AID of the worker tributary.
3. cst – Constituent Signal Type
   This parameter specifies the rate of the constituent signal within the path protection group.
   Type: alphanumeric value set.
   Range: LOVT1, STS1, STS3C, STS12C, STS48C, STS192C, LOVC12, LOVC3, VC3, VC4, VC44C, VC416C, VC464C.
   Default: The default value is derived from the tributary input signal rate list in case of fixed mode.

4. protnsiglvl – Protection Fault Status
   This parameter specifies the current fault status w.r.t. tributary as used by the protection state machine.
   The value SF (Signal Fail) is used if a defect defined as signal fail condition is currently present for the protection tributary.
   The value SD (Signal Degrade) is used if a defect defined as signal degrade condition is currently present for the protection tributary.
   The value NONE is used if no such defect is currently present.
   Type: alphanumeric value set.
   Range: SF, SD, NONE.
   Default: NONE.
5. swreq – Switch Request State
   This parameter specifies the current switch request state of the protection state machines.
   It have the following values:
   - LO: Lockout of Protection
   - FS: Forced Switch
   - MS: Manual Switch
   - SF: Signal Fail
   - SD: Signal Degrade
   - WTR: Wait to restore (only used if protection group is revertive)
   - NR: No Request.

   Type: alphanumeric value set.
   Range: LO ,FS, MS, SF, SD , WTR, NR.
   Default: NR.
6. wkgsiglvl – Worker Fault Status
   This parameter specifies the current fault status w.r.t. tributary as used by the protection state machine.
   The value SF (Signal Fail) is used if a defect defined as signal fail condition is currently present for the worker tributary.
   The value SD (Signal Degrade) is used if a defect defined as signal degrade condition is currently present for the worker tributary.
   The value NONE is used if no such defect is currently present.
   Type: alphanumeric value set.
   Range: SF, SD, NONE.
   Default: NONE.

Detailed behavior description

The system shall allow to retrieve path protection groups at VCG tributaries using the AID format of an AU-3/STS-1 Tributary. I.e. the VCG number specified in the port field of the AID shall be allowed with or without the leading ″v″.

Example input/output

1+1 Equipment Protection Group

The following example retrieves 1+1 equipment protection group information:

```
RTRV-PROTN-GRP:LT-UNITE:1-1-estgrp:123456::EQPTSWFBR;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
   "1-1-estgrp:protype=EQPTSWFBR,wkg=1-1-#-#-xcw-cp,protn=1-1-#-#-xcp-
     cp,actunit=
WKG,protnsiglvl=NONE,wkgsiglvl=NONE,swreq=NR"
;
```

Multiplex section/line protection group (1+1)

The following example retrieves 1+1 multiplex section/line protection group information:

```
RTRV-PROTN-GRP:LT-UNITE:1-1-o001:123456::1+1;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
   "1-1-o01:protype=1+1,wkg=1-1-#-#-13-1,
   protn=1-1-#-#-14-1,wtr=5,apspn=DEFAULT,
   dcclmsprotmd=DISABLE,dccsrsprotmd=DISABLE,
   protocol=1+1_UNI,rme= DISABLE,swreq=NR,
   actunit=WKG,actunitfe=WKG,actunitne=WKG,aps=NR,
   apsout=NR,pgrate=OC192,wkgsiglvl=NONE,protnsiglvl=NONE"
;
```

The following example retrieves 1+1 optimized multiplex section/line protection group information:

```
RTRV-PROTN-GRP:LT-UNITE:1-1-o001:123456::1+1;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
   "1-1-o001:protype=1+1,wkg=1-1-#-#-13-1,protn=
   1-1-#-#-14-1,wtr=5,apspn=DEFAULT,
   dcclmsprotmd=DISABLE,dccsrsprotmd=DISABLE,
   protocol=OPTM,rme=DISABLE,swreq=NR,ssi=WKG,
   actunit=WKG,actunitfe=NONE, actunitne=WKG,aps=NR,
   apsout=NR,pgrate=STM64,wkgsiglvl=NONE,
   protnsiglvl=NONE"
;
```

Multiplex Section/Line protection group (1:1)

The following example retrieves 1:1 multiplex section/line protection group information:

```
RTRV-PROTN-GRP:LT-UNITE:1-1-n001:123456::1x1;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
```

```
   "1-1-n001:protype=1xNOPT,wkg=1-1-#-#-13-1,
   protn=1-1-#-#-14-1,wtr=5,apspn=DEFAULT,
   dcclmsprotmd=DISABLE,dccsrsprotmd=DISABLE,
   protocol=BIDIR,rme= ENABLE,swreq=NR,actunit=WKG,
   actunitfe=WKG,actunitne=WKG,aps=NR,apsout=NR,
   pgrate=STM64,wkgsiglvl=NONE,protnsiglvl=NONE"
;
```

2 fibre MS-SPRing/BLSR protection group

The following example retrieves 2F MS-SPRing/BLSR protection group information:

```
RTRV-PROTN-GRP:LT-UNITE:1-1-t001:123456::2F;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
   "1-1-t001:protype=2F,east=1-1-#-#-13-1,
   west=1-1-#-#-14-1,rid=\"denver\",wtr=5,
   blsrpn=DEFAULT,eswreq=NR,wswreq=NR,pgrate=OC192,
   eapschst=IDLE,eapsdnid=0, eapsprotn=0,eapssnid=0,
   eapssw=NR,elprotnsw=SUCCESS,ringndst=IDLE,
   wapschst=IDLE, wapsdnid=0,wapsprotn=0,wapssnid=0,
   wapssw=NR,wlprotnsw=SUCCESS"
```

4 fibre MS-SPRing/BLSR protection group

The following example retrieves 4F MS-SPRing/BLSR protection group information:

```
RTRV-PROTN-GRP:LT-UNITE:1-1-f001:123456::4F;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
   "1-1-f001:protype=4F,eastwkg=1-1-#-#-13-1,
   eastprotn=1-1-#-#-15-1,westwkg=1-1-#-#-14-1,
   westwkg=1-1-#-#-16-1,rid=\"denver\",
   protnmode=LOOPBACK,swtr=5,wtr=5, blsrpn=DEFAULT,
   eswreq=NR,eactunit=WKG,wswreq=NR,wactunit=WKG,
   pgrate=OC192,eapschst=IDLE,eapsdnid=0,eapsprotn=0,
   eapssnid=0,eapssw=NR,elprotnsw=SUCCESS,
   ringndst=IDLE,wapschst=IDLE, wapsdnid=0,wapsprotn=0,
   wapssnid=0,wapssw=NR,wlprotnsw=SUCCESS"
;
```

Path protection group

Constituent Member List – Path protection group Examples: To help understand a PATHDRI examples that will be given below, it will be helpful to summarize some facts pertaining to DRIs. The first output line for a PATHDRI gives information about the DRI as a entity.

The following output line gives information about the constituent members. Even for a fixed rate path DRI, there will be two output lines. The constituent member that is described by the second line will have a rate equal to the DRIs rate.

A path DRI has two input legs, one referred to as the working leg and the other as the protection leg. It is possible for RTRV-PROTN-GRP to indicate some constituent members have been selected from the working leg while others have been selected from the protection leg. To determine whether or not all constituent members have been selected from the same leg, it is necessary to look at the *actunitaid* for each constituent member and determine if they are from the same leg.

Constituent Member List – Path protection group example for fixed mode :

```
RTRV-PROTN-GRP:LT-UNITE:1-1-#-#-10-1-25:123456::PATHDRI;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
   "1-1-#-#-10-1-25:protype=PATHDRI,cst=STS12C,
   wkg=1-1-#-#-08-1-25,protn=1-1-#-#-06-1-1,
   ppgname=\"group018\",htmr=100,wtr=5,dripathp=path2,
   rme=DISABLE,snctype=NA""1-1-#-#-10-1-25,
   CML:cst=STS12C,swreq=NR,actunit=WKG,
   actunitaid=1-1-#-#-08-1-25,wkgsiglvl=NONE,
   protnsiglvl=NONE"
;
```

Constituent Member List – Path protection group example for pipe mode: The examples shows an STS12 pipe with 10 constituent members.

```
RTRV-PROTN-GRP:LT-UNITE:1-1-#-#-10-1-25:123456::PATHDRI;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
   "1-1-#-#-10-1-25: protype=PATHDRI,htmr=100,rme=ENABLE,
   dripathp=path2,wkg=1-1-#-#-08-1-25,
   protn=1-1-#-#-06-1-1,snctype=NA, ..."
   "1-1-#-#-10-1-25,CML:cst=STS1,swreq=NR,actunit=WKG,
   actunitaid=1-1-#-#-08-1-25,wkgsiglvl=NONE,
   protnsiglvl=NONE"
   "1-1-#-#-10-1-26,CML:cst=STS1,swreq=NR,actunit=PROTN,
   actunitaid=1-1-#-#-06-1-2,wkgsiglvl=SF,
   protnsiglvl=NONE"
   "1-1-#-#-10-1-27,CML:cst=STS1,swreq=NR,actunit=WKG,
   actunitaid=1-1-#-#-08-1-27,wkgsiglvl=NONE,
   protnsiglvl=NONE"
   "1-1-#-#-10-1-28,CML:cst=STS3C,swreq=SF,actunit=PROTN,
   actunitaid=1-1-#-#-06-1-4,wkgsiglvl=SF,protnsiglvl=NONE"
   "1-1-#-#-10-1-31,CML:cst=STS1,swreq=SD,actunit=PROTN,
   actunitaid=1-1-#-#-06-1-7,wkgsiglvl=SD,protnsiglvl=NONE"
   "1-1-#-#-10-1-32,CML:cst=STS1,swreq=NR,actunit=WKG,
   actunitaid=1-1-#-#-08-1-32,wkgsiglvl=NONE,
   protnsiglvl=NONE"
```

```
   "1-1-#-#-10-1-33,CML:cst=STS1,swreq=NR,actunit=WKG,
   actunitaid=1-1-#-#-08-1-33,wkgsiglvl=NONE,
   protnsiglvl=NONE"
   "1-1-#-#-10-1-34,CML:cst=STS1,swreq=NR,actunit=WKG,
   actunitaid=1-1-#-#-08-1-34,wkgsiglvl=NONE,
   protnsiglvl=NONE"
   "1-1-#-#-10-1-35,CML:cst=STS1,swreq=NR,actunit=PROTN,
   actunitaid=1-1-#-#-06-1-11,wkgsiglvl=NONE,
   protnsiglvl=NONE"
   "1-1-#-#-10-1-36,CML:cst=STS1,swreq=NR,actunit=WKG,
   actunitaid=1-1-#-#-08-1-36,wkgsiglvl=NONE,
   protnsiglvl=NONE"
;
```

Low Order Path Protection Group Example:

```
RTRV-PROTN-GRP:LT-UNITE:1-1-#-#-39-16-3-28:123456::PATHDRI;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
   "1-1-#-#-39-16-3-28:protype=PATHDRI,cst=LOVT1,
   wkg=1-1-#-#-39-14-3-28,\protn=1-1-#-#-39-15-3-28,
   htmr=75,wtr=5,dripathpn=path2,\rme=DISABLE,snctype=NA"
   "1-1-#-#-39-16-3-28,CML:cst=LOVT1,swreq=NR,actunit=WKG,\
   actunitaid=1-1-#-#-39-14-3-28,wkgsiglvl=NONE,
   protnsiglvl=NONE"
;
```

Example for Path Protection Group Retrieval using *aid* and *aid1* for addressing via input tributaries:

In this example there exist two path protection groups on the same pair of input tributaries 1-1-#-#-8-1-25 and 1-1-#-#-6-1-25 forming an emulated selector bridge. The output tributary for one of these groups is 1-1-#-#-10-1-25 and for the other one it is 1-1-#-#-4-1-25.

Both groups will be reported after this request. Note, that the parameter values for both groups are identical.

```
RTRV-PROTN-GRP:LT-UNITE:1-1-#-#-8-1-25:123456::PATHDRI,,,
1-1-#-#-6-1-25;
   LT-UNITE 98-01-01 08:00:00
M  123456 COMPLD
   "1-1-#-#-10-1-25:protype=PATHDRI,cst=STS12C,wkg=1-1-#-#-08-1-25,
   protn=1-1-#-#-06-1-25,ppgname=\"group018\",htmr=100,wtr=5,
   dripathpn=path2,rme=DISABLE,snctype=NA"
   "1-1-#-#-10-1-25,CML:cst=STS12C,swreq=NR,actunit=WKG,
   actunitaid=1-1-#-#-08-1-25,wkgsiglvl=NONE,protnsiglvl=NONE"
   "1-1-#-#-4-1-25:protype=PATHDRI,cst=STS12C,wkg=1-1-#-#-08-1-25,
   protn=1-1-#-#-06-1-25,ppgname=\"group018\",htmr=100,wtr=5,
   dripathpn=path2,rme=DISABLE,snctype=NA"
```

```
   "1-1-#-#-4-1-25,CML:cst=STS12C,swreq=NR,actunit=WKG,
   actunitaid=1-1-#-#-08-1-25,wkgsiglvl=NONE,protnsiglvl=NONE"
;
```

Error responses (general)

Validation rule: consistent *aid* and *protype*

If a range is specified for *aid* and *protype* is not consistent with that AID (for example, an AID of 1-1-fall and a protype value of 2F), then the following error response is returned.

Error code: `IDNV - Input, Data Not Valid, inconsistent aid and protype`

Error responses (2-/4-fibre MS-SPRing/BLSR protection group)

Validation rule: consistent *aid* and *rid*

If both an *aid* and an *rid* are specified as input parameters and they are inconsistent, then the following error response is returned

Error code: `IDNV - Input, Data Not Valid, inconsistent aid and rid`

Validation rule: *aid* range and *rid*

Validation rule: If a range is specified for *aid* and an *rid* is also specified as input parameters, then the following error response is returned:

Error code: `IDNV - Input, Data Not Valid, no aid range in combination with rid`

Error responses (path protection group)

Validation rule: *ppgname* and low order path protections

If a *ppgname* is given as input parameter while the *aid* references a low order tributary, then the following error response is returned:

Error code: `IDNV - Input, Data Not Valid, ppgname not supported for this transmission rate`

Validation rule: *ppgname* and *aid1*

If a *aid1* is given as input parameter and additionally a value is given for parameter *ppgname*, then the following error response is returned:

Error code: `IDNV - Input, Data Not Valid, ppgname not allowed if aid1 is given`

Validation rule: No wildcarding on access via *aid* and *aid1*

If *aid* and *aid1* is given as input parameters for accessing via input tributaries and wildcarding is used for any of both, then the following error response is returned:

Error code: `IDNV - Input, Data Not Valid, No wildcarding for access via input tribs`

Related TL1 messages

- "ENT-PROTN-GRP: Enter protection group" (p. 4-1222)
- "ED-PROTN-GRP: Edit protection group" (p. 4-551)
- "DLT-PROTN-GRP: Delete protection group" (p. 4-164)
- "OPR-PROTNSW: Operate protection switch" (p. 4-1472)
- "RLS-PROTNSW: Release protection switch" (p. 4-1574)

□

RTRV-PTF: Retrieve tributary with Path Termination Function (PTF)

The RTRV-PTF command retrieves the attributes of a tributary with path termination function.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes.

Input format

Command Syntax: `RTRV-PTF-`*modifier:tid:aid:ctag[:::spec_block];*

Input parameters

Command parameters

1. modifier
   The modifier specifies the type of the tributary. The purpose is to distinguish the standard and type of the PTF.
   Type: alphanumeric value set.
   Range: ALL, STS, HOSTS1, HOVC4
   The value ALL shall be used to retrieve all path terminations providing lower order tributaries independent from the interface standard (i.e. HOSTS1 + HOVC4). The path terminations related to DS3 ports are not included.
2. tid - Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
3. aid - Access Identifier
   AID of a PTF tributary. The keyword ″all″ shall be allowed on slot, port and tributary level.
   The so called ″dynamic parameters″ shall not be reported, if a ″all″ is used at the tributary level. The ″dynamic parameters″ are:
   - *ptrc*, *ptrcst*, *rsiglb*, *trailstate*

   Type: AID
   Range: STS1NumAID
4. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. dyn - Retrieve Dynamic Parameters
   This parameter controls whether dynamic parameters shall be reported with the command reply or not. It shall be given only when using any of the wildcard values all, usall or vall at the appropriate positions of the input AID. For input AIDs not using all, usall or vall this parameter shall not be allowed.
   The following output parameters of a PTF tributary are affected:
   - *ptrc*, *ptrcst*, *rsiglb*, *trailstate*

   Type: alphanumeric value set.
   Range:
   - YES: Report dynamic parameters in the reply as well
   - NO (default): Do not report dynamic parameters in the reply.

Output format

If the NE fully complies with the RTRV-PTF request, the following normal completion response shall be returned:

```
sid date time
M  ctag COMPLD
   "aid,aidtype::spec_block"
   ...
   ...
   "aid,aidtype::spec_block"
;
```

Output parameters

Command parameters

1. aid - Access Identifier
   The access identifier shall specify the PTF tributary whose attributes are reported.
   Type: AID
   Range: STSNumAID as defined in AID structure with exception of value *all*.
2. aidtype - Access Identifier Type
   The aidtype shall specify the type of the tributary.
   Type: alphanumeric value set
   Range: STS, HOSTS1, HOVC4.

Spec block parameters

1. brstintvl – Bursty Interval
   The parameter *brstintvl* shall specify the measurement period for degraded defect if *sdsfmode* is set to BURST. If *sdsfmode* is not set to BURST then *brstintvl* has no affect to NE behaviour.
   The parameter brstintvl is not supported for modifiers HOVC4 and HOSTS1.
   Limitation for PTF related to T3 ports: Path terminations related to T3 ports

provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
Option: If the parameter brstintvl is not supported, then the parameter shall be omitted.
Type: integer.
Range: 2, 3, ..., 10 [seconds]
Default: 7 [seconds].

2. brstthr – Bursty Error Threshold
   The parameter *brstthr* shall specify the degradation threshold for degraded defect if *sdsfmode* is set to BURST. If *sdsfmode* is not set to BURST then *brstthr* has no affect to NE behaviour.
   The parameter brstthr is not supported for modifiers HOVC4 and HOSTS1.
   Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
   Option: If the parameter brstthr is not supported, then the parameter shall be omitted.
   Type: integer.
   Range: 5, 10, 15, ... 50 [%].
   Default: 30.
3. crslpbkstat - Crossconnect Loopback Status
   The parameter *crslpbkstat* reports the configuration of the cross-connection loopback of this triburay. For changing the loopback operation refer to OPR-LPBK of section Transmission and Cross-Connection Handling, Tributary.
   The parameter crslpbkstat is not supported for modifiers HOVC4 and HOSTS1.
   Option: If the parameter crslpbkstat is not supported, then the parameter shall be omitted.
   Type: alphanumeric value set
   Range: YES, for enabled loopback; NO, for disabled loopback
4. degthr – Signal Degrade Threshold
   This parameter specifies the exponent to base 10 for building the degraded threshold level. The degraded threshold level is used for building the degraded defect if *sdsfmode* is set to POISSON. If *sdsfmode* is not set to POISSON then *degthr* has no affect to NE behaviour. For the definition of *sdsfmode* refer to RTRV-PTF Output parameters.
   The parameter degthr is not supported for modifiers HOVC4 and HOSTS1.
   Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
   Type: integer.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.

5. dexcthr – Excessive Degrade Threshold
   This parameter specifies the exponent to base 10 for building the excessive threshold level. The excessive threshold level is used for building the excessive bit error defect if *sdsfmode* is set to POISSON. If *sdsfmode* is not set to POISSON then *dexcthr* has no affect to NE behaviour. For the definition of sdsfmode refer to RTRV-PTF Output parameters.
   The parameter dexcthr is not supported for modifiers HOVC4 and HOSTS1.
   Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
   Type: integer
   Range (as exponents of 10): –3; –4; –5.
   Default: –3.
6. exphptrc - Expected HP trace identifier
   This parameter specifies the Expected Higher Order Path Trace Identifier (J1). The first byte value shall be in the range from 80 to FF (MSB always set to 1). The other byte values shall be in the range from 00 to 7F (MSB always set to 0). This parameter is only useful if ptrcrfmt is set to 16.
   Type: hexadecimal number without a preceeding 'H'.
   Range: length: 32 hexadecimal digits; value:specific string acc. ITU/ETSI mode 1.
   Default: 89000000000000000000000000000000
7. feppm - Far End Path PM Enable
   The parameter *feppm* specifies whether the performance monitoring for the far end is enabled or disabled for this tributary.
   This parameter shall be omitted for PTF entities which have been created due to a substructured SONET/SDH signal.
   Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
8. hptimais - HP Trace Identifier Mismatch AIS Insertion
   The parameter *hptimais* shall specifies if a detected TIM will cause AIS insertion. This parameter is relevant only if the related trace read format ptrcrfmt is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set.

Range:

- ENABLE
- DISABLE.

Default: The default value depends on interface standard specified by *ptfstd* for the PTF tributary. DISABLE, if *ptfstd*=SONET

9. hptimmon - HP Trace Identifier Mismatch Monitor
   This parameter specifies if the mode of the TIM detection. This parameter is relevant only if the related trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
10. inputsig - Tributary Input Signal Rate List
    This parameter specifies the input LO signal structure. The parameter inputsig is only supported for modifiers HOVC4 and HOSTS1.
    Option: If the parameter inputsig is not supported, then the parameter shall be omitted.
    Type: numeric value set
    Range: NX-NX-... (N is the number of Xs. X can be 3, 12, or 11 representing VC3, VC12 or VT1.5).
    The possible values (SDH) are: 6312 (default), 2112-13-2112, 4212-13, 23-2112, 13-2112-13, 2112-23, 33
    The possible values (SONET) are: 2811 (default)
11. neppm - Near End Path PM Enable
    This parameter specifies whether the performance monitoring for the near end is enabled or disabled for this tributary.
    This parameter shall be omitted for PTF entities which have been created due to a substructured SONET/SDH signal.
    Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
12. pmhpfeses - PM HP Far End SES Threshold
    This parameter specifies the Higher Order Path Far End Severely Errored Seconds Performance Monitioring Threshold for errored frames. If errored frames are crossing this threshold this will result in an SES count for the far end. The behaviour depends on interface standard specified by *ptfstd* for the PTF tributary. If

ptfstd is not set to SDH then *pmhpfeses* has no affect to NE behaviour.
This parameter shall be omitted for PTF entities which have been created due to a substructured SONET/SDH signal.
Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
Type: integer.
Range: 1, 2, 3, ..., 63998, 63999, 64000. Includes SDH/SONET range.
Default: 2400

13. pmhpneses - PM HP Near End SES Threshold
This parameter specifies the Higher Order Path Near End Severely Errored Seconds Performance Monitioring Threshold for errored frames. If errored frames are crossing this threshold this will result in an SES count for the near end. The behaviour depends on interface standard specified by *ptfstd* for the tributary. If *ptfstd* is not set to SDH then pmhpneses has no affect to NE behaviour.
This parameter shall be omitted for PTF entities which have been created due to a substructured SONET/SDH signal.
Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
Type: inteteger.
Range: 1, 2, 3, ..., 63998, 63999, 64000. Includes SDH/SONET range.
Default: 2400

14. ptca - Path TCA Profile Pointer
This parameter specifies the name of the threshold crossing alert (TCA) profile used for this tributary.
This parametershall be omitted for PTF entities which have been created due to a substructured SONET/SDH signal.
Type: alphanumeric value set.
Range: 1 ... 24 characters.
Default: DEFAULT0

15. ptfstd - Path Termination Standard
Standard of the tributary with Path Termination Function.
This is currently a read-only parameter.
Type: alphanumeric value set.
Range:
    - SDH (only if modifier=HOVC4)
    - SONET (only if modifier= STS or HOSTS1)

    Default:
    - SDH (if modifier=HOVC4)
    - SONET (if modifier= STS or HOSTS1).

16. ptpn - Path Terminating ASA Profile Name
    This parameter points to a tributary ASAP profile name pfname for the designated AID.
    Type: alphanumeric value set. A hyphen (-) is additionally allowed in the name.
    Range: 1 ... 24 characters
    Default: DEFAULT
17. ptrc - Incoming Path Trace
    This parameter reports the accepted higher order path trace identifier (J1). The length depends on the value of the parameter *ptrcrfmt*. The status of this value is contained in parameter *ptrcst*. If *ptrcst* indicates NORMAL, then *ptrc* contains a valid value. If *ptrcst* indicates UNAVAILABLE or AIS, then no valid incoming path trace identifier could be obtained by the system, e.g. due to not meeting the basic acceptance criteria or intra-NE communication problems, and the output parameter ptrc is omitted from the response.
    Type: hexadecimal
    Range: the range depends on the parameter ptrcrfmt specified in RTRV-PTF Output parameters
    - 2: hexadecimal digitsif *ptrcrfmt*=2
    - 32: hexadecimal digitsif *ptrcrfmt*=16
    - 128: hexadecimal digitsif *ptrcrfmt*=64.
18. ptrcrfmt - Path Trace Read Format
    The parameter *ptrcrfmt* shall specify the format of the path trace (J1 byte) to be received (sink).
    Type: numeric string
    Range:
    - 2: for non-specific repeating byte
    - 16: for 16 byte specific string
    - 64: for 64 byte string.
19. ptrcst - Status of Incoming Path Trace
    This parameter shows the status of the value of the incoming Path Trace Identifier (J1) which is available with parameter ptrc.
    Type: alphanumeric value set
    Range:
    - NORMAL: ptrc contains a valid value
    - UNAVAILABLE: no valid value for *ptrc* could be obtained by the system
    - AIS: no valid value for *ptrc* could be obtained due to SF condition.
20. ptrcwfmt - Path Trace Write Format
    The parameter ptrcwfmt shall specify the format of the path trace (J1 byte) to be sent (source).
    Type: numeric string

Range:

- 2: for non-specific repeating byte
- 16: for 16 byte specific string
- 64: for 64 byte string.

Default: 2.

21. rsiglb - Received Signal Label
    This parameter reports the accepted trail signal label (C2). The parameter shall not be reported if the trailst parameter indicates a fail condition, i.e. has the value AIS or UNAVAILABLE.
    Type: alphanumeric value set.
    Range: 00, 01, ..., FE, FF i.e. two hexadecimal digits.
22. sdsfmode - Signal Degrade/Signal Fail Mode
    This parameter specifies the determination mode of degraded defect for transmission. The parameter sdsfmode is not supported for modifiers HOVC4 and HOSTS1.
    Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
    Option: If the parameter sdsfmode is not supported, then the parameter shall be omitted.
    Type: alphanumeric value set.
    Range: BURST, POISSON
    Default: The default value depends on interface standard specified by *ptfstd* for the tributary. POISSON, if *ptfstd*=SONET.
23. tcamd - TCA mode
    Limitation for PTF related to T3 ports: Path terminations related to T3 ports provide no near end performance monitoring. The parameters for near end performance monitoring on T3 related path terminations are kept for compatibility reasons.
24. tmonmd - Tributary Monitoring Mode
    This parameter specifies the monitoring mode for the tributary.
    Type: alphanumeric value set.
    Range: MON, NMON (default).
25. trailst - Trail Status
    This parameter reports the accepted trail status value.
    Type: alphanumeric value set.

    Range:

    - AIS for Alarm Indication Signal in case of Trail Signal Fail Condition
    - UNAVAILABLE for unavailable
    - NORMAL

26. trc - Outgoing Path Trace
    This parameter specifies the path trace (J1) to be sent (source). For the 16 byte path trace format the following syntactical rule shall be applied: The first byte value shall be in the range from 80 to FF (MSB always set to 1). The other byte values shall be in the range from 00 to 7F (MSB always set to 0). This parameter is irrelevant if the format is non-specific repeating byte (ptrcwfmt=2).
    Type: hexadecimal number without a preceeding.
    Range: the range depends on the parameter ptrcwfmt specified in RTRV-PTF Output parameters
    - length: 32 hexadecimal digits, if *ptrcwfmt*=16; 128 hexadecimal digits, if *ptrcwfmt*=64
    - value: specific string string acc. ITU/ETSI mode 1, if *ptrcwfmt*=16; 64 byte string if *ptrcwfmt*=64

    Default: 00. This implies also that *ptrcwfmt* is set to 2.
27. tslmmon - Trail Signal Label Mismatch Monitor
    The parameter tslmmon shall specify the mode of the TSL mismatch detection.
    Type: alphanumeric value set.
    Range: DISABLE, ENABLE (default).
28. unequiposig - Unequipped Output Signal List
    The parameter unequiposig shall specify the output LO signal structure, independent whether the signal is connected or not. The parameter unequiposig is only supported for modifiers HOVC4 and HOSTS1.
    Option: If the parameter unequiposig is not supported, then the parameter shall be omitted.
    Type: numeric value set
    Range: NX-NX-...(N is the number of Xs. X can be 3, 12, or 11 representing VC3, VC12 or VT1.5).
    The possible values (SDH) are: 6312 (default) , 13-4212, 2112-13-2112, 4212-13, 23-2112, 13-2112-13, 2112-23, 33
    The possible values (SONET) are: 2811 (default).

Detailed behavior description

The RTRV-PTF does not generate a REPT DBCHG message. The command retrieves all port parameter as described in section Output parameters.

Dependencies

brstintvl, *brstthr* and *sdsfmode* are not supported for modifiers HOVC4 and HOSTS1, and will therefore not be reported in this case.

For all other PTFs:

- *brstintvl* and *brstthr* are only meaningful if *sdsfmode* is set to BURST.
- *degthr* and *dexcthr* are only meaningful if *sdsfmode* is set to POISSON.

Parameters which are not meaningful in the current provisioning status shall be reported with their default values, nevertheless.

Example input/output

```
RTRV-PTF-STS:LT-UNITE:1-1-#-#-21-4-1:123456;
   LT-UNITE 00-11-11 11:11:00
M  123456 COMPLD
   "1-1-#-#-21-4-1,STS::brstintvl=7,brstthr=30,crslpbkstat=NO,
   degthr=-6,dexcthr= 3,exphptrc=89000000000000000000000000000000,
   feppm=DISABLE,hptimais=DISABLE,hptimmon=DISABLE,neppm=DISABLE,
   pmhpfeses=2400,pmhpneses=2400,ptca=DEFAULT0,ptfstd=SONET,
   ptpn=DEFAULT,ptrc=00,ptrcrfmt=2,ptrcst=NORMAL,ptrcwfmt=1,
   rsiglb=1B,sdsfmode=BURST,tmonmd=NMON,trailst=NORM,trc=00,
   tslmmon=ENABLE"
;

RTRV-PTF-HOVC4:LT-UNITE:1-1-#-#-22-4-1:123456;
   LT-UNITE 00-11-11 11:11:00
M  123456 COMPLD
   "1-1-#-#-22-4-1,HOVC4::exphptrc=89000000000000000000000000000000,
   feppm=DISABLE,inputsig=6312,hptimais=ENABLE,hptimmon=DISABLE,
   neppm=DISABLE,pmhpfeses=2400,pmhpneses=2400,ptca=DEFAULT0,
   ptfstd=SDH,ptpn=DEFAULT,ptrc=00,ptrcrfmt=2,ptrcst=NORMAL,
   ptrcwfmt=2,rsiglb=1B,tcamd=TRRTR,tmonmd=NMON,trailst=NORM,
   trc=00,tslmmon=ENABLE,unequiposig=6312"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the RTRV-PTF command, too.

Validation rule: Check CCB against *ptfstd*

Check wether the CCB fits to ptfstd of the tributary.

Error Code: `ICNV - Input, Command Not Valid, Interface Standard does not match`

E.g. DENY, if a command with modifier=VC is made on a port which is provisionened as ptfstd=SONET.

Related TL1 messages

- "ED-PTF: Edit tributary with Path Termination Function (PTF)" (p. 4-578)

□

RTRV-SCN-NEIGHBOR: Retrieve SCN neighbor

The RTRV-SCN-NEIGHBOR command retrieves entries from the routing table of the SCN stack.

Note that the information on neighbors given in the RTRV-SCN-NEIGHBOR command is related to the SCN, i.e. to the control plane of ONNS, whereas the neighbor information given in the RTRV-rr commands relates to the transmission plane of ONNS. In general the information given in RTRV-SCN-NEIGHBOR includes DCC and (ISIS) LAN neighbors which are assigned to the SCN.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S1

Priority: 1

Abortable: Yes.

Input format

Command Syntax: `RTRV-SCN-NEIGHBOR:`*tid*::*ctag*:::;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
   Type: TID.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
   Type: CTAG.

Output format

If the RTRV-SCN-NEIGHBOR request is successful, the following normal completion message shall be returned:

```
   sid date time
M  ctag COMPLD
   "[rate]:thru[,lpaid]:spec_block"
   ...
   "[rate]:thru[,lpaid]:spec_block"
;
```

Output parameters

Command parameters

1. rate – DCC Port Rate
   This parameter is only available for an SCN neighbor on DCC and provides the port rate as used in RTRV-rr.
   Type: value set.
   Range:
   - STM1
   - STM1E
   - STM4
   - STM16
   - STM64
   - STM256
   - OC3
   - OC12
   - OC48
   - OC192
   - OC768

   Default: n/a – as determined by the port type.
2. thru – Connected Through
   The type of connectivity between the NE and its SCN neighbor.
   Type: value set
   Range: DCC, LAN.
   Default: n/a – as determined by the type of connection.
3. lpaid – Local Port AID
   This parameter provides the SPortAID of the optical port in case thru=DCC or the LanPortAID in case thru=LAN.
   Type: AID
   Range: SPortAID in case thru=DCC or LanPortAID in case thru=LAN as defined in section AID Structure.
   Note: Since LAN1 can not be assigned to the SCN it will never appear in the output.

Spec block parameters

1. dcctype
   This parameter specifies, whether MS(LINE)-DCC or RS(SECTION)-DCC is used for IP communication with the neighbor. This parameter is only available when thru=DCC.
   Type: alphanumeric value set
   Range: SECTION, LINE
2. neighbor_ip – Neighbor IP Address
   This parameter shall be used to retrieve the IPv4 address of the LAN or DCC neighbor.
   Type: Four dot separated numeric strings or empty string.
   Range: Each numeric string: 0 .. 255 or empty string.
   Note: The empty string is shown when the IP address can not be retrieved. In output direction the empty string is represented as \"\".
3. neighbor_sid – Neighbor SID
   This parameter shall be used to display the SID of the neighbor.
   Note: Since the SID (MAC address) is unique it might be used to detect misconfigurations of duplicate IP addresses.
   Type: hexadecimal number.
   Range: 000000000000 - FFFFFFFFFFFF.

Detailed behavior description

The command shall retrieve the *spec_block* parameters as described in the Output parameter section.

Behaviour if no neighbors present

An empty spec block shall be returned, if no neighbors are present.

Example input/output

The following example shows the result of a RTRV-SCN-NEIGHBOR command:

```
RTRV-SCN-NEIGHBOR:LT-UNITE::123456:::;
   LT-UNITE 00-11-01 08:00:00
M  123456 COMPLD
   "OC48:DCC,1-1-#-#-1-1:dcctype=LINE,neighbor_ip=192.168.200.1,neighbor
     _sid=123456789012"
   ...
   ":LAN,lan2: neighbor_ip=192.168.200.4,neighbor_sid=123456789024"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the RTRV-SCN-NEIGHBOR command.

RTRV-STATE-EQPT (CP): Retrieve equipment state (circuit pack)

The RTRV-STATE-EQPT command retrieves the state information for circuit packs in the NE.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-STATE-EQPT`*:tid:aid:ctag;*

Input parameters

Command parameters

1. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters.
   Default: LUCENT-UNITE-NE
2. aid – Access Identifier
   The AID of a circuit pack.
   Type: AID
   Range:
   - CpAID ::= SlotAID-cp for circuit pack in any slot
   - LoxcAID ::= UnivSlotAID-loxc for LOXC pack in universal slots.

   The keyword `xcall` is allowed for Simple_XCSlotAID
   The keyword `ctlall` is allowed for Simple_CTLSlotAID
   The keyword `all` is allowed for Simple_SlotAID
   Refer to the AID syntax description.
3. ctag – Correlation Tag
   Refer to the “RTRV-HDR: Retrieve header” (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

If the RTRV-STATE-EQPT command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
   "aid:spec_block"
       ...
       ...
   "aid:spec_block"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command Parameter

1. aid – Access Identifier
   The AID of a circuit pack.
   Type: AID
   Range:
   - CpAID ::= SlotAID-cp for circuit pack in any slot
   - LoxcAID ::= UnivSlotAID-loxc for LOXC pack in universal slots.

   The keyword `usall` is allowed for Simple_UnivSlotAID
   The keyword `xcall` is allowed for Simple_XCSlotAID
   The keyword `ctlall` is allowed for Simple_CTLSlotAID
   The keyword `all` is allowed for Simple_SlotAID
   Refer to the AID syntax description.

Spec block parameters

1. opstate – Operational State
   Each circuit pack has a retrievable attribute indicating whether circuit pack is operational for the system internal communication.
   Type: alphanumeric value set
   Range:
   - OS_ENABLED
   - OS_DISABLED (default).

Detailed behavior description

The system retrieves the state information for the CP as specified by the spec block parameters.

Example input/output

```
RTRV-STATE-EQPT:UNITE-NE:1-1-#-#-2-cp:123456;
   UNITE-NE 00-11-03 08:00:00
M  123456 COMPLD
```

```
   "1-1-#-#-2-cp:opstate=OS_ENABLE"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-STATE-EQPT command.

Related TL1 messages

- "ED-STATE-EQPT (system): Edit equipment state" (p. 4-600)
- "ED-EQPT (CP): Edit equipment (circuit pack)" (p. 4-255)
- "ENT-EQPT (slot): Enter equipment (slot)" (p. 4-1079)

References

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□

RTRV-STATE-EQPT (slot): Retrieve equipment state (slot)

The RTRV-STATE-EQPT command retrieves the state information for slots in the NE.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M1

Priority: 1

Abortable: Yes.

Input format

Command Syntax: `RTRV-STATE-EQPT`*:tid:aid:ctag;*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   The AID of a slot.
   Type: AID
   Range:
   - SlotAID
   - UnivSlotAID
   - XCSlotAID
   - CTLSlotAID.

   The keyword `usall` is allowed for Simple_UnivSlotAID.
   The keyword `xcall` is allowed for Simple_XCSlotAID.
   The keyword `ctlall` is allowed for Simple_CTLSlotAID.
   The keyword `all` is allowed for Simple_SlotAID.
   The keyword `all` is not allowed on bay/shelf level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

If the RTRV-STATE-EQPT command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
   "aid:spec_block"
```

```
      ...
      ...
   "aid:spec_block"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

aid – Access Identifier

See definition of output parameter *aid* in "RTRV-EQPT (slot): Retrieve Equipment (slot)" (p. 4-1708).

Spec block parameters

1. holdst – Holder Status
   Each provisionable slot has an attribute indicating its equipage state.
   Type: alphanumeric value set
   Range:
   - EMPTY. The system uses the value "EMPTY" if no circuit pack is equipped in that slot.
   - VALID. The system shall use the value "Valid" if a circuit pack is equipped in that slot as provisioned.
   - UNEXPECTED. The system shall use the value "Unexpected" if a different circuit pack is equipped in that slot as provisioned or if the circuit pack is not acceptable for this slot.
   - UNKNOWN. The system shall use the value "Unknown" if a circuit pack is equipped in that slot with non-readable functional type or illegal values for the functional type.

   Default: EMPTY.

Detailed behavior description

The system retrieves the output parameters as described above.

Example input/output

```
RTRV-STATE-EQPT:UNITE-NE:1-1-#-#-2:123456;
   UNITE-NE 00-11-03 08:00:00
M  123456 COMPLD
   "1-1-#-#-2:holdst=VALID"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the ED-STATE-EQPT command.

Related TL1 messages

- "ED-STATE-EQPT (system): Edit equipment state" (p. 4-600)
- "ED-EQPT (slot): Edit equipment (slot)" (p. 4-267)
- "ENT-EQPT (slot): Enter equipment (slot)" (p. 4-1079)

References

GR-833-CORE

□

RTRV-STATE-EQPT (Socket): Retrieve equipment state

The RTRV-STATE-EQPT command shall retrieve the state information for sockets in the NE.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-STATE-EQPT`*:tid:aid:ctag;*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   The AID of a socket.
   Type: AID.
   Range: SocketAID. The keyword *usall* or *all* shall be allowed for Simple_UnivSlotAID. The keyword *scall* shall be allowed for Simple_SocketAID. The keyword *all* is not allowed on bay/shelf level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

If the RTRV-STATE-EQPT command completes successfully, then the following normal completion response shall be returned:

```
   sid date time
M  ctag COMPLD
   "aid[:spec_ block]"
   ... ...
   "aid[:spec_ block]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command Parameter

1. aid – Access Identifier
   The AID of a socket.
   Type: AID.
   Range: SocketAID. The keywords *all* / *usall* / *scall* shall are not allowed on any level.

Spec block parameters

1. holdst – Holder Status
   Each provisionable socket shall have an attribute indicating its equipage state.
   Type: alphanumeric value set.
   Range:
   - EMPTY, the system shall use the value ″EMPTY″ if no module is equipped in that socket.
   - VALID, the system shall use the value ″Valid″ if a module is equipped in that socket as provisioned.
   - UNEXPECTED, the system shall use the value ″Unexpected″ if a different module is equipped in that socket as provisioned or if the module is not acceptable for this socket.
   - UNKNOWN, the system shall use the value ″Unknown″ if a module is equipped in that socket with non-readable functional type or illegal values for the functional type.

   For further details w.r.t. state transitions for holder status - see SRD_Configuration-Management.
   Default: EMPTY.

Detailed behavior description

The system shall retrieve the output parameters as described above.

Example input/output

This example shows a RTRV-STATE-EQPT command for a socket:

```
RTRV-STATE-EQPT:UNITE- NE:1-1-#-#-5-sc2:123456;
   UNITE- NE 00-11-03 08:00:00
M  123456 COMPLD
   ″1- 1-#-#-5-sc2:holdst=VALID″
;
```

Error responses

Refer to the “RTRV-HDR: Retrieve header” (p. 4-1736) command Error responses section. The error responses listed there also apply to the ED-STATE-EQPT command.

Related TL1 messages

- "ED-EQPT (CP): Edit equipment (circuit pack)" (p. 4-255)
- "ENT-EQPT (slot): Enter equipment (slot)" (p. 4-1079)

References

GR-833-CORE

□

RTRV-STATE-EQPT (system): Retrieve equipment state

The RTRV-STATE-EQPT command retrieves the state information on system (NE) level.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-STATE-EQPT`*:tid:aid:ctag;*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   The aid of the system itself.
   Type: AID
   Range: system; the usage of the keyword `all` on system level is not allowed.
   Default: system
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

If the RTRV-STATE-EQPT command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
   "system:spec_block"
        ...
        ...
   "system:spec_block"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

1. aid – Access Identifier
   The aid of the system itself.
   Type: AID
   Range: system; the usage of the keyword `all` on system level is not allowed.
   Default: system

Spec block parameters

1. commitstate – SW Commitment Status
   The system provides an indication of the SW generic commitment status.
   Type: alphanumeric value set.
   Range:
   - PENDING = the SW generic is in trial phase, switch back to previous generic possible
   - COMMITTED = the SW generic is committed, no switch back possible.
2. dbstate – Data Base Change State
   The system provides an indication of the validity of the active data base.
   Type: alphanumeric value set.
   Range:
   - EMPTY = data base state empty.
   - NEW = data base state new
   - VALID = database state valid
   - UNKNOWN = database state is not known.

   Default: UNKNOWN.
3. mcond – Maintenance Condition
   This parameter denotes whether the system condition is in maintenance condition or not.
   Type: alphanumeric value set.
   Range:
   - Y = maintenance mode
   - N = normal mode.

Detailed behavior description

The RTRV-STATE-EQPT command on system level (AID = system) retrieves the current mode of the system.

The system provides the maintenance mode besides the normal operation mode in order to – handle error conditions the system can not autonomously manage – apply privileged commands.

In this maintenance mode acceptance of commands is restricted in the following way:

- commands allowed in maintenance AND normal mode:
  - get any provisionable parameter: any RTRV command
  - get any non-provisionable parameter: any RTRV command
  - set interface standard default mode: ED-EQPT (system)
  - set tributary default mode: ED-EQPT (system)
  - set maximum switch capacity: ED-EQPT (system)
  - database download to restore empty/corrupt DB: CPY-MEM
  - set time: ED-DAT
  - set date: ED-DAT
  - set LAN parameter ENT-FECOM-LAN (note: restrictions depend on parameter base, details see command)
  - set IP parameter ENT-ULS (note: restrictions depend on parameter base, details see command).
- commands ONLY allowed in maintenance mode:
  - set TID
  - SET-SID
  - set SONET/SDH synchronization default mode: ED-EQPT (system)
  - leave maintenance mode (accept data base): ED-STATE-EQPT (system)
  - set IP addresses and subnet mask ENT-FECOM-LAN, ENT-ULS (note: restrictions depend on parameter base, details see command).

  Accepting the database will be a direct result of leaving the maintenance mode.

The system autonomously leaves maintenance mode without accepting the data base after a data base download from the management interface.

The RTRV-STATE-EQPT command does not generate a REPT DBCHG message.

Example input/output

```
RTRV-STATE-EQPT:UNITE-NE:system:123456;
   UNITE-NE 00-11-03 08:00:00
M  123456 COMPLD
   "system:dbstate=EMPTY"
   "system:mcond=Y"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section.

Related TL1 messages

- "ED-STATE-EQPT (system): Edit equipment state" (p. 4-600)
- "ED-EQPT (system): Edit equipment (system)" (p. 4-285)
- "ENT-EQPT (slot): Enter equipment (slot)" (p. 4-1079)

□

RTRV-STM1E: Retrieve STM1E port

The RTRV-STM1E command shall be used to retrieve all parameters related to the electrical STM1E port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-STM1E`:*tid:aid:ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   Access Identifier of an STM1E port.
   Type: AID.
   Range: SPortAID of STM1E port.
   The keyword `all` is allowed up to shelf level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

In response to a valid RTRV-STM1E command, the following output report is returned:

```
   sid date time
M  ctag COMPLD
   "aid[:spec_block]"
        ...
        ...
   "aid[:spec_block]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command Parameter

1. aid – Access Identifier
   Access Identifier of STM1 port.
   Type: AID.
   Range: SPortAID of STM1E port.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....255
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the Tributary Input Rate Signal List.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 3, or 4 representing VC3 or VC4.
5. degthr – Signal Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.

6. dexcthr – Excessive Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
7. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
8. femspm – Far-end Multiplex Section PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
9. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU
10. fsflpbkstat – Far Side Facililiy Loopback Status
    This parameter specifies the current far-side facility loopback status of the considered output *aid.*
    A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
    Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
    Type: alphanumeric value set.

Range:

- YES
- NO (default).

11. inputsig – Tributary Input Signal Rate List
    This parameter is a list of VCn rates across the port's bandwidth.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3 or 4 representing VC3 or VC4.
    Default: 14.
12. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter istddflt.
    Type: alphanumeric value set.
    Range: SDH.
    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
13. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
14. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC4 (default), VC3.
15. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC3 (default), VC4.

16. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
17. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
18. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN. If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″
19. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.

neighborPortID is introduced specifically for use by NN application.
Type: Four dash separated numeric string.
Range: Each numeric string: 0...255.
Default: 0-0-0-0.
Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.

20. nemspm – MS Near-End PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
21. outql – Outgoing timing quality
    This parameter provides the outgoing quality level message on the S1 SDH MS overhead byte.
    Type: alphanumeric value set
    Range:
    - PRC
    - SSUL
    - SSUT
    - SEC
    - DNU (default).
22. pmmsfeses – Performance Monitoring MS Far-End SES Threshold
    This parameter describes the Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) per second to declare a second as severly errored.
    Type: numeric value set.
    Range: STM1: 1 – 192000.
    Default: for STM1: 28800.
23. pmmsneses – Performance Monitoring MS Near-End SES Threshold
    This parameter describes the Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) per second to declare a second as severly errored.
    Type: numeric value set.
    Range: STM1: 1 – 192000.
    Default: for STM1: 28800.
24. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set

Range:

- AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
- MON indicates that alarm monitoring is taking place on the port.
- NMON means that alarm monitoring is not occurring on the port.

25. pmrsneses – Performance Monitoring RS Near-End SES Threshold
    This parameter describes the RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) per second to declare a second as severly errored.
    Type: numeric value set.
    Range: 1 – 64000.
    Default: for STM1: 2400.
26. portClass – Port Class
    This identifies the port class of the AID.
    portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.
27. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
    portControl is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.
28. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(sedault) ...25. The unit of this value is ″milliseconds″.
29. ptype – Port Type
    This identifies the port type of the AID.
    Type: alphanumeric value set.
    Range: STM1E.

30. rsmstca – RS/MS TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
31. rspm – RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
32. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE (default): enable consequent action for TIM
    - DISABLE: disable consequent action for TIM.
33. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
34. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET ASAP for the SONET ports of corresponding line rate (see definition of output parameter SONET in RTRV-OC12) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
35. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.

Range:

- BURST (default)
- POISSON.

36. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
37. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0-0-0-0-0-0-0-0.
38. strc – Value of incoming J0
    This parameter shows the value of the Section Trace Identifier on the incoming section overhead J0 byte of a port. The length of the string depends on the value of the parameter *strcfmt*. The status of this value is contained in parameter *strcst*. If *strcst* indicates NORMAL, then strc contains a valid value. If *strcst* indicates UNAVAILABLE or AIS, then no incoming section trace identifier could be obtained by the system, e.g. due to a signal-fail condition, and the output parameter strc is omitted from the response.
    Type: hexadecimal (each byte is expressed as two hexadecimal digits. An example of a byte is 6D).
    Range: 1 byte string, 16 byte string, 64 byte string (dependent on the strcfmt parameter).
39. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc).
    Type: numeric string
    Default: 2
40. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    Type: Hexadecimal digits.

Range:

- 1 byte string
- 16 bytes string
- 64 bytes string.

Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
Default: 01Hex

41. strcst – Status of incoming J0
    This parameter shows the status of the value of the incoming RS/Section Trace Identifier which is available with parameter *strc*.
    Type: alphanumeric value set.
    Range: NORMAL: strc contains a valid value; UNAVAILABLE: no value for strc could be obtained by the system; AIS: no value for strc due to an SF condition.
42. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout).
    Type: numeric string
    Default: 2
43. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable:
    - TR-only (lso known as the implicit reset method)
    - TR-RTR (lso known as the explicit reset method).

    Type: alphanumeric value set.
    Range: TR or TRRTR (default).
44. unequiposig – Unequipped Output Signal List
    This parameter is a list of VCn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need the identical setting. Mixed rates for tx and rx side of the port are allowed.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3 or 4 representing VC3 or VC4.
    Default: 14.

Detailed behavior description

The command retrieves the parameters as described above.

The RTRV-STM1E command does not generate a REPT DBCHG message.

Example input/output

The following example shows the successful execution of a RTRV-STM1E command. Not all output parameters are listed (missing ones indicated by …):

```
RTRV-STM1E:LT-UNITE:1-1-#-#-1-1:123456;
   LT-UNITE 00-11-24 08:00:00
M  123456 COMPLD
   "1-1-#-#-1-1:ptype=STM1E,frcdus=DISABLE,dexcthr=-3,degthr=-6,
     pmode=MON,...,pmmsneses=15,pmrsneses=30"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-STM1E command.

Check CCB against ptype and istd

See definition of error response in "RTRV-STM16: Retrieve STM16 port" (p. 4-2099).

Related TL1 messages

"ED-STM1E: Edit STM1E port" (p. 4-604)

References

GR-199-CORE (RTRV-*rr*)

□

RTRV-STM1: Retrieve STM1 port

The RTRV-STM1 command is used to retrieve all parameters related to the optical STM1 port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-STM1`:*tid:aid:ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   Access Identifier of an STM1 port.
   Type: AID.
   Range: SPortAID of STM1 port.
   The keyword `all` is allowed up to shelf level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

In response to a valid RTRV-STM1 command, the following output report is returned:

```
   sid date time
M  ctag COMPLD
   "aid[:spec_block]"
        ...
        ...
   "aid[:spec_block]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command Parameter

1. aid – Access Identifier
   Access Identifier of STM1 port.
   Type: AID.
   Range: SPortAID of STM1 port.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....255
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter inputsig showing the Tributary Input Rate Signal List.
   Type: numeric value set.
   Range: NX-NX-NX-... N is the number of Xs. X can be 3 or 4 representing VC3 or VC4.
5. degthr – Signal Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.

6. dexcthr – Excessive Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
7. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
8. femspm – Far-end Multiplex Section PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
9. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU
10. fsflpbkstat – Far Side Facililiy Loopback Status
    This parameter specifies the current far-side facility loopback status of the considered output *aid.*
    A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
    Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
    Type: alphanumeric value set.

Range:

- YES
- NO (default).

11. inputsig – Tributary Input Signal Rate List
    This parameter is a list of VCn rates across the port's bandwidth.
    Type: numeric value set.
    Range: NX-NX-NX-...
    N is the number of Xs. X can be 3 or 4 representing VC3 or VC4.
    Default: 14.
12. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter istddflt.
    Type: alphanumeric value set.
    Range: SDH.
    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
13. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.

    Range:

    - YES
    - NO (default).
14. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC4 (default), VC3.
15. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC3 (default), VC4.

16. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
17. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
18. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN. If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″
19. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of portClass=INNI. For all ports with other values of *portClass*, this parameter is not relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if *ndetmd*=MAN.
    Type: Four dash separated numeric string
    Range: Each numeric string: 0...255
    Default: 0-0-0-0

20. nemspm – MS Near-End PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
21. opdis – Optical Distance
    It shows the type of application for which the optical transmitter on this port is suited.
    Type: alphanumeric value set
    Range:
    - INTRA-OFFICE
    - SHORT-HAUL
    - LONG-HAUL
    - VERY-LONG-HAUL
    - OLS_PASSIVE
    - OLS_400G
    - OLS_800G
    - XTREME.
22. opwl – Optical Wavelength
    Optical Wavelength in nanometers. It shows the type of optics that is used on this port.
    Type: numeric value set.
    Range (wavelength in [nm]): 0 (i.e. undefined), 1310; 1550; 1530.334 ... 1562.640 (i.e. C-Band); 1553.731 ... 1608.329 (i.e. L-Band). The value undefined is used e.g. in the context of optical modules if the retrieval of the inventory data is not yet supported.
23. outql – Outgoing timing quality
    This parameter provides the outgoing quality level message on the S1 SDH MS overhead byte.
    Type: alphanumeric value set
    Range:
    - PRC
    - SSUL
    - SSUT
    - SEC
    - DNU (default).

24. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-1/OC-3: 1 – 192000.

    Default: The default values differ for SDH and SONET:
    - STM1: 28800
    - OC3: 154.

25. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-1/OC-3: 1 – 192000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM1: 28800
    - OC3: 154.

26. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.

27. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000.
    Default: The default values differ for SDH and SONET and the different rates:
    - STM1: 2400
    - OC3: 155.
28. portClass – Port Class
    This identifies the port class of the AID.
    portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.
29. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
    portControl is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.
30. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(sedault) ...25. The unit of this value is ″milliseconds″.
31. ptype – Port Type
    This identifies the port type of the AID.
    Type: alphanumeric value set.
    Range: STM1.

32. rsmstca – RS/MS TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
33. rspm – RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
34. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimca shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE (default): enable consequent action for TIM
    - DISABLE: disable consequent action for TIM.
35. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
36. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET ASAP for the SONET ports of corresponding line rate (see definition of output parameter SONET in RTRV-OC12) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.

37. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON.
38. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
39. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    srlgList is introduced specifically for use by ONNS application. The order of the three identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only one or two identities are provisioned, the remaing one shall be set to the default value 0, e.g. 3-0-0.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0.
40. strc – Value of incoming J0
    This parameter shows the value of the Section Trace Identifier on the incoming section overhead J0 byte of a port. The length of the string depends on the value of the parameter *strcfmt*. The status of this value is contained in parameter *strcst*. If *strcst* indicates NORMAL, then strc contains a valid value. If *strcst* indicates UNAVAILABLE or AIS, then no incoming section trace identifier could be obtained by the system, e.g. due to a signal-fail condition, and the output parameter strc is omitted from the response.
    Type: hexadecimal (each byte is expressed as two hexadecimal digits. An example of a byte is 6D).
    Range: 1 byte string, 16 byte string, 64 byte string (dependent on the strcfmt parameter).
41. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string

Range:

- 1: for specific repeating byte (SONET)
- 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
- 16: for 16 byte specific string (ITU/ETSI mode 1).
- 64: for 64 byte string (SONET).

42. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
43. strcst – Status of incoming J0
    This parameter shows the status of the value of the incoming RS/Section Trace Identifier which is available with parameter *strc*.
    Type: alphanumeric value set.
    Range: NORMAL: strc contains a valid value; UNAVAILABLE: no value for strc could be obtained by the system; AIS: no value for strc due to an SF condition.
44. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
45. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.

Two thresholding methods are applicable:

- TR-only (lso known as the implicit reset method)
- TR-RTR (lso known as the explicit reset method).

Type: alphanumeric value set.
Range: TR or TRRTR (default).

46. unequiposig – Unequipped Output Signal List
    This parameter is a list of VCn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need the identical setting. Mixed rates for tx and rx side of the port are allowed.
    Type: numeric value set.
    Range: NX-NX-NX-...
    N is the number of Xs. X can be 3 or 4 representing VC3 or VC4.
    Default: 14.

Detailed behavior description

The command retrieves the parameters as described above.

The RTRV-STM1 command does not generate a REPT DBCHG message.

Example input/output

The following example shows the successful execution of a RTRV-STM1 command. Not all output parameters are listed (missing ones indicated by ...):

```
RTRV-STM1:LT-UNITE:1-1-#-#-1-1:123456;
   LT-UNITE 00-11-24 08:00:00
M  123456 COMPLD
   "1-1-#-#-1-1:ptype=STM1,frcdus=DISABLE,dexcthr=-3,degthr=-6,
     pmode=MON,...,pmmsneses=15,pmrsneses=30"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-STM1 command.

Check CCB against ptype and istd

See definition of error response in "RTRV-STM16: Retrieve STM16 port" (p. 4-2099).

Related TL1 messages

"ED-STM1: Edit STM1 port" (p. 4-634)

References

GR-199-CORE (RTRV-*rr*)

RTRV-STM4: Retrieve STM4 port

The RTRV-STM4 command is used to retrieve all parameters related to the optical STM4 port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-STM4:`*tid:aid:ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   Access Identifier of an STM4 port.
   Type: AID.
   Range: SPortAID of STM4 port.
   The keyword `all` is allowed up to shelf level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

In response to a valid RTRV-STM4 command, the following output report is returned:

```
   sid date time
M  ctag COMPLD
   "aid[:spec_block]"
        ...
        ...
   "aid[:spec_block]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command Parameter

1. aid – Access Identifier
   Access Identifier of STM-4 port.
   Type: AID.
   Range: SPortAID of STM-4 port.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....255
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the Tributary Input Rate Signal List.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 3, or 4 representing VC3 or VC4.
5. degthr – Signal Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.

6. dexcthr – Excessive Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
7. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
8. femspm – Far-end Multiplex Section PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
9. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU
10. fsflpbkstat – Far Side Facililiy Loopback Status
    This parameter specifies the current far-side facility loopback status of the considered output *aid.*
    A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
    Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
    Type: alphanumeric value set.

Range:

- YES
- NO (default).

11. inputsig – Tributary Input Signal Rate List
    This parameter is a list of VCn rates across the port's bandwidth.
    Type: numeric value set.
    Range: NX-NX-NX-...
    N is the number of Xs. X can be 3, 4 or 4C representing VC3, VC4 or VC4-4C.
    Default: 44.
12. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter istddflt.
    Type: alphanumeric value set.
    Range: SDH.
    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
13. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
14. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC44C (default), VC4, VC3.
15. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC3 (default), VC4, VC44C.

16. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
17. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
18. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN. If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″
19. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.

neighborPortID is introduced specifically for use by NN application.
Type: Four dash separated numeric string.
Range: Each numeric string: 0...255.
Default: 0-0-0-0.
Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.

20. nemspm – MS Near-End PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
21. opdis – Optical Distance
    It shows the type of application for which the optical transmitter on this port is suited.
    Type: alphanumeric value set
    Range:
    - INTRA-OFFICE
    - SHORT-HAUL
    - LONG-HAUL
    - VERY-LONG-HAUL
    - OLS_PASSIVE
    - OLS_400G
    - OLS_800G
    - XTREME.
22. opwl – Optical Wavelength
    Optical Wavelength in nanometers. It shows the type of optics that is used on this port.
    Type: numeric value set.
    Range (wavelength in [nm]): 0 (i.e. undefined), 1310; 1550; 1530.334 ... 1562.640 (i.e. C-Band); 1553.731 ... 1608.329 (i.e. L-Band). The value undefined is used e.g. in the context of optical modules if the retrieval of the inventory data is not yet supported.
23. outql – Outgoing timing quality
    This parameter provides the outgoing quality level message on the S1 SDH MS overhead byte.
    Type: alphanumeric value set

Range:

- PRC
- SSUL
- SSUT
- SEC
- DNU (default).

24. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.

    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

    - STM-4/OC-12: 1 – 768000.

    Default: The default values differ for SDH and SONET:

    - STM4: 115200
    - OC12: 615.

25. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.

    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

    - STM-4/OC-12: 1 – 768000.

    Default: The default values differ for SDH and SONET and the different rates:

    - STM4: 115200
    - OC3: 615.

26. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set

Range:

- AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
- MON indicates that alarm monitoring is taking place on the port.
- NMON means that alarm monitoring is not occurring on the port.

27. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000.
    Default: The default values differ for SDH and SONET and the different rates:
    - STM4: 2400
    - OC12: 616.
28. portClass – Port Class
    This identifies the port class of the AID.
    portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.
29. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
    portControl is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.
30. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(sedault) ...25. The unit of this value is ″milliseconds″.

31. ptype – Port Type
    This identifies the port type of the AID.
    Type: alphanumeric value set.
    Range: STM4.
32. rsmstca – RS/MS TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
33. rspm – RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
34. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimca shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE (default): enable consequent action for TIM
    - DISABLE: disable consequent action for TIM.
35. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor

36. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET ASAP for the SONET ports of corresponding line rate (see definition of output parameter SONET in RTRV-OC12) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
37. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON.
38. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
39. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    srlgList is introduced specifically for use by ONNS application. The order of the three identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only one or two identities are provisioned, the remaing one shall be set to the default value 0, e.g. 3-0-0.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0.
40. strc – Value of incoming J0
    This parameter shows the value of the Section Trace Identifier on the incoming section overhead J0 byte of a port. The length of the string depends on the value of the parameter *strcfmt*. The status of this value is contained in parameter *strcst*. If *strcst* indicates NORMAL, then strc contains a valid value. If *strcst* indicates UNAVAILABLE or AIS, then no incoming section trace identifier could be obtained by the system, e.g. due to a signal-fail condition, and the output parameter

strc is omitted from the response.
Type: hexadecimal (each byte is expressed as two hexadecimal digits. An example of a byte is 6D).
Range: 1 byte string, 16 byte string, 64 byte string (dependent on the strcfmt parameter).

41. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
42. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
43. strcst – Status of incoming J0
    This parameter shows the status of the value of the incoming RS/Section Trace Identifier which is available with parameter *strc*.
    Type: alphanumeric value set.
    Range: NORMAL: strc contains a valid value; UNAVAILABLE: no value for strc could be obtained by the system; AIS: no value for strc due to an SF condition.

44. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
45. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable:
    - TR-only (lso known as the implicit reset method)
    - TR-RTR (lso known as the explicit reset method).

    Type: alphanumeric value set.
    Range: TR or TRRTR (default).
46. unequiposig – Unequipped Output Signal List
    This parameter is a list of VCn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need the identical setting. Mixed rates for tx and rx side of the port are allowed.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3 or 4 representing VC3 or VC4.
    Default: 14.

Detailed behavior description

The command retrieves the parameters as described above.

The RTRV-STM4 command does not generate a REPT DBCHG message.

Example input/output

The following example shows the successful execution of a RTRV-STM4 command. Not all output parameters are listed (missing ones indicated by …):

```
RTRV-STM4:LT-UNITE:1-1-#-#-1-1:123456;
   LT-UNITE 00-11-24 08:00:00
M  123456 COMPLD
   "1-1-#-#-1-1:ptype=STM4,frcdus=DISABLE,dexcthr=-3,degthr=-6,
     pmode=MON,...,pmmsneses=15,pmrsneses=30"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-STM4 command.

Check CCB against ptype and istd

See definition of error response in "RTRV-STM16: Retrieve STM16 port" (p. 4-2099).

Related TL1 messages

"ED-STM4: Edit STM4 port" (p. 4-669)

References

GR-199-CORE (RTRV-*rr*)

□

RTRV-STM16: Retrieve STM16 port

The RTRV-STM16 command is used to retrieve all parameters related to the optical STM16 port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-STM16:`*tid:aid:ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   Description: Access Identifier of an STM16 port.
   Type: AID.
   Range: SPortAID of STM16 port.
   The keyword `all` is allowed up to shelf level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

In response to a valid RTRV-STM16 command, the following output report is returned:

```
   sid date time
M  ctag COMPLD
   "aid[:spec_block]"
        ...
        ...
   "aid[:spec_block]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command Parameter

1. aid – Access Identifier
   Access Identifier of STM16 port.
   Type: AID.
   Range: SPortAID of STM16 port.
   The keyword `all` is not allowed.

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....255
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the Tributary Input Rate Signal List.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 3, or 4 representing VC3 or VC4.
5. degthr – Signal Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.

6. dexcthr – Excessive Degrade Threshold
   Retrieving of the excessive degrade/signal failure threshold in exponent of 10. This parameter is available when *sdsfmode*=POISSON
   Type: numeric value set.
   Range (as exponent of 10): –3; –4; –5.
   Default: –3.
7. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
8. femspm – Far-end Multiplex Section PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
9. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU
10. fsflpbkstat – Far Side Facililiy Loopback Status
    This parameter specifies the current far-side facility loopback status of the considered output *aid.*
    A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
    Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
    Type: alphanumeric value set.

Range:

- YES
- NO (default).

11. inputsig – Tributary Input Signal Rate List
    This parameter is a list of VCn rates across the port's bandwidth.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3, 4, 4C or 16C representing VC3, VC4, VC4-4C or VC4-16C.
    Default: The initial value of X is 4.
    Example:
    An STM-16 signal might be represented by 93-14-14C-243 which implies 9 VC3s, 1 VC4, 1 VC4-4C, 24 VC3s. The representation is not unique, for example it could also be 33-63-14-14C-243. Worst case of string length for STM16: 47 characters.
12. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter istddflt.
    Type: alphanumeric value set.
    Range: SDH.
    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
13. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
14. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC416C (default), VC44C, VC4, VC3.

15. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC3 (default), VC4, VC44C, VC416C.
16. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.
17. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of portClass=INNI to be used for ONNS application. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN.
    If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If portClass=INNI, the default value shall have the meaning of ″no neighbor discovered″.
18. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if ndetmd=MAN. If ndetmd=MAN, this parameter shall indicate the value set by the operator. If ndetmd=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass*=INNI, the default value shall have the meaning of ″no neighbor discovered″

19. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClass*=INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if ndetmd=MAN.
    If *ndetmd*=MAN, this parameter shall indicate the value set by the operator. If *ndetmd*=AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborPortID is introduced specifically for use by NN application.
    Type: Four dash separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0-0-0-0.
    Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.
20. nemspm – MS Near-End PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
21. opdis – Optical Distance
    It shows the type of application for which the optical transmitter on this port is suited.
    Type: alphanumeric value set
    Range:
    - INTRA-OFFICE
    - SHORT-HAUL
    - LONG-HAUL
    - VERY-LONG-HAUL
    - OLS_PASSIVE
    - OLS_400G
    - OLS_800G
    - XTREME.

22. opwl – Optical Wavelength
    Optical Wavelength in nanometers. It shows the type of optics that is used on this port.
    Type: numeric value set.
    Range (wavelength in [nm]): 0 (i.e. undefined), 1310; 1550; 1530.334 ... 1562.640 (i.e. C-Band); 1553.731 ... 1608.329 (i.e. L-Band). The value undefined is used e.g. in the context of optical modules if the retrieval of the inventory data is not yet supported.
23. outql – Outgoing timing quality
    This parameter provides the outgoing quality level message on the S1 SDH MS overhead byte.
    Type: alphanumeric value set
    Range:
    - PRC
    - SSUL
    - SSUT
    - SEC
    - DNU (default).
24. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.

25. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.
26. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
27. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000
    Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392
    - SONET OC192: 8554
    - SONET OC768: 22776.

28. portClass – Port Class
    This identifies the port class of the AID.
    portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.
29. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
    portControl is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.
30. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass*=INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(sedault) ...25. The unit of this value is ″milliseconds″.
31. ptype – Port Type
    This identifies the port type of the AID.
    Type: alphanumeric value set.
    Range: STM16.
32. rsmstca – RS/MS TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
33. rspm – RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).

34. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimca shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE (default): enable consequent action for TIM
    - DISABLE: disable consequent action for TIM.
35. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
36. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET Alarm Severity Assignment Profile for the SONET ports (see definition of output parameter SONET in "RTRV-OC48: Retrieve OC48 port" (p. 4-1894)) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
37. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON.
38. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.

39. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    srlgList is introduced specifically for use by ONNS application. The order of the three identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only one or two identities are provisioned, the remaing one shall be set to the default value 0, e.g. 3-0-0.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0.
40. strc – Value of incoming J0
    This parameter shows the value of the Section Trace Identifier on the incoming section overhead J0 byte of a port. The length of the string depends on the value of the parameter *strcfmt*. The status of this value is contained in parameter *strcst*. If *strcst* indicates NORMAL, then strc contains a valid value. If *strcst* indicates UNAVAILABLE or AIS, then no incoming section trace identifier could be obtained by the system, e.g. due to a signal-fail condition, and the output parameter strc is omitted from the response.
    Type: hexadecimal (each byte is expressed as two hexadecimal digits. An example of a byte is 6D).
    Range: 1 byte string, 16 byte string, 64 byte string (dependent on the strcfmt parameter).
41. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).

42. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
43. strcst – Status of incoming J0
    This parameter shows the status of the value of the incoming RS/Section Trace Identifier which is available with parameter *strc*.
    Type: alphanumeric value set.
    Range: NORMAL: strc contains a valid value; UNAVAILABLE: no value for strc could be obtained by the system; AIS: no value for strc due to an SF condition.
44. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
45. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable:
    - TR-only (lso known as the implicit reset method)
    - TR-RTR (lso known as the explicit reset method).

    Type: alphanumeric value set.
    Range: TR or TRRTR (default).

46. trbmd – Tributary mode
    If *trbmd* is FIXED, then *inputsig* constrains the cross-connection rates that can be entered for the port. If *trbmd* is ADAPTIVE, then input *inputsig* has no effect.
    Type: alphanumeric value set.
    Range: ADAPTIVE, FIXED.
    Default: The initial value is defined as the *trbmddflt* parameter on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720) command.
47. unequiposig – Unequipped Output Signal List
    This parameter is a list of VCn rates across the port's bandwidth. It determines the rate(s) of the "unequipped" signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need the identical setting. Mixed rates for tx and rx side of the port are allowed.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3, 4, 4C or 16C representing VC3, VC4, VC4-4C or VC4-16C.
    Default: 164 = all VC4.

Detailed behavior description

The command retrieves the parameters as described above.

The RTRV-STM16 command does not generate a REPT DBCHG message.

Example input/output

The following example shows the successful execution of a RTRV-STM16 command. Not all output parameters are listed (missing ones indicated by …):

```
 RTRV-STM16:LT-UNITE:1-1-#-#-1-1:123456;
   LT-UNITE 00-11-24 08:00:00
M  123456 COMPLD
   "1-1-#-#-1-1:ptype=STM16,frcdus=DISABLE,dexcthr=-3,degthr=-
     6,pmode=MON,...,pmmsneses=15,pmrsneses=30"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-STM16 command.

Validation rule: Check CCB against *ptype* and *istd*

Check wether the CCB fits to *ptype* and *istd.*

Error code: `ICNV - Input, Command Not Valid, Interface Standard does not match.`

E.g. DENY, if a command with rr=STM16 is made on a OP2G5 port which is provisioned as *istd*=SONET and *ptype*=OC48.

Related TL1 messages

"ED-STM16: Edit STM16 port" (p. 4-704)

References

GR-199-CORE (RTRV-*rr*)

□

RTRV-STM16T: Retrieve STM16T port

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-STM16T:`*tid:aid:ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   Description: Access Identifier of an STM16T port.
   Type: AID.
   Range: SPortAID of STM16T port.
   The keyword `all` is allowed up to shelf level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

In response to a valid RTRV-STM16 command, the following output report is returned:

```
   sid date time
M  ctag COMPLD
   "aid[:spec_block]"
        ...
        ...
   "aid[:spec_block]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command Parameter

1. aid – Access Identifier
   Access Identifier of STM16 port.
   Type: AID.
   Range: SPortAID of STM16 port.
   The keyword `all` is not allowed.

Spec block parameters

1. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
   For RTRV-STM16T this parameter refers to the incoming (inress) direction.
2. exprstrcout - Value of Expected J0 in outgoing direction
   Expected regenerator section trace identifier in outgoing (egress) direction.
   The parameter expstrcout specifying the expected path trace is only relevant for the section trace supervision in outgoing direction when the related trace read format strcfmtout is set to 16 (16-byte-specific-string mode).
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte shall be expressed as two hexadecimal digits (example value: 6D). The first byte value shall be in the range from 80 to FF. The other byte values shall be in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
3. fsflpbkstat – Far Side Facililiy Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output *aid.*
   A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
   Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).

4. istd – Interface Standard
   Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter istddflt.
   Type: alphanumeric value set.
   Range: SDH.
   Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
5. lpbk – Loopback
   This parameter specifies the current near-side loopback status of the considered output *aid*.
   A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
   Type: alphanumeric value set.
   Range:
   - YES
   - NO (default).
6. opdis – Optical Distance
   It shows the type of application for which the optical transmitter on this port is suited.
   Type: alphanumeric value set
   Range:
   - INTRA-OFFICE
   - SHORT-HAUL
   - LONG-HAUL
   - VERY-LONG-HAUL
   - OLS_PASSIVE
   - OLS_400G
   - OLS_800G
   - XTREME.
7. opwl – Optical Wavelength
   Optical Wavelength in nanometers. It shows the type of optics that is used on this port.
   Type: numeric value set.
   Range (wavelength in [nm]): 0 (i.e. undefined), 1310; 1550; 1530.334 ... 1562.640 (i.e. C-Band); 1553.731 ... 1608.329 (i.e. L-Band). The value undefined is used e.g. in the context of optical modules if the retrieval of the inventory data is not yet supported.

8. pmode – Port Mode
   This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
   Type: alphanumeric value set
   Range:
   - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
   - MON indicates that alarm monitoring is taking place on the port.
   - NMON means that alarm monitoring is not occurring on the port.
9. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
   This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET.
   Type: numeric value set.
   Range (superset of allowed ranges for SDH and SONET):1 – 64000
   Default: The default values differ for SDH and SONET and the different rates:
   - SDH (all rates): 2400
   - SONET OC48: 2392
   - SONET OC192: 8554
   - SONET OC768: 22776.
10. pmrsnesesout - Performance Monitoring Section/RS Near-End SES Threshold in outgoing direction
    This parameter describes the Section/RS Near-End SES threshold value for the outgoing (egress) direction. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severly errored. The default value depends on the interface standard and may differ between SDH and SONET.
    Type: numeric value set
    Range (superset of allowed ranges for SDH and SONET): 1 - 64000
    Default:
    The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392
11. ptype – Port Type
    This identifies the port type of the AID.
    Type: alphanumeric value set.
    Range: STM16T.

12. rsmstca – RS/MS TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
13. rspm – RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).

    For RTRV-STM16T this parameter refers to the incoming (ingress) direction.
14. rspmout - RS PM Enable in Outgoing Direction
    Enable or disable regenerator section (section) performance monitoring for the outgoing (egress) direction.
    Type: alphanumeric value set.
    Range: ENABLE, DISABLE (default).
15. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor

    For RTRV-STM16T this parameter refers to the incoming (Ingress) direction.
16. rstimmonout - RS TIM Monitor Enable in Outgoing direction
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0) in outgoing (egress) direction. This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set
    Range: ENABLE - enable TIM Monitor, DISABLE (default) - disable TIM Monitor

17. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET Alarm Severity Assignment Profile for the SONET ports (see definition of output parameter SONET in "RTRV-OC48: Retrieve OC48 port" (p. 4-1894)) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
18. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
19. strc – Value of incoming J0
    This parameter shows the value of the Section Trace Identifier on the incoming section overhead J0 byte of a port. The length of the string depends on the value of the parameter *strcfmt*. The status of this value is contained in parameter *strcst*. If *strcst* indicates NORMAL, then strc contains a valid value. If *strcst* indicates UNAVAILABLE or AIS, then no incoming section trace identifier could be obtained by the system, e.g. due to a signal-fail condition, and the output parameter strc is omitted from the response.
    Type: hexadecimal (each byte is expressed as two hexadecimal digits. An example of a byte is 6D).
    Range: 1 byte string, 16 byte string, 64 byte string (dependent on the strcfmt parameter).
    For RTRV-STM16T this parameter refers to the incoming (Ingress) direction.
20. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).

    For RTRV-STM16T this parameter refers to the incoming (Ingress) direction.

21. strcfmtout - Format of outgoing J0
    The read format of J0 in outgoing (egress) direction, the outgoing section trace (strcout) and the expected section trace (exprstrcout).
    Type: numeric string
    Range:
    - 1, for specific repeating byte (SONET)
    - 2 (default), for non-specific repeating byte (ITU/ETSI mode 2)
    - 16, for 16 byte specific string (ITU/ETSI mode 1)
    - 64, for 64 byte string (SONET).
22. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
    For RTRV-STM16T this parameter refers to the outgoing (egress) direction. 5;
23. strcst – Status of incoming J0
    This parameter shows the status of the value of the incoming RS/Section Trace Identifier which is available with parameter *strc*.
    Type: alphanumeric value set.
    Range: NORMAL: strc contains a valid value; UNAVAILABLE: no value for strc could be obtained by the system; AIS: no value for strc due to an SF condition.
    For RTRV-STM16T this parameter refers to the incoming (ingress) direction.
24. strcstout - Status of outgoing J0
    This parameter shows the status of the value of the RS/Section Trace Identifier in outgoing (egress) direction which is available with parameter strcout.
    alphanumeric value set

Range:

- NORMAL, strcout contains a valid value
- UNAVAILABLE, no value for strcout could be obtained by the system
- AIS, no value for strcout due to an SF condition

25. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable:
    - TR-only (lso known as the implicit reset method)
    - TR-RTR (lso known as the explicit reset method).

    Type: alphanumeric value set.
    Range: TR or TRRTR (default).

Detailed behavior description

The command retrieves the parameters as described above.

The RTRV-STM16T command does not generate a REPT DBCHG message.

Example input/output

The following example shows the successful execution of a RTRV-STM16T command. Not all output parameters are listed (missing ones indicated by …):

```
 RTRV-STM16T:LT-UNITE:1-1-#-#-1-1:123456;
   LT-UNITE 00-11-24 08:00:00
M  123456 COMPLD
   "1-1-#-#-1-1:ptype=STM16T,pmode=MON,...,pmrsneses=30,
   pmrsfeses=30"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-STM16T command.

Validation rule: Check CCB against *ptype* and *istd*

Check wether the CCB fits to *ptype* and *istd*.

Error code: `ICNV - Input, Command Not Valid, Interface Standard does not match.`

E.g. DENY, if a command with rr=STM16T is made on a OPT2G5 port which is provisioned as *istd*=SONET and *ptype*=OC48T.

Related TL1 messages

"ED-STM16T: Edit STM16T port" (p. 4-740)

References

GR-199-CORE (RTRV-*rr*)

□

RTRV-STM64: Retrieve STM64 port

The RTRV-STM64 command is used to retrieve all parameters related to the optical STM64 port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-STM64`:*tid:aid:ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   Access Identifier of an STM64 port.
   Type: AID.
   Range: SPortAID of ST-64 port.
   The keyword `all` is allowed up to shelf level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

In response to a valid RTRV-STM64 command, the following output report is returned:

```
   sid date time
M  ctag COMPLD
   "aid[:spec_block]"
        ...
        ...
   "aid[:spec_block]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command Parameter

1. aid – Access Identifier
   Type: AID
   Range: STM-64 port AID

Spec block parameters

1. adminCost - Administrative Cost (Link Cost)
   This identifies the provisioned administrative link cost setting for ports of portClass=INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. Parameter name adapted to ONNS specific TL1. adminCost is introduced specifically for use by ONNS application.
   Type: Numeric string.
   Range: 1(default).....255
2. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
3. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
4. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the Tributary Input Rate Signal List.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 3, 4, 4C, 16C or C64 representing VC3, VC4, VC4-4C, VC4-16C or VC-64C.
5. degthr – Signal Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.

6. dexcthr – Excessive Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
7. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
8. fec – FEC Enable
   Forward Error Correction Enable. Enable to include the FEC information in the outgoing signal.
   Type: alphanumeric value set.
   Range:

   DISABLE (only) for:

   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics
   - OC192 / STM64 low cost intra office 1310nm optics
   - OC768 / STM256 basis low cost intra office 1.3µ optics.

   ENABLE / DISABLE for:

   - OC192 / STM64 OLS800G compatible 80 colour optics
   - OC768 / STM256 Long Reach / Long Haul 1.5µ optics (80km)
   - OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

   ENABLE (only) for:

   - OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G.

   Default:

   DISABLE for:

   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics

- OC192 / STM64 low cost intra office 1310nm optics
- OC768 / STM256 basis low cost intra office 1.3µ optics.

ENABLE for:

- OC192 / STM64 OLS800G compatible 80 colour optics
- OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G
- OC768 / STM256 Long Reach / Long Haul 1.5µ optics (80km)
- OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

9. femspm – Far-end Multiplex Section PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
10. frcdus – Force to DUS
    Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
    Type: alphanumeric value set.
    Range:
    - ENABLE: (set a forced DUS/DNU)
    - DISABLE (default): (clear a forced DUS/DNU).
11. fsflpbkstat – Far Side Facililiy Loopback Status
    This parameter specifies the current far-side facility loopback status of the considered output *aid.*
    A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
    Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
12. inputsig – Tributary Input Signal Rate List
    This parameter is a list of VCn rates across the port's bandwidth.
    Type: numeric value set.
    Range: NX-NX-NX-...
    N is the number of Xs. X can be 3, 4, 4C, 16C or C64 representing VC3, VC4, VC4-4C, VC4-16C or VC4-64C.
    Default: 644.

13. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter istddflt.
    Type: alphanumeric value set.
    Range: SDH.
    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
14. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
15. maxNNXCRate – Maximum NN Cross Connect Rate
    This identifies the maximum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    maxNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC464C (default), VC416C, VC44C, VC4, VC3.
16. minNNXCRate – Minimum NN Cross Connect Rate
    This identifies the minimum rate at which cross connections shall be allowed for ports of *portClass* INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    minNNXCRate is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: VC3 (default), VC4, VC44C, VC416C, VC464C.
17. ndetmd – Neighbor Detection Mode
    This identifies the mode for neighbor detection for ports of portClass INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI.
    ndetmd is introduced specifically for use by NN application.
    Type: alphanumeric value set.
    Range: AUTO (default), MAN.

18. neighborASTNNodeID – Neighbor ASTN Node Id
    This identifies the unique node identifier of the neighbor node of ports of *portClass* = INNI to be used for ONNS application. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if *ndetmd* = MAN.
    If *ndetmd* = MAN, this parameter shall indicate the value set by the operator. If *ndetmd* = AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborASTNNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0 If *portClass* = INNI, the default value shall have the meaning of ″no neighbor discovered″.
19. neighborNodeID - Neighbor Node Id
    This identifies the IP address of the neighbor node of ports of *portClass* = INNI. For all ports with other values of portClass, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until portClass is INNI. This parameter can only be modified, if *ndetmd* = MAN. If *ndetmd* = MAN, this parameter shall indicate the value set by the operator. If *ndetmd* = AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborNodeID is introduced specifically for use by ONNS application.
    Type: Four dot separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0.0.0.0
    If *portClass* = INNI, the default value shall have the meaning of ″no neighbor discovered″
20. neighborPortID – Neighbor Port Id
    This identifies the identity of the adjacent port at the neighbor NE for ports of *portClas s*= INNI. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI. This parameter can only be modified, if *ndetmd* = MAN.
    If *ndetmd* = MAN, this parameter shall indicate the value set by the operator. If *ndetmd* = AUTO, this parameter shall indicate the value detected via automatic neighbor detection.
    neighborPortID is introduced specifically for use by NN application.
    Type: Four dash separated numeric string.
    Range: Each numeric string: 0...255.
    Default: 0-0-0-0.
    Interpretation: For UNITE ports the contents of this parameter shall be interpreted as SPort AID, a value of a-b-c-d shall be interpreted as the SPortAID a-b-#-#-c-d.

21. msrei – MS-REI mode
    Definition: An special extended MS REI mode is standardized for STM64/OC192 interfaces. To support the interworking with older STM64/OC192 interfaces the single byte mode (non-extended) should also be supported.
    Type: alphanumeric value set.
    Range:
    - SINGLE
    - EXTENDED (default).
22. nemspm – MS Near-End PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
23. och – optical channel enable
    Enable or disable of the optical channel. If the optical channel is disabled the further optical channel parameters don't have any impact on transmission.
    Type: alphanumeric value set.
    Range:
    - for OP10 packs, which support to enable or disable OCH: ENABLE: enable optical channel; DISABLE: disable optical channel
    - for OP10 and OP40 packs, which cannot support OCH: DISABLE: disable optical channel
    - for OP10 and OP40 packs, which only support OCH: ENABLE: enable optical channel.

    Default:
    - for OP10 and OP40 packs, which cannot support OCH: DISABLE
    - for OP10 packs, which cannot support OCH: ENABLE
    - for OP10 and OP40 packs, which only support OCH: ENABLE.
24. opdis – Optical Distance
    It shows the type of application for which the optical transmitter on this port is suited.
    Type: alphanumeric value set
    Range:
    - INTRA-OFFICE
    - SHORT-HAUL
    - LONG-HAUL
    - VERY-LONG-HAUL
    - OLS_PASSIVE

- OLS_400G
- OLS_800G
- XTREME.

25. opwl – Optical Wavelength
    Optical Wavelength in nanometers. It shows the type of optics that is used on this port.
    Type: numeric value set.
    Range (wavelength in [nm]): 0 (i.e. undefined), 1310; 1550; 1530.334 ... 1562.640 (i.e. C-Band); 1553.731 ... 1608.329 (i.e. L-Band). The value undefined is used e.g. in the context of optical modules if the retrieval of the inventory data is not yet supported.
26. outql – Outgoing timing quality
    This parameter provides the outgoing quality level message on the S1 SDH MS overhead byte.
    Type: alphanumeric value set
    Range:
    - PRC
    - SSUL
    - SSUT
    - SEC
    - DNU (default).
27. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.

28. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:
    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.
29. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range:
    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.
30. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000
    Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392

- SONET OC192: 8554
- SONET OC768: 22776.

31. polynomial - Optical Channel Scrambling Polynomial
    This parameter is used by the Wavewrapper scrambler on the optical channel. This parameter is relevant only if the optical channel is enabled (*och* = ENABLE).
    Type: numeric value set.
    Range: 1x7 + x + 1; 2x16 + x12 + x3 + x + 1.
    Default: 2.
32. portClass – Port Class
    This identifies the port class of the AID.
    portClass is used to specify ports for use by NN application and if so to also specify the role in which they will be used.
    Type: alphanumeric value set.
    Range: TRADITIONAL (default), INNI, EDGE.
33. portControl – Port Control (PortAdministrative Mode)
    This identifies the administrative mode of ports of *portClass* INNI or EDGE. For ports of *portClass* TRADITIONAL this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is different from TRADITIONAL.
    Parameter name adapted to ONNS specific TL1. Old UNITE parameter name: *portadminmd.*
    portControl is introduced specifically for use by ONNS application.
    Type: alphanumeric value set.
    Range: NORMAL (default), LOCKOUT.
34. propagationDelay - Propagation Delay
    This identifies the provisioned propagation delay value for ports of *portClass* = INNI. For all ports with other values of *portClass* this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    propagationDelay is introduced specifically for use by ONNS application.
    Type: Numeric string
    Range: 0(sedault) ...25. The unit of this value is ″milliseconds″.
35. ptype – Port Type
    Definition: This identifies the port type of the AID.
    It is derived from the functional name and functional qualifier of a circuit pack. If the functional qualifier indicates a pack with 10GE_WANPHY interfaces the port type has the value 10GE_WANPHY, else STM64.
    Type: alphanumeric value set.
    Range: STM64.

36. rsmstca – RS/MS TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
37. rspm – RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
38. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimca shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE (default): enable consequent action for TIM
    - DISABLE: disable consequent action for TIM.
39. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
40. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET Alarm Severity Assignment Profile for the SONET ports (see definition of output parameter SONET in "RTRV-OC192: Retrieve OC192 port" (p. 4-1916)) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.

41. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON.
42. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
43. srlgList – Shared Risk Link Group Identities List
    This identifies the provisioned shared risk group identities for ports of *portClass* INNI. Up to 3 shared risk group identities can be given per INNI port. For all ports with other values of *portClass*, this parameter shall not be relevant, i.e. parameter can be retrieved and changed, but will internally not be evaluated until *portClass* is INNI.
    srlgList is introduced specifically for use by ONNS application. The order of the three identities is not significant, e.g. 3-7-1 is considered the same as 7-1-3. If only one or two identities are provisioned, the remaing one shall be set to the default value 0, e.g. 3-0-0.
    Type: Three numeric strings separated by dashes.
    Range: Each numeric string: 0...65535.
    Default: 0-0-0.
44. strc – Value of incoming J0
    This parameter shows the value of the Section Trace Identifier on the incoming section overhead J0 byte of a port. The length of the string depends on the value of the parameter *strcfmt*. The status of this value is contained in parameter *strcst*. If *strcst* indicates NORMAL, then strc contains a valid value. If *strcst* indicates UNAVAILABLE or AIS, then no incoming section trace identifier could be obtained by the system, e.g. due to a signal-fail condition, and the output parameter strc is omitted from the response.
    Type: hexadecimal (each byte is expressed as two hexadecimal digits. An example of a byte is 6D).
    Range: 1 byte string, 16 byte string, 64 byte string (dependent on the strcfmt parameter).
45. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string

Range:

- 1: for specific repeating byte (SONET)
- 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
- 16: for 16 byte specific string (ITU/ETSI mode 1).
- 64: for 64 byte string (SONET).

46. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
47. strcst – Status of incoming J0
    This parameter shows the status of the value of the incoming RS/Section Trace Identifier which is available with parameter *strc*.
    Type: alphanumeric value set.
    Range: NORMAL: strc contains a valid value; UNAVAILABLE: no value for strc could be obtained by the system; AIS: no value for strc due to an SF condition.
48. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
49. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.

Two thresholding methods are applicable:

- TR-only (lso known as the implicit reset method)
- TR-RTR (lso known as the explicit reset method).

Type: alphanumeric value set.
Range: TR or TRRTR (default).

50. unequiposig – Unequipped Output Signal List
    This parameter is a list of VCn rates across the port's bandwidth. It determines the rate(s) of the *unequipped* signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need the identical setting. Mixed rates for *tx* and *rx* side of the port are allowed.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3, 4, 4C, 16C or C64 representing VC3, VC4, VC4-4C, VC4-16C or VC4-64C.
    Default: 644 = all VC4.

Detailed behavior description

The command retrieves the parameters as described above.

The RTRV-STM64 command does not generate a REPT DBCHG message.

Example input/output

The following example shows the successful execution of a RTRV-STM64 command. Not all output parameters are listed (missing ones indicated by …):

```
RTRV-STM64:LT-UNITE:1-1-#-#-1-1:123456;
   LT-UNITE 00-11-24 08:00:00
M  123456 COMPLD
   "1-1-#-#-1-1:ptype=STM64,frcdus=DISABLE,dexcthr=-3,degthr=-6,
     pmode=MON,...,pmmsneses=15,pmrsneses=30"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-STM64 command.

Check CCB against ptype and istd

See definition of error response in "RTRV-STM16: Retrieve STM16 port" (p. 4-2099).

Related TL1 messages

"ED-STM64: Edit STM64 port" (p. 4-755)

References

GR-199-CORE (RTRV-*rr*)

□

RTRV-STM256: Retrieve STM256 port

The RTRV-STM256 command is used to retrieve all parameters related to the optical STM256 port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-STM256`:*tid:aid:ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   Description: Access Identifier of an STM256 port.
   Type: AID.
   Range: SPortAID of STM256 port.
   The keyword `all` is allowed up to shelf level.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

In response to a valid RTRV-STM256 command, the following output report is returned:

```
   sid date time
M  ctag COMPLD
   "aid[:spec_block]"
        ...
        ...
   "aid[:spec_block]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

The RTRV-STM256 command does not generate a REPT DBCHG message.

Command parameters

1. aid – Access Identifier
   Type: AID.
   Range: STM-256 port AID.

Spec block parameters

1. brstintvl – Bursty Interval
   Measurement period for determining bursty errors. This parameter applys when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
2. brstthr – Bursty Error Threshold
   Degradation threshold in a range from 5% to 50% with a resolution of 5% steps. This parameter applies when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, … 50.
   Default: 30.
3. crstat – Constituent Rates Status list
   This parameter shows the rates of the port signals. For fixed mode (*trbmd* = FIXED) this parameter is derived from the parameter *inputsig* showing the Tributary Input Rate Signal List.
   Type: numeric value set.
   Range: NX-NX-NX-…
   N is the number of Xs. X can be 3, 4, 4C, 16C or C64 representing VC3, VC4, VC4-4C, VC4-16C or VC-64C.
4. degthr – Signal Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.
5. dexcthr – Excessive Degrade Threshold
   Signal degrade threshold in a range from 10exp-5 to 10exp-9. This parameter applies when *sdsfmode*=POISSON.
   Type: numeric value set.
   Range (as exponents of 10): –5; –6; –7; –8; –9.
   Default: –6.

6. exprstrc – Value of Expected J0
   Expected regenerator section trace identifier.
   The parameter *expstrc* specifying the expected path trace is only relevant for the section trace supervision when the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter exprstrc shall be autonomously set by the neighbour detection mechanism.
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex
7. fec – FEC Enable
   Forward Error Correction Enable. Enable to include the FEC information in the outgoing signal.
   Type: alphanumeric value set.
   Range:
   DISABLE (only) for:
   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics
   - OC192 / STM64 low cost intra office 1310nm optics
   - Basic OC768 / STM256 low cost intra office (2 km).

   ENABLE / DISABLE for:
   - OC192 / STM64 OLS800G compatible 80 colour optics
   - OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G
   - OC768 / STM256 Long Reach / Long Haul 1.5æ optics with strong FEC (80km)
   - OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

   Default:
   DISABLE (only) for:
   - OC192 / STM64 Intermediate Reach / Short Haul 1550 nm optics
   - OC192 / STM64 intermediate reach / SH 32 colour passive WDM compatible optics
   - OC192 / STM64 Long Reach / Long Haul 1550 nm optics
   - OC192 / STM64 low cost intra office 1310nm optics
   - Basic OC768 / STM256 low cost intra office (2 km).

ENABLE / DISABLE for:

- OC192 / STM64 OLS800G compatible 80 colour optics
- OC192 / STM64 OLS Xtreme compatible 128 colour optics 40G
- OC768 / STM256 Long Reach / Long Haul 1.5æ optics with strong FEC (80km)
- OC768 / STM256 OLS Xtreme compatible 64 colour optics (extended L band)

8. femspm – Far-end Multiplex Section PM Enable
   Enable or disable of the performance monitoring of the multiplex section.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
9. frcdus – Force to DUS
   Force DUS/DNU for sync messaging on optical interfaces. When provisioned for ENABLE, the message ″do not use″ will be transmitted from that optical interface.
   Type: alphanumeric value set.
   Range:
   - ENABLE , set a forced DUS/DNU
   - DISABLE (default), clear a forced DUS/DNU
10. fsflpbkstat – Far Side Facililiy Loopback Status
    This parameter specifies the current far-side facility loopback status of the considered output *aid.*
    A far-side loopback means that the signal on the outgoing port is looped to the incoming port – this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed – if NO then there is no (far-side) loopback existing for the aid.
    Note: not both loopbacks (*lpbk* and *fsflpbkstat*) can be set to YES at the same time.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
11. inputsig – Tributary Input Signal Rate List
    This parameter is a list of VCn rates across the port's bandwidth.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3, 4, 4C, 16C, C64 representing VC3, VC4, VC4-4C, VC4-16C or VC64C.
    Default: 2564 (all VC4).

12. istd – Interface Standard
    Each synchronous optical interface can be set to SDH or SONET. The default value depends on the setting of the parameter istddflt.
    Type: alphanumeric value set.
    Range: SDH.
    Default: As specified via *istddflt* on system level, see definition in "RTRV-EQPT (system): Retrieve Equipment (system)" (p. 4-1720).
13. lpbk – Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
14. nemspm – MS Near-End PM Enable
    Enable or disable near-end multiplex section (near-end line) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
15. och – optical channel enable
    Enable or disable of the optical channel. If the optical channel is disabled the further optical channel parameters don't have any impact on transmission.
    Type: alphanumeric value set.
    Range:
    - for OP10 packs, which support to enable or disable OCH: ENABLE: enable optical channel; DISABLE: disable optical channel
    - for OP40 packs, which cannot support OCH: DISABLE: disable optical channel
    - for OP40 packs, which only support OCH: ENABLE: enable optical channel.

    Default:
    - for OP10 packs, which cannot support OCH: DISABLE
    - for OP40 packs, which cannot support OCH: DISABLE
    - for OP40 packs, which only support OCH: ENABLE.
16. opdis – Optical Distance
    It shows the type of application for which the optical transmitter on this port is suited.
    Type: alphanumeric value set

Range:

- INTRA-OFFICE
- SHORT-HAUL
- LONG-HAUL
- VERY-LONG-HAUL
- OLS_PASSIVE
- OLS_400G
- OLS_800G
- XTREME.

17. opwl – Optical Wavelength
    Optical Wavelength in nanometers. It shows the type of optics that is used on this port.
    Type: numeric value set.
    Range (wavelength in [nm]): 0 (i.e. undefined), 1310; 1550; 1530.334 ... 1562.640 (i.e. C-Band); 1553.731 ... 1608.329 (i.e. L-Band). The value undefined is used e.g. in the context of optical modules if the retrieval of the inventory data is not yet supported.
18. outql – Outgoing timing quality
    This parameter provides the outgoing quality level message on the S1 SDH MS overhead byte.
    Type: alphanumeric value set
    Range:
    - PRC
    - SSUL
    - SSUT
    - SEC
    - DNU (default).
19. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
    This parameter describes the Line/Multiplex-Section Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):
    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

Default: The default values differ for SDH and SONET and the different rates:

- STM16: 460800
- STM64: 1843200
- STM256: 7372800
- SONET OC48: 2459
- SONET OC192: 9835
- SONET OC768: 39340.

20. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
    This parameter describes the Line/Multiplex-Section Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.

    Range (the range depends on the line rate but is identical for the corresponding SDH and SONET rates):

    - STM-16/OC-48: 1 – 3072000
    - STM-64/OC-192: 1 – 12288000
    - STM-256/OC-768: 1 – 49152000.

    Default: The default values differ for SDH and SONET and the different rates:

    - STM16: 460800
    - STM64: 1843200
    - STM256: 7372800
    - SONET OC48: 2459
    - SONET OC192: 9835
    - SONET OC768: 39340.

21. pmode – Port Mode
    This parameter sets the mode of the port. In the case of AUTO the pmode state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set

    Range:

    - AUTO (default) indicates that, when a signal is detected at the port, then alarm monitoring will start.
    - MON indicates that alarm monitoring is taking place on the port.
    - NMON means that alarm monitoring is not occurring on the port.

22. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
    This parameter describes the Section/RS Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of allowed ranges for SDH and SONET):1 – 64000
    Default: The default values differ for SDH and SONET and the different rates:
    - SDH (all rates): 2400
    - SONET OC48: 2392
    - SONET OC192: 8554
    - SONET OC768: 22776.
23. ptype – Port Type
    Description: This identifies the port type of the AID.
    Type: alphanumeric value set.
    Range: STM256.
24. rsmstca – RS/MS TCA Profile Pointer
    Definition of the active regenerator section/section and multiplex section/line threshold crossing alarm profile pointer.
    Type: alphanumeric string.
    Range: String with maximum of 24 characters.
    Default: DEFAULT0.
25. rspm – RS PM Enable
    Enable or disable regenerator section (section) performance monitoring.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
26. rstimca – RS TIM Consequent Action Enable
    Regenerator Section Trace Identifier Mismatch consequent action enable (J0). This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimca shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE (default): enable consequent action for TIM
    - DISABLE: disable consequent action for TIM.

27. rstimmon – RS TIM Monitor Enable
    Regenerator Section Trace Identifier Mismatch Monitor enable (J0).
    This parameter is relevant only if the related trace read format *strcfmt* is set to 16 (16-byte-specific-string mode). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter rstimmon shall be autonomously set by the neighbour detection mechanism.
    Type: alphanumeric value set.
    Range:
    - ENABLE: enable TIM Monitor
    - DISABLE (default): disable TIM Monitor
28. sdhpn – SDH ASAP
    This parameter retrieves the ASAP profile name of type PORT to which the designated AID points. The value of this parameter is identical to the SONET Alarm Severity Assignment Profile for the SONET ports (see definition of output parameter SONET in "RTRV-OC768: Retrieve OC768 port" (p. 4-1931)) to be compatible with current generation applications.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.
29. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in Burst or Poisson mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON.
30. servcond – Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
31. strc – Value of incoming J0
    This parameter shows the value of the Section Trace Identifier on the incoming section overhead J0 byte of a port. The length of the string depends on the value of the parameter *strcfmt*. The status of this value is contained in parameter *strcst*. If *strcst* indicates NORMAL, then strc contains a valid value. If *strcst* indicates UNAVAILABLE or AIS, then no incoming section trace identifier could be obtained by the system, e.g. due to a signal-fail condition, and the output parameter

strc is omitted from the response.
Type: hexadecimal (each byte is expressed as two hexadecimal digits. An example of a byte is 6D).
Range: 1 byte string, 16 byte string, 64 byte string (dependent on the strcfmt parameter).

32. strcfmt – Format of incoming J0
    The read format of J0, the incoming section trace (strc) and the expected section trace (exprstrc). If the prameter portClass is set to INNI and ndetmd is set to AUTO, the parameter strcfmt shall be autonomously set by the neighbour detection mechanism.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
33. strcout – Value of outgoing J0
    This identifies the section trace message to be transmitted. The length is set with the *strcwfmt* parameter.
    If ITU/ETSI mode 2 is selected (strcwfmt = 2) the outgoing J0 is fixed to 01hex. Therefore the setting of this parameter has no impact. If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcout according to the actually outgoing J0.
    Type: Hexadecimal digits.
    Range:
    - 1 byte string
    - 16 bytes string
    - 64 bytes string.

    Dependent on the strcwfmt parameter. Each byte is expressed as two hexadecimal digits (example value: 6D). Value constraint for 16 byte format: The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
    Default: 01Hex
34. strcst – Status of incoming J0
    This parameter shows the status of the value of the incoming RS/Section Trace Identifier which is available with parameter *strc*.
    Type: alphanumeric value set.
    Range: NORMAL: strc contains a valid value; UNAVAILABLE: no value for strc could be obtained by the system; AIS: no value for strc due to an SF condition.

35. strcwfmt – Format of outgoing J0
    The write format of J0, the outgoing section trace (strcout). If the prameter portClass is set to INNI, the system shall autonomously set the parameter strcwfmt according to the actually outgoing J0.
    Type: numeric string
    Range:
    - 1: for specific repeating byte (SONET)
    - 2 (default): for non-specific repeating byte (ITU/ETSI mode 2)
    - 16: for 16 byte specific string (ITU/ETSI mode 1).
    - 64: for 64 byte string (SONET).
36. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable:
    - TR-only (lso known as the implicit reset method)
    - TR-RTR (lso known as the explicit reset method).

    Type: alphanumeric value set.
    Range: TR or TRRTR (default).
37. unequiposig – Unequipped Output Signal List
    This parameter is a list of VCn rates across the port's bandwidth. It determines the rate(s) of the *unequipped* signal that will be transmitted if there is no cross-connection. *unequiposig* and *inputsig* do not need the identical setting. Mixed rates for *tx* and *rx* side of the port are allowed.
    Type: numeric value set.
    Range: NX-NX-NX-…
    N is the number of Xs. X can be 3, 4, 4C, 16C, C64 representing VC3, VC4, VC4-4C, VC4-16C or VC4-64C.
    Default: 2564 = all VC4.

Detailed behavior description

The command retrieves the parameters as described above.

The RTRV-STM256 command does not generate a REPT DBCHG message.

Example input/output

The following example shows the successful execution of a RTRV-STM256 command. Not all output parameters are listed (missing ones indicated by …):

```
RTRV-STM256:LT-UNITE:1-1-#-#-4-1:123456;
   LT-UNITE 00-11-24 08:00:00
M  123456 COMPLD
   "1-1-#-#-1-1:ptype=STM256,frcdus=DISABLE,dexcthr=-3,degthr=-6,
     pmode=MON,.....,pmmsneses=15,pmrsneses=30"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-STM256 command.

Check CCB against ptype and istd

See definition of error response in "RTRV-STM16: Retrieve STM16 port" (p. 4-2099).

Related TL1 messages

"ED-STM256: Edit STM256 port" (p. 4-796)

References

GR-199-CORE (RTRV-*rr*)

□

RTRV-STS1: Retrieve STS1 tributary

General

The RTRV-STS1 command is used to retrieve all parameters related to the STS1 tributary.

Note: If a tributary AID (Access IDentifier) is specifed in the RTRV-STS1 request for a slot provisioned with a GE1 pack (e.g. 1-1-#-#-1-1-1 is used), then an empty reply is returned instead of: `IENE - Input, Entity Not Exists`.

For GE1 the "RTRV-VCGTRIB: Retrieve virtual concatenation group tributary" (p. 4-2274) command must be used.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-STS1`:*tid:aid:ctag*;

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   AID of an SDH tributary. The keyword `all` is allowed on slot, port and tributary level. The so called ″dynamic parameters″ shall be reported, if a `all` is used at the tributary level.
   The ″dynamic parameters″ are:
   - *ptrc*, *ptrcst*, *siglb*, *trailstate*.

   Type: AID
   Range: STS1NumAID.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

   Important! To retrieve the dynamic parameters (*ptrc*, *ptrcst*, *siglb*, *trailstate*) of all tributaries use the "RTRV-ALL: Retrieve all (trib)" (p. 4-1596) command and set the parameter *dyn* to YES.

Output format

In response to a valid RTRV-STS1 command, the following output report is returned:

```
   sid date time
M  ctag COMPLD
   "aid[:spec_block]"
        ...
        ...
   "aid[:spec_block]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. aid – Access Identifier
   AID of the SONET tributary. The keyword `all` is not allowed on any level.
   Type: AID
   Range: STS1NumAID

Spec block parameters

1. brstintvl – Bursty Interval
   Measurement period for determining bursty errors The setting of this parameter is used when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
   If the STS-1 tributary is related to a EC1 port, then the parameter *sdsfmode* is fixed to POISSON. As a consequence, the parameter *brstintvl* will never be used by the system in this case.
2. brstthr – Bursty Error Threshold
   The values are set in percent for the degradation threshold. The setting of this parameter is used when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, 15, 20, 25, 30, … 50.
   Default: 30.
   If the STS-1 tributary is related to a EC1 port, then the parameter *sdsfmode* is fixed to POISSON. As a consequence, the parameter *brstthr* will never be used by the system in this case.

3. crslpbkrate – Cross-connect loopback Rate
   It is independent from the current interface standard and therefore both SDH and SONET values are allowed.
   The parameter *crslpbkrate* is not reported if the parameter *crlspbkstat* indicates that no loopback is set.
   Type: alphanumeric value set.
   Range:
   - VC3
   - VC4
   - VC44C
   - VC416C
   - VC464C
   - STS1
   - STS3
   - STS12
   - STS48
   - STS192
4. crslpbkstat – Cross-connect loopback status
   State of cross- connect loopback.
   Type: alphanumeric value set.
   Range:
   - YES = Cross-connect loopback is provisioned
   - NO (default) = No cross-connect loopback is provisioned.
5. degthr – Signal Degrade Threshold
   The setting of this parameter are used when *sdsfmode*=POISSON
   Type: numeric value set.
   Range (as exponents of 10): –5; –6 (default); –7; –8; –9
6. dexcthr – Excessive Degrade Threshold
   The setting of this parameter are used when *sdsfmode*=POISSON. The values are set as exponent of 10.
   Type: numeric value set.
   Range (as exponent of 10) –3 (default); –4; –5.
7. exphptrc – Expected Path Trace (J1)
   The parameter *exphptrc* specifying the expected path trace is only relevant for the path trace supervision when the path trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex.

8. feppm – Far-End Path PM Enable
   It indicates whether this performance monitoring feature is enabled or disabled.
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
9. loca – Ring A-node TID
   This parameter specifies the TID of the node at which the service is added to the BLSR ring. This parameter is required for the input of tributaries to be used by ONNS on ports of *portClass* =EDGE being members in BLSR/MSSPRING protection groups. The *loca* parameter value shall be an empty string for all other tributaries.
   loca is introduced specifically for use related to ONNS application.
   Type: TID or empty-string.
   Range: Please refer to the TID definition in "RTRV-HDR: Retrieve header" (p. 4-1736) description.
   Default: empty string: ″″. This is displayed as \″\″ in output direction.
10. locz – Ring Z-node TID
    This parameter specifies the TID of the node at which the service is dropped from the BLSR ring. This parameter is required for the output of tributaries to be used by ONNS on ports of *portClass*=EDG E being members in BLSR/MSSPRING protection groups. The *locz* parameter value shall be an empty string for all other tributaries.
    locz is introduced specifically for use related to ONNS application.
    Type: TID or empty-string.
    Range: Please refer to the TID definition in the "RTRV-HDR: Retrieve header" (p. 4-1736) description.
    Default: empty string: ″″. This is displayed as \″\″ in output direction.
11. hptimmon – Path Trace Monitoring Enable (J1)
    Description: High order path trace (J1) identifier mismatch (TIM) monitor enable. This parameter is relevant only if the related trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).
12. neppm – Near-End Path PM Enable
    It indicates whether this performance monitoring feature is enabled or disabled.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).

13. pmhpfeses – Performance Monitoring Path Far-End SES Threshold
    This parameter describes the Path Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. When the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of ranges for SDH and SONET): 1-64000.
    Default: 2400.
14. pmhpneses – Performance Monitoring Path Near-End SES Threshold
    This parameter describes the Path Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. When the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of ranges for SDH and SONET): 1-64000.
    Default: 2400.
15. pse – PDI-P Switching Enable
    The PDI-P Switching Enable parameter indicates if the PDI-P contributes to the automatic path protection switch criteria.
    Type: alphanumeric value set
    Range:
    - ENABLE
    - DISABLE (default).
16. ptca – Path TCA Profile Pointer
    Type: alphanumeric string.
    Range: string with up to 24 characters.
    Default: DEFAULT0.
17. ptrc – Path Trace (J1)
    This parameter shows the value of the path trace identifier on the incoming path overhead J1 byte of a non-terminated tributary. The length depends on the value of the parameter *ptrcrfmt*. The status of this value is contained in parameter *ptrcst*. If *ptrcst* indicates NORMAL, then ptrc contains a valid value. If *ptrcst* indicates UNAVAILABLE or AIS, then no valid incoming path trace identifier could be obtained by the system, e.g. due to a signal-fail condition or intra-NE communication problems, and the output parameter ptrc is omitted from the response. For concatenated tributaries the system shall not return this parameter (see detailed behavior below).
    Type: hexadecimal (each byte is expressed as two hexadecimal digits. An example of a byte is 6D).
    Range:
    - 1 byte for non-specific repeating byte
    - 16 byte: These 16 byte shall consist of 15 byte information and the CRC7 byte
    - 64 bytes: This is a pure byte stream without any restrictions.

18. ptrcrfmt – Path Trace Read Format (J1)
    The read format of J1, the incoming path trace (ptrc).
    Type: numeric string.
    Range:
    - 2: for non-specific repeating byte
    - 16: for 16 byte specific string.
    - 64: for 64 byte string.

    Default: 2.
19. ptrcst - Status of Incoming Path Trace (J1)
    This parameter shows the status of the value of the incoming path trace identifier which is available with parameter ptrc. For concatenated tributaries the system shall not return this parameter (see detailed behavior below).
    Type: alphanumeric value set.
    Range:
    - NORMAL: ptrc contains a valid value
    - UNAVAILABLE: no valid value for ptrc could be obtained by the system
    - AIS: no valid value for ptrc due to an SF condition.
20. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in BURST or POISSON mode.
    Type: alphanumeric value set.
    Range:
    - BURST
    - POISSON (default).

    If the tributary is related to a EC1 port, then the range shall be limited to: POISSON
21. siglb - Signal Label
    This parameter shows the value of the signal label on the incoming path overhead C2 byte of a non-terminated VC tributary.
    The parameter shall not be reported if the *trailstate* parameter indicates a fail condition, i.e. has the value AIS or UNAVAILABLE. For concatenated tributaries the system shall not return this parameter (see detailed behavior below).
    Type: alphanumeric value set.
    Range: 00, 01, ..., FE, FF; i.e. two hexadecimal digits.
22. substr - Sub Structured
    The parameter substr indicates if the tributary is sub structured. A sub structured HO tributary has a HO path termination associated which provides LO tributaries to be used for LO cross-connections.
    The parameter substr is set autonomously when LO cross-connections are created or deleted with ENT-CRS or DLT-CRS commands. (See also the lower order cross-connection creation/deletion behaviour description for the commands ENT-CRS and DLT-CRS.) A sub structured HO tributary cannot be used to set up

HO cross-connections.
Type: alphanumeric value set.
Range: YES, NO
If the STS-1 tributary is related to a EC1 port, then no LO cross-connections are allowed. As a consequence, the parameter *substr* will always be NO in this case.

23. tmonmd – Tributary Monitoring Mode
    This parameter indicates the mode of the tributary.
    Type: alphanumeric value set.
    Range:
    - MON = alarm monitoring is taking place on the port.
    - NMON (default) = alarm monitoring is not occurring on the port.
24. trailstate - Trail State (C2)
    It shall be possible to read the accepted trail value status (C2) of every VC which is terminated/monitored in the system. For concatenated tributaries the system shall not return this parameter (see detailed behavior below).
    Type: alphanumeric value set.
    Range:
    - NORMAL: for accepted TSL which has valid payload type
    - AIS: for SSF, VC-AIS, dTIM or dUNEQ
    - UNAVAILABLE: for TSL which does not meet the acceptance criteria or no reporting is possible.

    Default: UNAVAILABLE.
25. tribsonetpn – Tributary Alarm Severity Assignment Profile
    This parameter points to a tributary ASAP profile name of type PATH for the designated AID.
    Type: Alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters.
    Default: DEFAULT.

Detailed behavior description

Applicability for STS3c and concatenated signals

The RTRV-STS1 command is also applicable to STS3c tributaries. Even though a STS3c signal is not a concatenated STS1 signal in a strict sense, from a pointer processor viewpoint it can be considered to be comprised of three STS1 signals which have the properties of a concatenated signal. Thus it is not necessary to have a separate RTRV command for STS3c. Similarly, RTRV-STS1 is also applicable to other ″concatenated″ signals.

Retrieval of concatenated tributaries

The rules as defined for RTRV-VC3 apply as well.

Behavior for non-existing entities

If the specified VC3/VC4 tributaries do not exist, the command shall return an empty response. E.g. if an attempt is made, to retrieve VC3/VC4 tributaries on a GbE circuit pack.

Example input/output

```
RTRV-STS1:LT-UNITE:1-1-#-#-3-1-1:123456;
   LT-UNITE 00-11-27 08:00:00
M  123456 COMPLD
   "1-1-#-#-3-1-1:crslpbkstat=NO,tmonmd=NMON,
   tribsonetpn=Default,ptca=Default0,feppm=DISABLE,
   pmhpneses=30,pmhpfeses=30,degthr=-6,...,
   ptrcrfmt=1,dexcthr=-3,ptrc=00,ptrcst=NORMAL,
   sdsfmode=POISSON"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-STS1 command.

Check CCB against *istd* of related port

See definition of error response in "RTRV-VC3: Retrieve VC3 tributary" (p. 4-2246).

Related TL1 messages

"ED-STS1: Edit STS1 tributary" (p. 4-823)

References

GR-199-CORE (RTRV-*rr*)

□

RTRV-SYNCN: Retrieve synchronization

The command displays the provisioning and operational information of the synchronization attributes as set by the SET-SYNCN command and after initial system start-up. It also displays the status of the external timing reference input and output ports.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-SYNCN`:*tid*:*[aid]*:*ctag*;

Input parameters

Command parameters

1. tid – target identifier
   See definition of *tid – target identifier* in "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – access identifier
   This parameter is used to identify the timing related settings. The AID separates the parameter in system timing related parameter, output timing related parameters, parameters related to assigned timing references and parameters for external timing input and external timing output. The *all* AID retrieves all retrievable parameters for synchronization. If the AID is omitted, the outputs for the whole synchronization area are given.
   Type: AID
   Range:
   - SystemAID
   - Timing_Output_AID
   - External_timing_ref_AID
   - Line_timing_ref_AID
   - External_Timing_input_port_AID
   - External_Timing_output_port_AID
   - `all`.

   Default: `all`.
3. ctag – correlation tag
   See definition of *ctag – correlation tag* in "RTRV-HDR: Retrieve header" (p. 4-1736).

Output format

After receiving the RTRV-SYNCN command, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
   "aid:spec_block"
        ...
        ...
   "aid:spec_block"
;
```

Output parameters

Command parameters

1. aid – access identifier
   This parameter specifies the timing related settings.
   Type: AID
   Range:
   - SystemAID
   - Timing_Output_AID
   - External_timing_ref_AID
   - Line_timing_ref_AID
   - External_Timing_input_port_AID
   - External_Timing_output_port_AID

   Default: Not applicable.

Spec block parameters

1. System Timing
   a. active_ref – active timing reference status
      This parameter displays the active timing reference, which the system clock is currently using for locked mode of system timing. If no timing reference is assigned or all references are failed the AID value EXTREF1 is returned.
      Type: AID
      Range: External_timing_ref_AID, Line_timing_ref_AID
      Default: EXTREF1.
   b. clkmod – clock mode
      This parameter specifies the provisioned operational mode of the system timing. In the clockmod == FREE-RUNNING mode the system clock process uses the internal oscillator as reference. In the clockmod == LOCKED mode the system clock process uses the input signal from the system.
      Type: Alphanumeric value set.
      Range: FREE-RUNNING, LOCKED.

Default: FREE-RUNNING.

c. clkmod_stat – system clock mode status

This parameter specifies the state of the system clock. The range is depending on the system synchronization characteristic.

NORMAL: This operational mode indicates either the NE derives timing from the internal oscillator when clockmod == FREE-RUNNING, or the system timing is locked to a timing reference signal when clockmod == LOCKED and the reference is derived from one of the timing input signals. Refer to *clkmod* parameter.

AUTONOMOUS-HOLDOVER: This state indicates that all references are failed and no higher priority request is present.

FORCED-HOLDOVER: This operational mode is caused by a Clock Backup Request.

FAST-START: This operational mode indicates for fast pull-in of the clock when recovering from holdover (for SONET only).

The values AUTONOMOUS-HOLDOVER, FORCED-HOLDOVER and FAST-START are only possible when clockmod == LOCKED.

Type: Alphanumeric value set.

Range:

SONET: NORMAL, AUTONOMOUS-HOLDOVER, FORCED-HOLDOVER, FAST-START.

SDH: NORMAL, AUTONOMOUS-HOLDOVER, FORCED-HOLDOVER.

Default: NORMAL

d. refsw_stat – reference switch status

The System Timing Reference Switch Request State is a state of the system timing.

The value FORCED means, the system enters the Forced Switch state upon the initiation and successful completion of the Forced Switch command. While in the Forced Switch state the system may not switch the active timing reference, neither automatically nor by means of the Forced Switch or Manual Switch command.

The value MANUAL means, the system enters the Manual Switch state upon the initiation and successful completion of the Manual Switch command. While in the Manual Switch state the system may switch the active timing reference automatically if required for protection switching.

The parameter NO-REQUEST indicates, this is the routine-operation quiet state in which no external command activities are occurring. The system enters this state upon initial start-up, and following a clear command, or the clearing of an automatic switch.

Type: Alphanumeric value set.

Range: MANUAL, FORCED, NO-REQUEST.

Default: NO-REQUEST.

e. stratum_level – stratum level status

This parameter provides information about the level of the system clock. The parameter is depending from the system synchronization characteristic.

Type: Alphanumeric value set
Range:
SONET: 3
SDH: SEC
Default:
SONET: 3
SDH: SEC.

f. syncmsg – system synchronization status messaging mode

This parameter is used to ENABLE or DISABLE the SSM protocol.
The parameter provisions the automatic reference selection process to use the incoming QLs in QL-enabled mode or to ignore them in QL-disabled mode. In case of DISABLE, for SDH all output SSMs shall be set to DNU, for SONET all output SSMs shall be set to STU.
Type: Alphanumeric value set.
Range: ENABLE, DISABLE.
Default: ENABLE.

g. sysql_stat – system quality level status

This parameter indicates the overall system timing quality level status. If the system configured as SONET then the SONET related values are indicated and if the system configured as SDH the SDH related values are indicated.
Type: Alphanumeric value set.
Range:
SONET: PRS, STU, ST2, ST3, DUS
SDH: PRC, SSUL, SSUT, SEC, DNU.
Default:
SONET: DUS
SDH: DNU.

h. timing – ASAP name

This parameter specifies the name of the ASAP (Alarm Severity Assignment Profile) that is assigned to timing.
Type: Alphanumeric value set.
Range: PFNAME (alphanumeric string with 1… 24 characters). A hyphen (-) is additionally allowed in the name.
Default: Default

i. wtr – wait to restore

This parameter specifies the provisioned wait to restore timer used for all timing ports for revertive switching. This is the amount of time it takes to switch from lower priority to higher priority references. The value range depends from the system synchronization characteristic.
Type: Alphanumeric value set.
Range:
SONET: 0SEC, 20SEC, 0…60MIN (1 minute steps), 99 (infinite).

SDH: 0SEC, 0…60MIN (1 minute steps); the values “0SEC” and “0MIN” can be used for SONET and SDH to provision a zero wait to restore time.

Default:

SONET: 20SEC

SDH: 5MIN

j. wu_stat – warm up status

This parameter is an attribute of the timing pack hardware design.

At initial start up of the system and at replacing of the active or standby timing function the system is in warm-up state. DNU/DUS is transmitted during this state on all ports. The clock would be expected to warm up for a temporary period of time before transition to NORMAL.

Type: Alphanumeric value set.

Range: NORMAL, WARMING-UP.

Default: NORMAL.

2. Output Timing (instance only valid for SDH)

a. active_oref_stat – active output timing reference status

This parameter displays the current selected timing reference of the timing link switch for the external output.

This parameter and its value is relevant only when the following conditions apply: - the system timing is not in hold-over or in free-running mode AND; - the external output timing is not locked to system timing (i.e extout_prov=SETG).

Type: AID.

Range: Line_timing_ref_AID.

Default: LINE1.

b. orefswr_stat – output timing reference switch request status

This parameter indicates the output timing reference switch request state.

The value MANUAL means, a manual switch is active to the external timing output. The value FORCED means, a forced switch is active to the external timing output. The value NO-REQUEST means, no external command activities are occurring at the external timing output.

Type: Alphanumeric value set.

Range: MANUAL, FORCED, NO-REQUEST.

Default: NO-REQUEST.

3. Assigned Timing Reference

a. extout_pri – timing output reference priority

This parameter specifies the priority assignment of the timing link switch of the external output timing. This parameter is only for SDH and for line timing references.

The greater the number the lower the priority. The number ″1″ indicates the highest priority. The priority ″0″ means not assigned for external output.

Type: Numeric value set.

Range: 0 (means DISABLED), 1, 2, 3, 4, 5, 6.

Default: 0 (means DISABLED).

b. inql – assigned timing reference quality value

This parameter displays the input synchronization message for each port of the timing link switch provisioning of the system timing and of the output timing. In the output timing context the values for SDH are valid only. In case of invalid SSM, the value DNU or DUS is displayed. The value range depends from the system synchronization characteristic.

Type: Alphanumeric value set.

Range: SONET: PRS, STU, ST2, ST3, DUS

SDH: PRC, SSUT, SSUL, SEC, DNU.

Default: Not applicable.

c. inql_stat – input quality status

This parameter indicates the synchronization messaging quality level status for the specified timing reference.

The parameter describes the validity of the incoming quality level and take the following values: VALID, when the QL is a valid SSM and stable, INVALID, when the QL is not a valid SSM, or unstable, NOT-SUPPORTED, when SSM reception is not supported on that interface due to HW capabilities or the chosen format of the input signal (such as 2MHz), NOT-APPLICABLE, when no port is assigned to the current timing reference or the assigned timing reference experiences a reference fail.

Type: Alphanumeric value set.

Range: VALID, INVALID, NOT-SUPPORTED, NOT-APPLICABLE.

Default: NOT-APPLICABLE.

d. ql_prov – quality provisioned

This parameter defines the quality for the specified timing reference to a fixed SSM value. It is the provisioned quality level sync message value that will be received on timing references.

This parameter is related to all assigned timing references (both external timing references and line timing references) and overrides what is received for the respective timing reference. The AUTO value implies sync message support. The AUTO value is rejected if SSM is not supported for the assigned timing reference (i.e. for DS1 SF). The value range depends from the system synchronization characteristic. Per default shall be:

AUTO – for STM-N/OC-N line, 2Mbit/s framed or DS1 ESF with SSM,

SSUT – for 2MHz, 2Mbit/s unframed or framed without SSM

STU – for DS1 SF or DS1 ESF without SSM

Type: Alphanumeric value set.

Range:

SONET: AUTO, PRS, STU, ST2, ST3

SDH: AUTO, PRC, SSUL, SSUT, SEC.

Default:

SONET: AUTO (External_timing_ref_AID, Line_timing_ref_AID)

SDH: AUTO (Line_timing_ref_AID) SSUT (External_timing_ref_AID).

e. ref_lock – timing reference lockout status

This parameter displays the timing reference lockout state to the specified timing reference. It is the input status for each port of the timing link switch provisioning of the system timing.

The value LOCKOUT means, the assigned reference has been locked out by the user, and cannot be used as a timing reference signal until the lockout is cleared.

Type: Alphanumeric value set.

Range: LOCKOUT, NO-LOCKOUT.

Default: NO-LOCKOUT.

f. ref_stat – assigned timing reference signal status

The Assigned Timing Reference Signal Status is a status of each timing reference.

The status NORMAL means, the timing reference is available and operating normally without faults. The status FAILED means, the timing reference is failed. The status WAIT-TO-RESTORE means, the wait to restore timer is active before transition to NORMAL. The status NOT-CONNECTED means, there is no timing reference signal connected to the timing port.

Type: Alphanumeric value set.

Range: NORMAL, FAILED, WAIT-TO-RESTORE, NOT-CONNECTED.

Default: NOT-CONNECTED.

g. sclkref_lockstat – station clock output timing reference lockout state

This parameter indicates the assigned station clock output timing reference lockout state. This parameter is only for SDH and for line timing references.

Type: Alphanumeric value set.

Range: LOCKOUT, NO-LOCKOUT.

Default: NO-LOCKOUT.

h. syncref_pri – system timing reference priority

This parameter defines the priority for assigned timing references.

When multiple input references have been given the same priority value, it implies non-revertive switching between the associated references. Otherwise, it implies revertive switching to the reference with the highest assigned priority. When the QL-control is disabled, the selection process is controlled by signal status and port priority. The greater the number, the lower the priority. Priority ″0″ means not assigned.

Type: Numeric value set.

Range: 0 (means DISABLE), 1, 2, 3, 4, 5, 6, 7, 8.

Default: 0 (means DISABLE).

i. timing – ASAP name

See definition in “RTRV-SYNCN: Retrieve synchronization” (p. 4-2157) section system timing of this parameter.

j. tpmode – timing port mode monitoring

This parameter specifies the monitoring status of the timing port. If the timing port is in the MONITORED mode and the reference is in FAILED status alarms are active for this port. The value NOT-MONITORED means that alarm monitoring is not occurring on the port.

Type: Alphanumeric value set.

Range: MONITORED, NOT-MONITORED.

Default: NOT-MONITORED.

k. tpql_in – incoming SSM value of the timing port

This parameter indicates the QL value for the timing port. The value range depends on the system synchronization characteristic.

The parameter describes the incoming SSM and takes the following values:

PRS – Stratum-1 Traceable STU – Synchronized Traceability Unknown

ST2 – Stratum-2

ST3 – Stratum-3

DUS/DNU – Don't Use for Synchronization

PRC – Primary Reference Clock

SSUT – Synchronization Supply Unit Transit node

SSUL – Synchronization Supply Unit Local node

SEC – SDH Equipment Clock

SSMn – other SSM values with invalid state (for SDH)

UNSTABLE – value is unstable

NONE – SSM value not supported by hardware

Type: Alphanumeric value set.

Range:

SONET: PRS (0001), STU (0000), ST2 (0111), ST3 (1010), DUS (1111), NONE

SDH: PRC (0010), SSUT (0100), SSUL (1000), SEC (1011), DNU (1111), SSM0 (0000), SSM1 (0001), SSM3 (0011), SSM5 (0101), SSM6 (0110), SSM7 (0111), SSM9 (1001), SSM10 (1010), SSM12 (1100), SSM13 (1101), SSM14 (1110), UNSTABLE, NONE.

Default: Not applicable.

l. tref_aid – timing reference assigned port AID

This parameter specifies the port AID of the assigned timing reference AID.

The parameter is rejected, if the timing reference already assigned to a timing port, or if the reference does not support SSM and timing port is provisioned AUTO, or if the unit which delivers the reference is not present or pre-provisioned. It is not possible to assign more then one reference from a unit. It is not possible to un-assign units from which a reference is assigned to a timing port. It is also not possible to assign a reference from a protection port in a protection group. The value NOT-CONNECTED means no reference is assigned to current timing port.

Type: AID.

Range: External_Timing_input_port_AID, SPortAID, NOT-CONNECTED.

Default: NOT-CONNECTED.

4. External Timing Input
   a. ext_if – external input signal format

      This parameter specifies the format of the external timing input.

      The value range depends on the system synchronization characteristic. The external timing input format can be set at both external timing inputs individually. The reference is rejected, if the reference does not support SSM and the timing port is provisioned AUTO.

      Type: Alphanumeric value set.

      Range:

      SONET: SF, ESF

      SDH: 2MHz, 2Mbit-unframed, 2Mbit-framed.

      Default:

      SONET: ESF

      SDH: 2MHz.

   b. ext_isa – external input sa bit location

      This parameter defines the external input Sa bit location. It is only valid for the external timing input format “2Mbit/s” framed; i.e. for ports with format unequal to “2Mbit/s framed” the parameter value is retrievable, but it has no impact on the ports transmission behavior.

      The location of the Sa bit is can be set at both external timing inputs individually. One of the Sa4 to Sa8 bits of the 2Mbit/s sub-multiframe is allocated for Synchronization Status Messages (SSM).

      Type: Alphanumeric value set.

      Range: SA4, SA5, SA6, SA7, SA8.

      Default: SA4.

   c. ext_issm – external input ssm support

      This parameter specifies if the SSM mode is supported or not on the external timing input port.

      The parameter is adjustable individually to both external timing input ports.

      Type: Alphanumeric value set.

      Range: SUPPORTED, NOT-SUPPORTED.

      Default: SONET: SUPPORTED, SDH: NOT-SUPPORTED.

5. External Timing Output
   a. ext_equ – cable equalization

      This parameter specifies the timing output cable equalization to adjust the specified timing reference output signal power. This parameter is valid only for DS1 (SONET).

      This parameter is rejected for all input interfaces except DS1. The values are represented by percentage (3.0dB=100%; 2.4dB=80%; 1.8dB=60%; 1.2dB=40%; 0.6dB=20%).

      Type: Numeric value set.

      Range: 20, 40, 60, 80, 100.

Default: 20.

b. ext_of – external output signal format

This parameter specifies the external output signal format. The value range depends from the system synchronization characteristic.

Type: Alphanumeric value set.

Range:

SONET: SF, ESF

SDH: 2MHz, 2Mbit-unframed, 2Mbit-framed.

Default:

SONET: ESF

SDH: 2MHz.

c. ext_osa – external output sa bit location

This parameter defines the external output Sa bit location. This parameter is only valid for external timing output format “2Mbit/s framed”; i.e. for ports with format unequal to “2Mbit/s framed” the parameter value is retrievable, but it has no impact on the ports transmission behavior.

Type: Alphanumeric value set.

Range: SA4, SA5, SA6, SA7, SA8.

Default: SA4.

d. ext_out_sig_stat – external output signal status

This parameter indicates the external output signal status.

The value NORMAL indicates when the output timing signal is enabled and providing a correctly synchronized output timing signal. The value DISABLED indicates when the output timing signal has been disabled by means of user provisioning. The value UNACCEPTABLE indicates when the output timing signal is enabled but the timing output does not provide a suitable timing reference signal. This is caused by failed reference into the timing output process or references rejected based on threshold AIS criteria.

Type: Alphanumeric value set

Range: NORMAL, DISABLED, UNACCEPTABLE.

Default: DISABLED.

e. extout_en – external timing output enabling/disabling

This parameter specifies whether the external timing output is enabled or disabled.

Type: Alphanumeric value set.

Range: ENABLE, DISABLE.

Default: DISABLE.

f. extout_prov – external timing output selection

This parameter specifies the operation mode of the external output timing.

The value SETG means the system clock. The value TLS means the output. For SONET both values are fixed to the respective external timing output. The value range depends on the system synchronization characteristic.

Type: Alphanumeric value set.

Range:
SONET: LINE1 [fix for output 1], LINE2 [fix for output 2]
SDH: SETG, TLS.
Default: SONET: LINE1 [fix for output 1], LINE2 [fix for output 2]
SDH: SETG.

g. extout_ssm – external timing output AIS mode

This parameter specifies which value will be send when the signal level is below the quality acceptance level or when *frcdus* is enabled. The parameter is valid depending from the system synchronization characteristic, for SDH 2Mbit/s framed and for SONET DS1 ESF; i.e. for ports with format unequal to “2Mbit/s framed” or “DS1 ESF” the parameter value is retrievable, but it has no impact on the ports transmission behavior.

The value AISMODE means AIS is inserted in the external timing output signal. The value QLMODE means DUS is inserted in the external timing output signal.

Type: Alphanumeric value set.
Range: AISMODE, QLMODE.
Default: QLMODE.

h. frcdus – forced DNU/DUS

This parameter specifies the synchronization messaging forced DNU/DUS enable or disable for the timing output port. DUS applies to SONET and DNU applies to SDH. This is only valid for ’2Mbit/s framed’ and ’DS1 ESF’; i.e. for ports with format unequal to “2Mbit/s framed” or “DS1 ESF” the parameter value is retrievable, but it has no impact on the ports transmission behavior.

Type: Alphanumeric value set.
Range: ENABLE, DISABLE.
Default: DISABLE.

i. loopdelay – timing regenerator loop delay

This parameter indicates the delay in the SASE/BITS loop operation. The values are represented by seconds in steps of 1 seconds per loop.

Type: Numeric value set.
Range: 0…60 (1 seconds steps).
Default: 10.

j. ql_out – quality of the external timing output port

This parameter indicates the quality value on the signal for the timing output port.

Type: Alphanumeric value set.
Range:
SONET: PRS, STU, ST2, ST3, DUS
SDH: PRC, SSUL, SSUT, SEC, DNU.
Default: Not applicable.

k. qlout_tais – acceptance quality level for output threshold AIS

This parameter is the provisioned quality acceptance level for external timing output. When the incoming message is below this level, AIS or DUS (depending from the *extout_ssm* value) will be inserted into the external timing output. The value range depends from the system synchronization characteristic.

Type: Alphanumeric value set.

Range:

SONET: PRS, STU, ST2, ST3

SDH: PRC, SSUT, SSUL, SEC.

Default:

SONET: ST3

SDH: SEC.

l. regen_loop – timing regenerator loop

This parameter specifies the avoiding of loops over the SASE/BITS clocks. When this parameter is set to ENABLED, the synchronization message DUS will be inserted in the traffic output port associated with the traffic input port used as source for the station clock. The parameter is selectable for both external timing outputs individually.

Type: Alphanumeric value set.

Range:

SONET: DISABLE, ENABLE

SDH: DISABLE, EXTREF1, EXTREF2, BOTH.

Default:

SONET: ENABLE

SDH: DISABLE.

m. timing – ASAP name

See definition in "RTRV-SYNCN: Retrieve synchronization" (p. 4-2157) section system timing of this parameter.

Detailed behavior description

The RTRV-SYNCN command retrieves the output parameters values for the specified input AID as described in "RTRV-SYNCN: Retrieve synchronization" (p. 4-2157) output parameters section.

Example input/output

The following is an example of the RTRV-SYNCN command:

```
RTRV-SYNCN:LT-UNITE:extrefall:123456;
   LT-UNITE 00-11-13 12:00:00
M  123456 COMPLD
   "EXTREF1:tref_aid=EXTTMG0,syncref_pri=2,ref_stat=NORMAL,
ref_lock=NO-LOCKOUT,inql=SSUT,inql_stat=NOT-SUPPORTED"
   "EXTREF2:tref_aid=EXTTMG1,syncref_pri=3,ref_stat=NORMAL,
ref_lock=NO-LOCKOUT,inql=SSUT,inql_stat=NOT-SUPPORTED"
```

;

Related TL1 messages

- "SET-SYNCN: Set synchronization" (p. 4-2318)
- "OPR-SYNCNSW: Operate synchronization switch " (p. 4-1492)
- "RLS-SYNCNSW: Release synchronization switch" (p. 4-1586)

□

RTRV-T3: Retrieve DS3 port

The RTRV-T3 command shall be used to retrieve all parameters related to the electrical DS3 port.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes.

Input format

Command Syntax:

`RTRV-T3:`*tid:aid:ctag;*

Input parameters

Command parameters

1. tid – Target Identifier
   See definition in "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   Access Identifier of a DS3 port.
   Type: AID
   Range: APortAID of DS3 port. The keyword ″all″ shall be allowed up to shelf level.
3. ctag – Correlation Tag
   See definition in "RTRV-HDR: Retrieve header" (p. 4-1736).

Output format

In response to a valid RTRV-T3 command, the following output report shall be returned:

```
   sid date time
M  ctag COMPLD
   ″aid[:spec_block]″
      ...
      ...
   ″aid[:spec_block]″
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section for the RTRV-HDR command.

Output parameters

Command parameters

1. aid – access identifier
   Type: AID
   Range: APortAID of DS3 port

Spec block parameters

1. cbitmis - C-bit Signal Format Mismatch
   DS3 C-bit Signal Format Mismatch parameter indicates a mismatch between the C-bit parity formatand the format of the incoming DS3 signal (ingress direction).
   The DS3 C-bit Signal Format Mismatch parameter shall have the value:
   - NORMAL, if the Signal Format (fmt) is set to C-BIT and a DS3 signal in C-bit parity channelized DS3 format is received
   - MISMATCH, if the Signal Format (fmt) is set to C-BIT and a DS3 signal in M23 channelized DS3 format is received
   - NA, if the Signal Format (fmt) is set to C-BIT and one of the alarms DS3LOS, DS3LOF, DS3AIS, DS3IDLE is present, or if the Signal Format (fmt) is set to another value than C-BIT, or if the value cannot be determined because pmode is set to AUTO or NMON or the circuit pack is not present or other system internal reasons.

   Type: alphanumeric value set
   Range: NORMAL, MISMATCH, NA.
2. ds3pn - DS3 ASAP
   DS3 Alarm Severity Assignment Profile. This parameter retrieves the ASAP profile name of type DS3 to which the designated AID points.
   Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: String with a maximum of 24 characters.
   Default: DEFAULT.
3. eif - Electrical Interface Type
   The parameter eif indicates the type of input the port has been provisioned to receive.
   Type: alphanumeric value set.
   Range: DS3
4. feac - Far-End Alarm and Control
   The parameter *feac* indicates the status of the FEAC channel of the incoming C-bit parity formatted DS3 signal. The parameter is only applicable, if fmt is set to C-BIT. The parameter shall have the value ″NA″ if the parameter is not applicable (fmt = M23 or UNFRAMED-CC), or the value for the parameter is not available because it cannot be determined.
   Type: alphanumeric string.
   Range: String with 6 characters.

5. fmt - Signal Format
   This parameter shows the format for the DS3 signal
   Type: alphanumeric value set. A hyphen (-) is additionally allowed in the alphanumeric values.
   Range:
   - C-BIT (default): C-bit parity channelized DS3 format
   - M23: M23 channelized DS3 format
   - UNFRAMED-CC: UNFRAMED and CLEAR-CHANNEL format
6. fsflpbkstat - Far Side Facility Loopback Status
   This parameter specifies the current far-side facility loopback status of the considered output aid. A far-side loopback means that the signal on the outgoing port is looped to the incoming port - this would thus correspond to loop via an external fibre cable, connecting the out-port with the in-port. If YES then the port is (far-side) loop-backed - if NO then there is no (far-side) loopback exististing for the aid.
   Note: not both loopbacks (lpbk and fsflpbkstat) can be set to YES at the same time
   Type: alphanumeric value set
   Range: YES, NO (default)
7. infepm - Incoming DS3 Far End Path PM Enable
   This parameter enables/disables the incoming DS3 far end path performance monitoring.
   Type: alphanumeric value set.
   Range: ENABLE, DISABLE (default).
8. inlnpm - Incoming DS3 Line PM Enable
   This parameter enables/disables the incoming DS3 line performance monitoring.
   Type: alphanumeric value set.
   Range: ENABLE, DISABLE (default).
9. inpm - Incoming DS3 Near End Path PM Enable
   This parameter enables/disables the incoming DS3 near end path performance monitoring.
   Type: alphanumeric value set.
   Range: ENABLE, DISABLE (default).
10. lbo - Line Build Out
    This parameter defines the cable length applicable for the DS3 port.
    Type: alphanumeric value set.
    Range:
    - SHORT (default): 0 ... 68.5 m (0 ... 225 ft)
    - LONG: 68.5 ... 137 m (225 ... 450 ft).

11. lpbk - Loopback
    This parameter specifies the current near-side loopback status of the considered output *aid*.
    A near-side loopback means that the signal on the incoming port is looped to the outgoing port. If YES then the port is (near-side) loop-backed – if NO then there is no (near-side) loopback existing for the port.
    Type: alphanumeric value set.
    Range:
    - YES
    - NO (default).
12. outmntc - Outgoing Maintenance Signal
    This parameter determines whether an AIS, a DS3AIS or IDLE signal is transmitted in response to an unconnected input.
    Type: alphanumeric value set.
    Range: AIS (default), DS3AIS, IDLE
13. outfepm - Outgoing DS3 Far End Path PM Enable
    This parameter enables/disables the outgoing DS3 far end path performance monitoring.
    Type: alphanumeric value set.
    Range: ENABLE, DISABLE (default).
14. outpm - Outgoing DS3 Near End Path PM Enable
    This parameter enables/disables the outgoing DS3 near end path performance monitoring.
    Type: alphanumeric value set.
    Range: ENABLE, DISABLE (default).
15. pmode - Port Mode
    This parameter sets the mode of the port. In the case of AUTO the *pmode* state transitions to MON if the loss-of-signal alarm of this port is cleared.
    Type: alphanumeric value set
    Range: AUTO (default): indicates that, when a signal is detected at the port, then alarm monitoring will start. MON: indicates that alarm monitoring is taking place on the port. NMON: means that alarm monitoring is not occurring on the port.
16. pmsesl - PM Threshold for SES - Line
    PM Threshold (errors in a second) for declaring SES - Line
    Type: numeric value set.
    Range: 1 ... 8000
    Default: 44
17. pmsesp - PM Threshold for SES - Path Incoming
    PM Threshold (errors in a second) for declaring SES - Path in incoming direction.
    Type: numeric value set.
    Range: 1 ... 8000
    Default: 44

18. pmsespfe - PM Threshold for Far-End SES - Path Incoming
    PM Threshold (errors in a second) for declaring Far-End SES - Path in incoming direction.
    Type: numeric value set.
    Range: 1 ... 8000
    Default: 44
19. pmsespfeout - PM Threshold (errors in a second) for declaring Far-End SES - Path in outgoing direction.
    Type: numeric value set.
    Range: 1 ... 8000
    Default: 44
20. pmsespout - PM Threshold for SES - Path Outgoing
    PM Threshold (errors in a second) for declaring SES - Path in outgoing direction.
    Type: numeric value set.
    Range: 1 ... 8000
    Default: 44
21. ptype - Port Type
    This üparameter identifies the port type of the AID.
    Type: alphanumeric value set.
    Range: T3
22. sdthr - Signal Degrade Threshold
    Signal degrade threshold in a range from 10exp-3 to 10exp-9.
    Type: numeric value set.
    Range: (as exponents of 10): -3, -4, -5 -6 (default), -7, -8, -9
23. servcond - Service Condition
    This parameter indicates its status concerning service involvement.
    Type: alphanumeric value set.
    Range:
    - INSERVICE (default): Provisioning values for service are accepted
    - OUTOFSERVICE: Provisioning values for service are not accepted.
24. tca - DS3 PM TCA
    The parameter tca assigns an DS3 PM TCA profile name to the designated AID.
    Type: alphanumeric value set. A hyphen (-) is additionally allowed in the name.
    Range: String with a maximum of 24 characters, DEFAULT, DEFAULT0 (default).
25. vmr - Violation Monitoring Mode
    This parameter indicates the status of the DS3 P-bit parity violation monitoring and removal.
    Type: alphanumeric value set. A hyphen (-) is additionally allowed in the alphanumeric values.
    Range: VMR, VM, NO-VM (default)

Detailed behavior description

The command shall retrieve the parameters as described above. The RTRV-T3 command do not generate a REPT DBCHG message.

Example input/output

The following example shows the successful execution of a RTRV-T3 command. Not all output parameters are listed (missing ones indicated by ...).

```
RTRV-T3:LT-UNITE:1-1-#-#-21-1:123456;
   LT-UNITE 00-11-13 12:00:00
M  123456 COMPLD
   "1-1-#-#-21-1:cbitmis=NORMAL,eif=DS3,ptype=T3,
   fmt=C-BIT,....sigmis=NORMAL,vmr=NO-VM"
;
```

Error responses

See definition in "RTRV-HDR: Retrieve header" (p. 4-1736) command error responses section for general validation rules. The error responses listed there also apply to the RTRV-T3 command.

Validation rule: Check CCB against *ptype* and *eif*

Check wether the CCB fits to *ptype* and *eif*.

```
Error Code: ICNV - Input, Command Not Valid, Interface Type does not
match
```

Releated TL1 messages

- "ED-T3: Edit DS3 port" (p. 4-840)
- "ENT-T3 notification" (p. 4-1341)
- "DLT-T3 notifications" (p. 4-185)

References

GR-199-CORE (RTRV-*rr*)

□

RTRV-TACC: Retrieve test access

General

The RTRV-TACC command is used to retrieve the test access-related information on one or all of the test tributaries in the NE. Only the primary test tributary is retrieved.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): T1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-TACC-`*modifier:tid:aid:ctag;*

Input parameters

Command parameters

1. modifier
   Tis parameter indicates the cross-connection rate on which the retrieve test access command is to act.
   A distinction of the modifier usage has to be made between the retrieval (RTRV-TACC-modifier) and the other test access related commands (CONN-TACC-modifier, DISC-TACC-modifier, CHG-ACCMD-modifier):
   - The establishment (CONN-TACC-modifier), removal (DISC-TACC-modifier) or modification (CHG-ACCMD-modifier) of test access sessions is independent of the provisioned port interface-standard. I.e., either the SDH-rates (VC3, VC4 etc.) or the corresponding SONET-rates (STS1, STS3 etc.) can be used as modifier and no command validation between port interface-standard and modifier will be performed.
   - For the RTRV-TACC-modifier command the following holds: Again, no command validation between port interface-standard and modifier will be performed. The output parameter *rate*, however, is filled with the *rate* which was used with the CONN-TACC-modifier command.

   Type: alphanumeric value set.

Range:

- ALL
- SDH modifier: VC3, VC4, VC44C, VC416C, VC464C
- SONET modifier: STS1, STS3, STS12, STS48, STS192.

2. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

Output format

In response to a valid RTRV-TACC command, the following output report shall be returned:

```
   sid date time
M  ctag COMPLD
   ″tatrib1:rate[:spec_block]″
        ...
        ...
   ″tatrib1:rate[:spec_block]″
;
```

The output parameters *sid*, *date*, *time* and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

The NE returns the following normal completion response for a successful RTRV-TACC command if no test access activity is found on the specified tributaries in the system:

```
   sid date time
M  ctag COMPLD
;
```

This output format is only valid if 'all' is used in the *aid*. Otherwise the validation rule leads to an error message.

Output parameters

Command parameters

1. tatrib1 – primary Test Access Tributary
   AID of the primary test access tributary. The keyword *all* is not allowed on any level.
   Type: AID
   Range: STS1NumAID
2. rate – Test Access rate
   This parameter specifies the rate of the signal that is being tested.
   Type: alphanumeric value set.
   Range: VC3, VC4, VC44C, VC416C, VC464C, STS1, STS3, STS12, STS48, STS192.

Spec block parameters

1. eomode – output mode of the E-tributary
   This parameter is only present if the test session is created on a 2-way cross-connection. The parameter is omitted for test sessions on 1-way cross-connections or on idle E-tributaries.
   Type: alphanumeric value set.
   Range:
   - NORM: this is the normal output i.e. the signal from the F-tributary is passed through to the E-tributary
   - AIS: this mode outputs an AIS signal.

   Default:
   - NORM, if the referring Ttest mode does not disconnect the output of the original cross-connection to this tributary
   - AIS, in all other case.
2. etrib – AID of the E-tributary
   AID of the E-tributary for the test session.
   Type: AID
   Range: GenTribAID
3. fomode – output mode of the F-tributary
   This parameter is only present if the test session is created on a 1-way or 2-way cross-connection. The parameter is omitted for test sessions on idle E-tributaries.
   Type: alphanumeric value set.
   Range:
   - NORM: this is the normal output i.e. the signal from the E-tributary is passed through to the F-tributary
   - AIS: this mode outputs an AIS signal.

Default:

- NORM, if the referring test mode does not disconnect the output of the original cross-connection to this tributary
- AIS, in all other cases.

4. ftrib – AID of the F-tributary
   AID of the F-tributary for the test session. If there is no cross-connection at the E-tributary, this parameter is omitted.
   Type: AID.
   Range: GenTribAID.
5. tatrib2 – secondary Test Access Tributary
   AID of the secondary Test Access Tributary. In the case of test access modes with single test tributary the parameter is omitted.
   Type: AID.
   Range: STS1NumAID.
6. tstmde – Test Access Mode
   Type: alphanumeric value set
   Range: Allowed values:
   - MONE - Monitor E-end mode of test access. This test access mode monitors the E end of an idle tributary or a leg of a cross-connection.
   - MONF- Monitor F-end mode of test access. This test access mode monitors the F-end of a two-way cross-connection.
   - MONEF - Monitor E-end and F-end mode of test access. This test access mode monitors (E end and F end) both directions of a 2WAY cross-connection.
   - SPLTE - Split access E-end mode of test access. This test access mode splits the connection between the E end and F end of a 1WAY cross-connection or a leg of 2WAY cross-connection. Can also be used in an idle tributary.
   - SPLTF - Split access F-end mode of test access. This test access mode splits the E-end and F-end connection of a two-way cross-connection to allow testing at the F-end.
   - SPLTEF - Split E-end and F-end mode of test access. This test access mode splits both directions of a 2WAY cross-connection to allow testing at both the E end and F end.

Example input/output

```
RTRV-TACC-STS1:LT-UNITE:1-1-#-#-3-1-1:123456;
   LT-UNITE 02-10-01 08:00:00
M  123456 COMPLD
   "1-1-#-#-3-1-1:STS1:TSTMDE=MONEF,TATRIB2=1-1-#-#-4-1-1,ETRIB=1-1-#-#-
     6-1-1,EOMODE=NORM,FTRIB=1-1-#-#-7-1-1,FOMODE=NORM"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command error responses section. The error responses listed there also apply to the RTRV-TACC command.

Validation Rule: Tributary is not assigned as a test tributary

If the aid is not assigned as a test tributary and 'all' is not used in the aid, the following error message shall be returned:

Error Code: `SNVS - Status, Not in Valid State, Tributary not assigned as a test tributary`

Related TL1 messages

- "CONN-TACC: Connect test access" (p. 4-62)
- "CHG-ACCMD: Change access mode" (p. 4-44)
- "DISC-TACC: Disconnect test access" (p. 4-88)
- "RTRV-CRS: Retrieve cross-connection" (p. 4-1649)

□

RTRV-TCA-ASGNMT: Retrieve TCA assignment

The RTRV-TCA-ASGNMT command allows the user to retrieve a list of AIDs that have been assigned to the specified profile type and name.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): PM1

Priority: 1

Abortable: Yes.

Input format

Command Syntax:

`RTRV-TCA-ASGNMT:`*tid::ctag::pftype,pfname;*

Input parameters

Command parameters

1. tid – Target Identifier
   See definition in "RTRV-HDR: Retrieve header" (p. 4-1736).
2. ctag – Correlation Tag
   See definition in "RTRV-HDR: Retrieve header" (p. 4-1736).
3. pftype – Profile Type
   This indicates the type of PM TCA profile for the selected facility.
   Type: value set.
   Range: SECTION-LINE, RS-MS, HOVC, PATH, ENET, ODU, LOVC, LOPATH, DS3.
4. pfname – Profile Name
   This indicates the name of the PM TCA profile which was already established by the command ENT-TCA-PROF. If this field is NULL, the output will only consist of a list of all profile names for the specific profile type that was requested. If a valid profile name is inserted in this field, the output will display the parameters within the profile with their values. A *pfname* value will always uniquely identify an existing profile for a specified *pftype* value. NULL means, that the Profile Name is omitted.
   Type: alphanumeric string.
   Range: This is an alphanumeric character string with a maximum of 24 characters.
   Default: If this field is NULL, the output will only consist of a list of all profile names for the specific profile type that was requested.

Output format

If the NE fully complies with the RTRV-TCA-ASGNMT request, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
   "pftype,pfname:aid"
   .     .     .
   .     .     .
;
```

Output parameters

The output parameters *sid, date, time* and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

1. aid – Access Identifier
   Type: AID
   Range: SPortAID, STSNumAID, EPortAID, VCGAID, VCGNumAID, PTNumAID, GenLOTribAID.
2. pftype – Profile Type
   This indicates the type of PM TCA profile for the selected facility.
   Type: value set.
   Range: SECTION-LINE, RS-MS, HOVC, PATH, ENET, ODU, LOVC, LOPATH, DS3.
3. pfname – Profile Name
   This indicates the name of the PM TCA profile which was already established by the command ENT-TCA-PROF. If this field is NULL, the output will only consist of a list of all profile names for the specific profile type that was requested. If a valid profile name is inserted in this field, the output will display the parameters within the profile with their values. A *pfname* value will always uniquely identify an existing profile for a specified *pftype* value. NULL means, that the Profile Name is omitted.
   Type: alphanumeric string.
   Range: This is an alphanumeric character string with a maximum of 24 characters.
   Default: If this field is NULL, the output will only consist of a list of all profile names for the specific profile type that was requested.

Example input/output

The following example shows the successful completion of a RTRV-TCA-ASGNMT command by the NE:

```
  RTRV-TCA-ASGNMT:UNITE-NE::123456::section-line,ATT;
   UNITE-NE 00-01-01 08:00:00
M  123456 COMPLD
```

```
   "section-line,ATT:1-1-#-#-22-1"
   "section-line,ATT:1-1-#-#-23-1"
   "section-line,ATT:1-1-#-#-24-1"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the RTRV-TCA-ASGNMT command. See also subsection 'Partial Completion on RTRV Commands' w.r.t. handling of internal error (e.g. communication to XC320 fails) for a subset of replies.

Validation rule: profile name does not exist

If the profile name specified does not exist.

Error code: `IDNV - Input, Data Not Valid, TCA profile does not exist`

Related TL1 messages

- "RTRV-TCA-PROF: Retrieve TCA Profile" (p. 4-2184)
- "ENT-TCA-PROF: Enter TCA Profile" (p. 4-1345)
- "DLT-TCA-PROF: Delete TCA Profile" (p. 4-186)
- "ED-TCA-PROF: Edit TCA profile" (p. 4-852)

References

GR-833-CORE

□

RTRV-TCA-PROF: Retrieve TCA Profile

General

The RTRV-TCA-PROF command allows the user to retrieve either a list of profile names that have been created for a specific profile type or the contents of a profile whose type and name are given in this command. The system supports two default sets of profiles called ″DEFAULT″ and ″DEFAULT0″.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): PM1

Priority: 1

Abortable: Yes.

Input format

Command Syntax:

`RTRV-TCA-PROF:`*tid::ctag::pftype;*

Input parameters

Command parameters

1. tid – Target Identifier
   See definition in “RTRV-HDR: Retrieve header” (p. 4-1736).
2. ctag – Correlation Tag
   See definition in “RTRV-HDR: Retrieve header” (p. 4-1736).
3. pftype – Profile Type
   This indicates the type of PM TCA profile for the selected facility.
   Type: value set.
   Range: SECTION-LINE, RS-MS, HOVC, PATH, ENET, ODU, LOVC, LOPATH, DS3.
4. pfname – Profile Name
   This indicates the name of the PM TCA profile which was already established by the command ENT-TCA-PROF. If this field is NULL, the output will only consist of a list of all profile names for the specific profile type that was requested. If a valid profile name is inserted in this field, the output will display the parameters within the profile with their values. A *pfname* value will always uniquely identify an existing profile for a specified *pftype* value. NULL means, that the Profile Name is omitted.
   Type: alphanumeric string.
   Range: This is an alphanumeric character string with a maximum of 24 characters.
   Default: If this field is NULL, the output will only consist of a list of all profile names for the specific profile type that was requested.

Output format

If the system receives this command and the profile name is NULL, the following response is returned:

```
   sid date time
M  ctag COMPLD
   "pftype:pfname"
   "pftype:pfname"
   "pftype:pfname"
   .     .     .     .     .     .
   .     .     .     .     .     .
;
```

If the system receives this command with a valid profile name, the following response is returned:

```
   sid date time
M  ctag COMPLD
   "pftype,pfname:spec_block"
;
```

The output parameters *sid, date, time* and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters - general profile

1. pftype – Profile Type
   This indicates the type of PM TCA profile for the selected facility.
   Type: value set.
   Range: SECTION-LINE, RS-MS, HOVC, PATH, ENET, ODU, LOVC, LOPATH, DS3.
2. pfname – Profile Name
   This indicates the name of the PM TCA profile which was already established by the command ENT-TCA-PROF. If this field is NULL, the output will only consist of a list of all profile names for the specific profile type that was requested. If a valid profile name is inserted in this field, the output will display the parameters within the profile with their values. A *pfname* value will always uniquely identify an existing profile for a specified *pftype* value. NULL means, that the Profile Name is omitted.
   Type: alphanumeric string.
   Range: This is an alphanumeric character string with a maximum of 24 characters.
   Default: If this field is NULL, the output will only consist of a list of all profile names for the specific profile type that was requested.

Command parameters - profile parameters of type SECTION-LINE

1. qhcvsoc3
   15-minute threshold for CV-S bin for OC-3.
   Type: integer
   Range: 0-57599100
   Default: 140.
2. daycvsoc3
   Day threshold for CV-S bin of OC-3.
   Type: integer
   Range: 0-4294967295
   Default: 1344.
3. qhcvsoc12
   15-minute threshold for CV-S bin for OC-12.
   Type: integer
   Range: 0-57599100
   Default: 560.
4. daycvsoc12
   Day threshold for CV-S bin for OC-12.
   Type: integer
   Range: 0-4294967295
   Default: 5376.
5. qhcvsoc48
   15-minute threshold for CV-S bin for OC-48.
   Type: integer
   Range: 0-57599100
   Default: 2240.
6. daycvsoc48
   Day threshold for CV-S bin for OC-48.
   Type: integer
   Range: 0-4294967295
   Default: 21504.
7. qhcvsoc192
   15-minute threshold for CV-S bin for OC-192.
   Type: integer
   Range: 0-57599100
   Default: 8960.
8. daycvsoc192
   Day threshold for CV-S bin for OC-192.
   Type: integer
   Range: 0-4294967295
   Default: 86016.

9. qhcvsoc768
   15-minute threshold for CV-S bin for OC-768.
   Type: integer
   Range: 0-57599100
   Default: 35840.
10. daycvsoc768
    Day threshold for CV-S bin for OC-768.
    Type: integer
    Range: 0-4294967295
    Default: 344064.
11. qhcvsec1
    15-minute threshold for CV-S bin for EC-1.
    Type: integer
    Range: 0-57599100
    Default: 47
12. daycvsec1
    Day threshold for CV-S bin of EC-1
    Type: integer
    Range: 0-4294967295
    Default: 448
13. qhess
    15-minute threshold for ES-S bin.
    Type: integer
    Range: 0-900
    Default: 25.
14. dayess
    Day threshold for ES-S bin.
    Type: integer
    Range: 0-86400
    Default: 250.
15. qhsess
    15-minute threshold for SES-S bin.
    Type: integer
    Range: 0-810
    Default: 10.
16. daysess
    Day threshold for ES-S bin.
    Type: integer
    Range: 0-77760
    Default: 40.

17. qhsefss
    15-minute threshold for SEFS-S bin.
    Type: integer
    Range: 0-900
    Default: 5.
18. daysefss
    Day threshold for SEFS-S bin.
    Type: integer
    Range: 0-86400
    Default: 10.
19. qhcvloc3
    15-minute threshold for CV-L and CV-LFE bin for OC-3.
    Type: integer
    Range: 0-172799100
    Default: 140.
20. daycvloc3
    Day threshold for CV-L bin and CV-LFE for OC-3.
    Type: integer
    Range: 0-4294967295
    Default: 1344.
21. qhcvloc12
    15-minute threshold for CV-L and CV-LFE bin for OC-12.
    Type: integer
    Range: 0-691199100
    Default: 560.
22. daycvloc12
    Day threshold for CV-L bin and CV-LFE for OC-12.
    Type: integer
    Range: 0-4294967295
    Default: 5376.
23. qhcvloc48
    15-minute threshold for CV-L and CV-LFE bin for OC-48.
    Type: integer
    Range: 0-2764799100
    Default: 2240.
24. daycvloc48
    Day threshold for CV-L and CV-LFE bin for OC-48.
    Type: integer
    Range: 0-4294967295
    Default: 21504.

25. qhcvloc192
    15-minute threshold for CV-L and CV-LFE bin for OC-192.
    Type: integer
    Range: 0-4294967295
    Default: 8960.
26. daycvloc192
    Day threshold for CV-L and CV-LFE bin for OC-192.
    Type: integer
    Range: 0-4294967295
    Default: 86016.
27. qhcvloc768
    15-minute threshold for CV-L and CV-LFE bin for OC-768.
    Type: integer
    Range: 0-4294967295
    Default: 35840.
28. daycvloc768
    Day threshold for CV-L and CV-LFE bin for OC-768.
    Type: integer
    Range: 0-4294967295
    Default: 344064.
29. qhcvlec1
    15-minute threshold for CV-L and CV-LFE bin for EC-1
    Type: integer
    Range: 0-57599100
    Default: 47
30. daycvlec1
    Day threshold for CV-L bin and CV-LFE for EC-1.
    Type: integer
    Range: 0-4294967295
    Default: 448
31. qhesl
    15-minute threshold for ES-L and ES-LFE bin.
    Type: integer
    Range: 0-900
    Default: 25.
32. dayesl
    Day threshold for ES-L and ES-LFE bin.
    Type: integer
    Range: 0-86400
    Default: 250.

33. qhfeccloc192
    15-minute threshold for FECC-L bin for OC-192.
    Type: integer
    Range: 0 - 4294967295
    Default: 5184.
34. dayfeccloc192
    Day threshold for FECC-L bin for OC-192.
    Type: integer
    Range: 0 - 4294967295
    Default: 497644.
35. qhfeccloc768
    15-minute threshold for FECC-L bin for OC-768.
    Type: integer
    Range: 0 - 4294967295
    Default: 20736.
36. dayfeccloc768
    Day threshold for FECC-L bin for OC-768.
    Type: integer
    Range: 0 - 4294967295
    Default: 1990656.
37. qhsesl
    15-minute threshold for SES-L and SES-LFE bin.
    Type: integer
    Range: 0-810
    Default: 10.
38. daysesl
    Day threshold for SES-L and SES-LFE bin.
    Type: integer
    Range: 0-77760
    Default: 40.
39. qhuasl
    15-minute threshold for UAS-L and UAS-LFE bin.
    Type: integer
    Range: 0-900
    Default: 10.
40. dayuasl
    Day threshold for UAS-L and UAS-LFE bin.
    Type: integer
    Range: 0-86400
    Default: 10.

Command parameters - profile parameters of type RS-MS

1. qhrsnbbe
   15-minute threshold for RS_N_BBE bin.
   Type: integer
   Range: 0-7199100
   Default: 9000.
2. dayrsnbbe
   Day threshold for RS_N_BBE bin.
   Type: integer
   Range: 0-691113600
   Default: 48000.
3. qhrsnes
   15-minute threshold for RS_N_ES bin.
   Type: integer
   Range: 0-900
   Default: 180.
4. dayrsnes
   Day threshold for RS_N_ES bin.
   Type: integer
   Range: 0-86400
   Default: 1500.
5. qhrsnses
   15-minute threshold for RS_N_SES bin.
   Type: integer
   Range: 0-810
   Default: 15.
6. dayrsnses
   Day threshold for RS_N_SES bin.
   Type: integer
   Range: 0-77760
   Default: 20.
7. qhrsnuas
   15-minute threshold for RS_N_UAS bin.
   Type: integer
   Range: 0-900
   Default: 15.
8. dayrsnuas
   Day threshold for RS_N_UAS bin.
   Type: integer
   Range: 0-86400
   Default: 20.

9. qhmsbbestm1
   15-min threshold for MS_N_BBE and MS_F_BBE for stm1 bin.
   Type: integer
   Range: 0-172799100
   Default: 228000.
10. daymsbbestm1
    Day threshold for MS_N_BBE and MS_F_BBE for stm1 bin.
    Type: integer
    Range: 0-4294967295
    Default: 432000.
11. qhmsbbestm4
    15-min threshold for MS_N_BBE and MS_F_BBE for stm4 bin.
    Type: integer
    Range: 0-691199100
    Default: 912000.
12. daymsbbestm4
    Day threshold for MS_N_BBE and MS_F_BBE for stm4 bin.
    Type: integer
    Range: 00-4294967295
    Default: 1728000.
13. qhmsbbestm16
    15-min threshold for MS_N_BBE and MS_F_BBE for stm16 bin.
    Type: integer
    Range: 0-2764799100
    Default: 3648000.
14. daymsbbestm16
    Day threshold for MS_N_BBE and MS_F_BBE for stm16 bin.
    Type: integer
    Range: 0-4294967295
    Default: 6912000.
15. qhmsbbestm64
    15-min threshold for MS_N_BBE and MS_F_BBE for stm64 bin.
    Type: integer
    Range: 0-4294967295
    Default: 14592000.
16. daymsbbestm64
    Day threshold for MS_N_BBE and MS_F_BBE for stm64 bin.
    Type: integer
    Range: 0-4294967295
    Default: 27648000.

17. qhmsbbestm256
    15-min threshold for MS_N_BBE and MS_F_BBE for stm256 bin.
    Type: integer
    Range: 0-4294967295
    Default: 58368000.
18. daymsbbestm256
    Day threshold for MS_N_BBE and MS_F_BBE for stm256 bin.
    Type: integer
    Range: 0-4294967295
    Default: 110592000.
19. qhmses
    15-minute threshold for MS_N_ES and MS_F_ES bin.
    Type: integer
    Range: 0-900
    Default: 50.
20. daymses
    Day threshold for MS_N_ES and MS_F_ES bin.
    Type: integer
    Range: 0-86400
    Default: 150.
21. qhmsnfeccstm64
    15-minute threshold for MS-N-FECC bin forSTM-64.
    Type: integer
    Range: 0 - 4294967295
    Default: 5184.
22. daymsnfeccstm64
    Day threshold for MS-N-FECC bin forSTM-64.
    Type: integer
    Range: 0 - 4294967295
    Default: 49764.
23. qhmsnfeccstm256
    15-minute threshold for MS-N-FECC bin forSTM-256.
    Type: integer
    Range: 0 - 4294967295
    Default: 20736.
24. daymsnfeccstm256
    Day threshold for MS-N-FECC bin forSTM-256.
    Type: integer
    Range: 0 - 4294967295
    Default: 1990656.

25. qhmsses
    15-minute threshold for MS_N_SES and MS_F_SES bin.
    Type: integer
    Range: 0-810
    Default: 10.
26. daymsses
    Day threshold for MS_N_SES and MS_F_SES bin.
    Type: integer
    Range: 0-77760
    Default: 15.
27. qhmsuas
    15-min threshold for MS_N_UAS and MS_F_UAS for stm64 bin.
    Type: integer
    Range: 0-900
    Default: 15.
28. daymsuas
    Day threshold for MS_N_UAS and MS_F_UAS for stm64 bin.
    Type: integer
    Range: 0-86400
    Default: 20.

Command parameters - reset profile parameters of type RS-MS

1. qhrtrrsnbbe
   15-minute reset threshold for RS_N_BBE bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
2. dayrtrrsnbbe
   Day reset threshold for RS_N_BBE bin.
   Type: integer
   Range: 0-691113600
   Default: 4800.
3. qhrtrrsnes
   15-minute reset threshold for RS_N_ES bin.
   Type: integer
   Range: 0-900
   Default: 20.
4. dayrtrrsnes
   Day reset threshold for RS_N_ES bin.
   Type: integer
   Range: 0-86400
   Default: 150.

5. qhrtrrsnses
   15-minute reset threshold for RS_N_SES bin.
   Type: integer
   Range: 0-810
   Default: 0.
6. dayrtrrsnses
   Day reset threshold for RS_N_SES bin.
   Type: integer
   Range: 0-77760
   Default: 0.
7. qhrtrrsnuas
   15-minute reset threshold for RS_N_UAS bin.
   Type: integer
   Range: 0-900
   Default: 0.
8. dayrtrrsnuas
   Day reset threshold for RS_N_UAS bin.
   Type: integer
   Range: 0-86400
   Default: 0.
9. qhrtrmsbbestm1
   15-min reset threshold for MS_N_BBE and MS_F_BBE for stm1 bin.
   Type: integer
   Range: 0-172799100
   Default: 2400.
10. dayrtrmsbbestm1
    Day reset threshold for MS_N_BBE and MS_F_BBE for stm1 bin.
    Type: integer
    Range: 0-4294967295
    Default: 43200.
11. qhrtrmsbbestm4
    15-min reset threshold for MS_N_BBE and MS_F_BBE for stm4 bin.
    Type: integer
    Range: 0-691199100
    Default: 9600.
12. dayrtrmsbbestm4
    Day reset threshold for MS_N_BBE and MS_F_BBE for stm4 bin.
    Type: integer
    Range: 0-4294967295
    Default: 172800.

13. qhrtrmsbbestm16
    15-min reset threshold for MS_N_BBE and MS_F_BBE for stm16 bin.
    Type: integer
    Range: 0-2764799100
    Default: 38400.
14. dayrtrmsbbestm16
    Day reset threshold for MS_N_BBE and MS_F_BBE for stm16 bin.
    Type: integer
    Range: 0-4294967295
    Default: 691200.
15. qhrtrmsbbestm64
    15-min reset threshold for MS_N_BBE and MS_F_BBE for stm64 bin.
    Type: integer
    Range: 0-4294967295
    Default: 153600.
16. dayrtrmsbbestm64
    Day reset threshold for MS_N_BBE and MS_F_BBE for stm64 bin.
    Type: integer
    Range: 0-4294967295
    Default: 2764800.
17. qhrtrmsbbestm256
    15-min threshold for MS_N_BBE and MS_F_BBE for stm256 bin.
    Type: integer
    Range: 0-4294967295
    Default: 614400.
18. dayrtrmsbbestm256
    Day reset threshold for MS_N_BBE and MS_F_BBE for stm256 bin.
    Type: integer
    Range: 0-4294967295
    Default: 11059200.
19. qhrtrmses
    15-minute reset threshold for MS_N_ES and MS_F_ES bin.
    Type: integer
    Range: 0-900
    Default: 5.
20. dayrtrmses
    Day reset threshold for MS_N_ES and MS_F_ES bin.
    Type: integer
    Range: 0-86400
    Default: 15.

21. qhrtrmsnfeccstm64
    15-minute reset threshold for MS-N-FECC bin forSTM-64.
    Type: integer
    Range: 0 - 4294967295
    Default: 0.
22. dayrtrmsnfeccstm64
    Day reset threshold for MS-N-FECC bin forSTM-64.
    Type: integer
    Range: 0 - 4294967295
    Default: 0.
23. qhrtrmsnfeccstm256
    15-minute reset threshold for MS-N-FECC bin forSTM-256.
    Type: integer
    Range: 0 - 4294967295
    Default: 0.
24. dayrtrmsnfeccstm256
    Day reset threshold for MS-N-FECC bin forSTM-256.
    Type: integer
    Range: 0 - 4294967295
    Default: 0.
25. qhrtrmsses
    15-minute reset threshold for MS_N_SES and MS_F_SES bin.
    Type: integer
    Range: 0-810
    Default: 0.
26. dayrtrmsses
    Day reset threshold for MS_N_SES and MS_F_SES bin.
    Type: integer
    Range: 0-77760
    Default: 0.
27. qhrtrmsuas
    15-min reset threshold for MS_N_UAS and MS_F_UAS.
    Type: integer
    Range: 0-900
    Default: 0.
28. dayrtrmsuas
    Day reset threshold for MS_N_UAS and MS_F_UAS.
    Type: integer
    Range: 0-86400
    Default: 0.

Command parameters - profile parameters of type ODU

1. qhodupbbeodu1
   15-minute threshold for ODU_N_BBE bin and ODU_F_BBE for ODU1P.
   Type: integer
   Range: 0-18377100
   Default: 32000.
2. dayodupbbeodu1
   Day threshold for ODU_N_BBE bin and ODU_F_BBE for ODU1P.
   Type: integer
   Range: 0-1764201600
   Default: 61000.
3. qhodupes
   15-minute threshold for ODU_N_ES and ODU_F_ES bin for ODU1P.
   Type: integer
   Range: 0-900
   Default: 50.
4. dayodupes
   Day threshold for ODU_N_ES and ODU_F_ES bin for ODU1P..
   Type: integer
   Range: 0-86400
   Default: 150.
5. qhodupses
   15-minute threshold for ODU_N_SES and ODU_F_SES bin for ODU1P.
   Type: integer
   Range: 0-810
   Default: 10.
6. dayodupses
   Day threshold for ODU_N_SES and ODU_F_SES bin for ODU1P.
   Type: integer
   Range: 0-77760
   Default: 15.
7. qhodupuas
   15-minute threshold for ODU_N_UAS and ODU_F_UAS bin for ODU1P.
   Type: integer
   Range: 0-900
   Default: 15.
8. dayodupuas
   Day threshold for ODU_N_UAS and ODU_F_UAS bin for ODU1P.
   Type: integer
   Range: 0-86400
   Default: 20.

Command parameters - reset profile parameters of type ODU

1. qhrtrodupbbeodu1
   15-minute threshold for ODU_N_BBE bin and ODU_F_BBE for ODU1P.
   Type: integer
   Range: 0-18377100
   Default: 200.
2. dayrtrodupbbeodu1
   Day threshold for ODU_N_BBE bin and ODU_F_BBE for ODU1P.
   Type: integer
   Range: 0-1764201600
   Default: 4800.
3. qhrtrodupes
   15-minute threshold for ODU_N_ES and ODU_F_ES bin for ODU1P.
   Type: integer
   Range: 0-900
   Default: 5.
4. dayrtrodupes
   Day threshold for ODU_N_ES and ODU_F_ES bin for ODU1P.
   Type: integer
   Range: 0-86400
   Default: 15.
5. qhrtrodupses
   15-minute threshold for ODU_N_SES and ODU_F_SES bin for ODU1P.
   Type: integer
   Range: 0-810
   Default: 0.
6. dayrtrodupses
   Day threshold for ODU_N_SES and ODU_F_SES bin for ODU1P.
   Type: integer
   Range: 0-77760
   Default: 0.
7. qhrtrodupuas
   15-minute threshold for ODU_N_UAS and ODU_F_UAS bin for ODU1P.
   Type: integer
   Range: 0-900
   Default: 0.
8. dayrtrodupuas
   Day threshold for ODU_N_UAS and ODU_F_UAS bin for ODU1P.
   Type: integer
   Range: 0-86400
   Default: 0.

Command parameters - profile parameters of type HO-VC

1. qhvcbbevc3
   15-minute threshold for VC_N_BBE and VC_F_BBE for VC3 bin.
   Type: integer
   Range: 0-7199100
   Default: 36000.
2. dayvcbbevc3
   Day threshold for VC_N_BBE and VC_F_BBE for VC3 bin.
   Type: integer
   Range: 0-691113600
   Default: 48000.
3. qhvcbbevc4
   15-minute threshold for VC_N_BBE and VC_F_BBE for VC4 bin.
   Type: integer
   Range: 0-7199100
   Default: 36000.
4. dayvcbbevc4
   Day threshold for VC_N_BBE and VC_F_BBE for VC4 bin.
   Type: integer
   Range: 0-691113600
   Default: 48000.
5. qhvcbbevc44c
   15-minute threshold for VC_N_BBE and VC_F_BBE for VC44C bin.
   Type: integer
   Range: 0-7199100
   Default: 36000.
6. dayvcbbevc44c
   Day threshold for VC_N_BBE and VC_F_BBE for VC44C bin.
   Type: integer
   Range: 0-691113600
   Default: 48000.
7. qhvcbbevc416c
   15-minute threshold for VC_N_BBE and VC_F_BBE for VC416C bin.
   Type: integer
   Range: 0-7199100
   Default: 36000.
8. dayvcbbevc416c
   Day threshold for VC_N_BBE and VC_F_BBE for VC416C bin.
   Type: integer
   Range: 0-691113600
   Default: 48000.

9. qhvcbbevc464c
   15-minute threshold for VC_N_BBE and VC_F_BBE for VC464C bin.
   Type: integer
   Range: 0-7199100
   Default: 36000.
10. dayvcbbevc464c
    Day threshold for VC_N_BBE and VC_F_BBE for VC464C bin.
    Type: integer
    Range: 0-691113600
    Default: 48000.
11. qhvcesvc3
    15-minute threshold for VC_N_ES and VC_F_ES VC3 bin.
    Type: integer
    Range: 0-900
    Default: 150.
12. dayvcesvc3
    Day threshold for VC_N_ES and VC_F_ES VC3 bin.
    Type: integer
    Range: 0-86400
    Default: 600.
13. qhvcesvc4
    15-minute threshold for VC_N_ES and VC_F_ES for VC4 bin.
    Type: integer
    Range: 0-900
    Default: 180.
14. dayvcesvc4
    Day threshold for VC_N_ES and VC_F_ES for VC4 bin.
    Type: integer
    Range: 0-86400
    Default: 1500.
15. qhvcesvc44c
    15-minute threshold for VC_N_ES and VC_F_ES for VC4-4C bin.
    Type: integer
    Range: 0-900
    Default: 180.
16. dayvcesvc44c
    Day threshold for VC_N_ES and VC_F_ES for VC4-4C bin.
    Type: integer
    Range: 0-86400
    Default: 1500.

17. qhvcesvc416c
    15-minute threshold for VC_N_ES and VC_F_ES for VC4-16C bin.
    Type: integer
    Range: 0-900
    Default: 180.
18. dayvcesvc416c
    Day threshold for VC_N_ES and VC_F_ES for VC4-16C bin.
    Type: integer
    Range: 0-86400
    Default: 1500.
19. qhvcesvc464c
    15-minute threshold for VC_N_ES and VC_F_ES for VC4-64C bin.
    Type: integer
    Range: 0-900
    Default: 180.
20. dayvcesvc464c
    Day threshold for VC_N_ES and VC_F_ES for VC4-64C bin.
    Type: integer
    Range: 0-86400
    Default: 1500.
21. qhvcsesvc3
    15-minute threshold for VC_N_SES and VC_F_SES for VC3 bin.
    Type: integer
    Range: 0-810
    Default: 15.
22. dayvcsesvc3
    Day threshold for VC_N_SES and VC_F_SES for VC3 bin.
    Type: integer
    Range: 0-77760
    Default: 20.
23. qhvcsesvc4
    15-minute threshold for VC_N_SES and VC_F_SES for VC4 bin.
    Type: integer
    Range: 0-810
    Default: 15.
24. dayvcsesvc4
    Day threshold for VC_N_SES and VC_F_SES for VC4 bin.
    Type: integer
    Range: 0-77760
    Default: 20.

25. qhvcsesvc44c
    15-minute threshold for VC_N_SES and VC_F_SES for VC44C bin.
    Type: integer
    Range: 0-810
    Default: 15.
26. dayvcsesvc44c
    Day threshold for VC_N_SES and VC_F_SES for VC44C bin.
    Range: 0-77760
    Default: 20.
27. qhvcsesvc416c
    15-minute threshold for VC_N_SES and VC_F_SES for VC416C bin.
    Type: integer
    Range: 0-810
    Default: 15.
28. dayvcsesvc416c
    Day threshold for VC_N_SES and VC_F_SES for VC416C bin.
    Type: integer
    Range: 0-77760
    Default: 20.
29. qhvcsesvc464c
    15-minute threshold for VC_N_SES and VC_F_SES for VC464C bin.
    Type: integer
    Range: 0-810
    Default: 15.
30. dayvcsesvc464c
    Day threshold for VC_N_SES and VC_F_SES for VC464C bin.
    Type: integer
    Range: 0-77760
    Default: 20.
31. qhvcuasvc3
    15-minute threshold for VC_N_UAS and VC_F_UAS for VC3 bin.
    Type: integer
    Range: 0-900
    Default: 15.
32. dayvcuasvc3
    Day threshold for VC_N_UAS and VC_F_UAS for VC3 bin.
    Type: integer
    Range: 0-86400
    Default: 20.

33. qhvcuasvc4
    15-minute threshold for VC_N_UAS and VC_F_UAS for VC4 bin.
    Type: integer
    Range: 0-900
    Default: 15.
34. dayvcuasvc4
    Day threshold for VC_N_UAS and VC_F_UAS for VC4 bin.
    Type: integer
    Range: 0-86400
    Default: 20.
35. qhvcuasvc44c
    15-minute threshold for VC_N_UAS and VC_F_UAS for VC44C bin.
    Type: integer
    Range: 0-900
    Default: 15.
36. dayvcuasvc44c
    Day threshold for VC_N_UAS and VC_F_UAS for VC44C bin.
    Type: integer
    Range: 0-86400
    Default: 20.
37. qhvcuasvc416c
    15-minute threshold for VC_N_UAS and VC_F_UAS for VC416C bin.
    Type: integer
    Range: 0-900
    Default: 15.
38. dayvcuasvc416c
    Day threshold for VC_N_UAS and VC_F_UAS for VC416C bin.
    Type: integer
    Range: 0-86400
    Default: 20.
39. qhvcuasvc464c
    15-minute threshold for VC_N_UAS and VC_F_UAS for VC464C bin.
    Type: integer
    Range: 0-900
    Default: 15.
40. dayvcuasvc464c
    Day threshold for VC_N_UAS and VC_F_UAS for VC464C bin.
    Type: integer
    Range: 0-86400
    Default: 20.

Command parameters - reset profile parameters of type HO-VC

1. qhrtrvcbbevc3
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for VC3 bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
2. dayrtrvcbbevc3
   Day reset threshold for VC_N_BBE and VC_F_BBE for VC3 bin.
   Type: integer
   Range: 0-691113600
   Default: 4800.
3. qhrtrvcbbevc4
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for VC4 bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
4. dayrtrvcbbevc4
   Day reset threshold for VC_N_BBE and VC_F_BBE for VC4 bin.
   Type: integer
   Range: 0-691113600
   Default: 4800.
5. qhrtrvcbbevc44c
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for VC44C bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
6. dayrtrvcbbevc44c
   Day reset threshold for VC_N_BBE and VC_F_BBE for VC44C bin.
   Type: integer
   Range: 0-691113600
   Default: 4800.
7. qhrtrvcbbevc416c
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for VC416C bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
8. dayrtrvcbbevc416c
   Day reset threshold for VC_N_BBE and VC_F_BBE for VC416C bin.
   Type: integer
   Range: 0-691113600
   Default: 4800.

9. qhrtrvcbbevc464c
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for VC464C bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
10. dayrtrvcbbevc464c
    Day reset threshold for VC_N_BBE and VC_F_BBE for VC464C bin.
    Type: integer
    Range: 0-691113600
    Default: 4800.
11. qhrtrvcesvc3
    15-minute reset threshold for VC_N_ES and VC_F_ES VC3 bin.
    Type: integer
    Range: 0-900
    Default: 10.
12. dayrtrvcesvc3
    Day reset threshold for VC_N_ES and VC_F_ES VC3 bin.
    Type: integer
    Range: 0-86400
    Default: 60.
13. qhrtrvcesvc4
    15-minute reset threshold for VC_N_ES and VC_F_ES for VC4 bin.
    Type: integer
    Range: 0-900
    Default: 20.
14. dayrtrvcesvc4
    Day reset threshold for VC_N_ES and VC_F_ES for VC4 bin.
    Type: integer
    Range: 0-86400
    Default: 150.
15. qhrtrvcesvc44c
    15-minute reset threshold for VC_N_ES and VC_F_ES for VC4-4C bin.
    Type: integer
    Range: 0-900
    Default: 20.
16. dayrtrvcesvc44c
    Day reset threshold for VC_N_ES and VC_F_ES for VC4-4C bin.
    Type: integer
    Range: 0-86400
    Default: 150.

17. qhrtrvcesvc416c
    15-minute reset threshold for VC_N_ES and VC_F_ES for VC4-16C bin.
    Type: integer
    Range: 0-900
    Default: 20.
18. dayrtrvcesvc416c
    Day reset threshold for VC_N_ES and VC_F_ES for VC4-16C bin.
    Type: integer
    Range: 0-86400
    Default: 150.
19. qhrtrvcesvc464c
    15-minute reset threshold for VC_N_ES and VC_F_ES for VC4-64C bin.
    Type: integer
    Range: 0-900
    Default: 20.
20. dayrtrvcesvc464c
    Day reset threshold for VC_N_ES and VC_F_ES for VC4-64C bin.
    Type: integer
    Range: 0-86400
    Default: 150.
21. qhrtrvcsesvc3
    15-minute reset threshold for VC_N_SES and VC_F_SES for VC3 bin.
    Type: integer
    Range: 0-810
    Default: 0.
22. dayrtrvcsesvc3
    Day reset threshold for VC_N_SES and VC_F_SES for VC3 bin.
    Type: integer
    Range: 0-77760
    Default: 0.
23. qhrtrvcsesvc4
    15-minute reset threshold for VC_N_SES and VC_F_SES for VC4 bin.
    Type: integer
    Range: 0-810
    Default: 0.
24. dayrtrvcsesvc4
    Day reset threshold for VC_N_SES and VC_F_SES for VC4 bin.
    Type: integer
    Range: 0-77760
    Default: 0.

25. qhrtrvcsesvc44c
    15-minute reset threshold for VC_N_SES and VC_F_SES for VC44C bin.
    Type: integer
    Range: 0-810
    Default: 0.
26. dayrtrvcsesvc44c
    Day reset threshold for VC_N_SES and VC_F_SES for VC44C bin.
    Type: integer
    Range: 0-77760
    Default: 0.
27. qhrtrvcsesvc416c
    15-minute reset threshold for VC_N_SES and VC_F_SES for VC416C bin.
    Type: integer
    Range: 0-810
    Default: 0.
28. dayrtrvcsesvc416c
    Day reset threshold for VC_N_SES and VC_F_SES for VC416C bin.
    Type: integer
    Range: 0-77760
    Default: 0.
29. qhrtrvcsesvc464c
    15-minute reset threshold for VC_N_SES and VC_F_SES for VC464C bin.
    Type: integer
    Range: 0-810
    Default: 0.
30. dayrtrvcsesvc464c
    Day reset threshold for VC_N_SES and VC_F_SES for VC464C bin.
    Type: integer
    Range: 0-77760
    Default: 0.
31. qhrtrvcuasvc3
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for VC3 bin.
    Type: integer
    Range: 0-900
    Default: 0.
32. dayrtrvcuasvc3
    Day reset threshold for VC_N_UAS and VC_F_UAS for VC3 bin.
    Type: integer
    Range: 0-86400
    Default: 0.

33. qhrtrvcuasvc4
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for VC4 bin.
    Type: integer
    Range: 0-900
    Default: 0.
34. dayrtrvcuasvc4
    Day reset threshold for VC_N_UAS and VC_F_UAS for VC4 bin.
    Type: integer
    Range: 0-86400
    Default: 0.
35. qhrtrvcuasvc44c
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for VC44C bin.
    Type: integer
    Range: 0-900
    Default: 0.
36. dayrtrvcuasvc44c
    Day reset threshold for VC_N_UAS and VC_F_UAS for VC44C bin.
    Type: integer
    Range: 0-86400
    Default: 0.
37. qhrtrvcuasvc416c
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for VC416C bin.
    Type: integer
    Range: 0-900
    Default: 0.
38. dayrtrvcuasvc416c
    Day reset threshold for VC_N_UAS and VC_F_UAS for VC416C bin.
    Type: integer
    Range: 0-86400
    Default: 0.
39. qhrtrvcuasvc464c
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for VC464C bin.
    Type: integer
    Range: 0-900
    Default: 0.
40. dayrtrvcuasvc464c
    Day reset threshold for VC_N_UAS and VC_F_UAS for VC464C bin.
    Type: integer
    Range: 0-86400
    Default: 0.

Command parameters - profile parameters of type PATH

1. qhcvpsts1
   15-minute threshold for CV-P and CV-PFE bin for STS1.
   Type: integer
   Range: 0-57599100
   Default: 15.
2. daycvpsts1
   Day threshold for CV-P and CV-PFE bin for STS1.
   Type: integer
   Range: 0-4294967295
   Default: 125.
3. qhcvpsts3c
   15-minute threshold for CV-P and CV-PFE bin for STS3C.
   Type: integer
   Range: 0-57599100
   Default: 25.
4. daycvpsts3c
   Day threshold for CV-P and CV-PFE bin for STS3C.
   Type: integer
   Range: 4294967295
   Default: 250.
5. qhcvpsts12c
   15-minute threshold for CV-P and CV-PFE bin for STS12C.
   Type: integer
   Range: 0-57599100
   Default: 75.
6. daycvpsts12c
   Day threshold for threshold for CV-P and CV-PFE bin for STS12C.
   Type: integer
   Range: 4294967295
   Default: 750.
7. qhcvpsts48c
   15-minute threshold for CV-P and CV-PFE bin for STS48C.
   Type: integer
   Range: 0-57599100
   Default: 300.
8. daycvpsts48c
   Day threshold for CV-P and CV-PFE bin for STS48C.
   Type: integer
   Range: 4294967295
   Default: 3000.

9. qhcvpsts192c
   Day threshold for CV-P and CV-PFE bin for STS192C.
   Type: integer
   Range: 0-57599100
   Default: 1200.
10. daycvpsts192c
    Day threshold for CV-P and CV-PFE bin for STS192C.
    Type: integer
    Range: 0-4294967295
    Default: 12000.
11. qhespsts1
    15-minute threshold for ES-P and ES-PFE bin for STS1.
    Type: integer
    Range: 0-900
    Default: 12.
12. dayespsts1
    Day threshold for ES-P and ES-PFE bin for STS1.
    Type: integer
    Range: 0-86400
    Default: 100.
13. qhespsts3c
    15-minute threshold for ES-P and ES-PFE bin for STS3C.
    Type: integer
    Range: 0-900
    Default: 20.
14. dayespsts3c
    Day threshold for ES-P and ES-PFE bin for STS3C.
    Type: integer
    Range: 0-86400
    Default: 200.
15. qhespsts12c
    15-minute threshold for ES-P and ES-PFE bin for STS12C.
    Type: integer
    Range: 0-900
    Default: 60.
16. dayespsts12c
    Day threshold for ES-P and ES-PFE bin for STS12C.
    Type: integer
    Range: 0-86400
    Default: 600.

17. qhespsts48c
    15-minute threshold for ES-P and ES-PFE bin for STS48C.
    Type: integer
    Range: 0-900
    Default: 240.
18. dayespsts48c
    Day threshold for ES-P and ES-PFE bin for STS48C.
    Type: integer
    Range: 0-86400
    Default: 2400.
19. qhespsts192c
    Day threshold for ES-P and ES-PFE bin for STS192C.
    Type: integer
    Range: 0-900
    Default: 240.
20. dayespsts192c
    Day threshold for ES-P and ES-PFE bin for STS192C.
    Type: integer
    Range: 0-86400
    Default: 9600.
21. qhsesp
    15-minute threshold for SES-P and SES-PFE bin.
    Type: integer
    Range: 0-810
    Default: 3.
22. daysesp
    Day threshold for SES-P and SES-PFE bin.
    Type: integer
    Range: 0-77760
    Default: 7.
23. qhuasp
    15-minute threshold for UAS-P and UAS-PFE bin.
    Type: integer
    Range: 0-900
    Default: 10.
24. dayuasp
    Day threshold for UAS-P and UAS-PFE bin.
    Type: integer
    Range: 0-86400
    Default: 10.

Command parameters - profile parameters of type ENET

1. qhpdege
   15-minute threshold for PDE bin for GE.
   Type: integer
   Range: 0-183000000
   Default: 187500.
2. daypdege
   Day threshold for PDE bin for GE.
   Type: integer
   Range: 0-4294967295
   Default: 9000000.
3. qhpdevcg
   15-minute threshold for PDE bin for VCG.
   Type: integer
   Range: 0-183000000
   Default: 10.
4. daypdevcg
   Day threshold for PDE bin for VCG.
   Type: integer
   Range: 0-4294967295
   Default: 50.

Command parameters - reset profile parameters of type ENET

1. qhrtrpdege
   15-minute reset threshold for PDE bin for GE.
   Type: integer
   Range: 0-183000000
   Default: 937500.
2. dayrtrpdege
   Day reset threshold for PDE bin for GE.
   Type: integer
   Range: 0-4294967295
   Default: 4500000.
3. qhrtrpdevcg
   15-minute reset threshold for PDE bin for VCG.
   Type: integer
   Range: 0-183000000
   Default: 2.
4. dayrtrpdevcg
   Day reset threshold for PDE bin for VCG.
   Type: integer
   Range: 0-4294967295
   Default: 5.

Command parameters - profile parameters of type LOVC

1. qhvcbbevc12
   15-minute threshold for VC_N_BBE and VC_F_BBE for VC12 bin.
   Type: integer
   Range: 0-1799100
   Default: 9000.
2. dayvcbbevc12
   Day threshold for VC_N_BBE and VC_F_BBE for VC12 bin.
   Type: integer
   Range: 0-172713600
   Default: 12000.
3. qhvcbbelovc3
   15minute threshold for VC_N_BBE and VC_F_BBE for lower order VC3 bin.
   Type: integer
   Range: 0-7199100
   Default: 36000.
4. dayvcbbelovc3
   Day threshold for VC_N_BBE and VC_F_BBE for lower order VC3 bin.
   Type: integer
   Range: 0-691113600
   Default: 48000.
5. qhvcesvc12
   15-minute threshold for VVC_N_ES and VC_F_ES for VC12 bin.
   Type: integer
   Range: 0-900
   Default: 120.
6. dayvcesvc12
   Day threshold for VC_N_ES and VC_F_ES for VC12 bin.
   Type: integer
   Range: 0-86400
   Default: 350.
7. qhvceslovc3
   15-minute threshold for VC_N_ES and VC_F_ES for lower order VC3 bin.
   Type: integer
   Range: 0-900
   Default: 150.
8. dayvceslovc3
   Day threshold for VC_N_ES and VC_F_ES for lower order VC3 bin.
   Type: integer
   Range: 0-86400
   Default: 600.

9. qhvcsesvc12
   15-minute threshold for VC_N_SES and VC_F_SES for VC12 bin.
   Type: integer
   Range: 0-810
   Default: 15.
10. dayvcsesvc12
    Day threshold for VC_N_SES and VC_F_SES for VC12 bin.
    Type: integer
    Range: 0-77760
    Default: 20.
11. qhvcseslovc3
    15-minute threshold for VC_N_SES and VC_F_SES for lower order VC3 bin.
    Type: integer
    Range: 0-810
    Default: 15.
12. dayvcseslovc3
    Day threshold for VC_N_SES and VC_F_SES for lower order VC3 bin.
    Type: integer
    Range: 0-77760
    Default: 20.
13. qhvcuasvc12
    15-minute threshold for VC_N_UAS and VC_F_UAS for VC12 bin.
    Type: integer
    Range: 0-900
    Default: 15.
14. dayvcuasvc12
    Day threshold for VC_N_UAS and VC_F_UAS for VC12 bin..
    Type: integer
    Range: 0-86400
    Default: 20.
15. qhvcuaslovc3
    15-minute threshold for VC_N_UAS and VC_F_UAS for lower order VC3 bin..
    Type: integer
    Range: 0-900
    Default: 15.
16. dayvcuaslovc3
    Day threshold for VC_N_UAS and C_F_UAS for lower order VC3 bin.
    Type: integer
    Range: 0-86400
    Default: 20.

Command parameters - reset profile parameters of type LOVC

1. qhrtrvcbbevc12
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for VC12 bin.
   Type: integer
   Range: 0-1799100
   Default: 50.
2. dayrtrvcbbevc12
   Day reset threshold for VC_N_BBE and VC_F_BBE for VC12 bin.
   Type: integer
   Range: 0-172713600
   Default: 1200.
3. qhrtrvcbbelovc3
   15-minute reset threshold for VC_N_BBE and VC_F_BBE for lower order VC3 bin.
   Type: integer
   Range: 0-7199100
   Default: 200.
4. dayrtrvcbbelovc3
   Day reset threshold for VC_N_BBE and VC_F_BBE for lower order VC3 bin.
   Type: integer
   Range: 0-691113600
   Default: 4800.
5. qhrtrvcesvc12
   15-minute reset threshold for VC_N_ES and VC_F_ES for VC12 bin.
   Type: integer
   Range: 0-900
   Default: 5.
6. dayrtrvcesvc12
   Day reset threshold for VC_N_ES and VC_F_ES for VC12 bin.
   Type: integer
   Range: 0-86400
   Default: 35.
7. qhrtrvceslovc3
   15-minute reset threshold for VC_N_ES and VC_F_ES for lower order VC3 bin.
   Type: integer
   Range: 0-900
   Default: 10.
8. dayrtrvceslovc3
   Day reset threshold for VC_N_ES and VC_F_ES for lower order VC3 bin.
   Type: integer
   Range: 0-86400
   Default: 60.

9. qhrtrvcsesvc12
   15-minute reset threshold for VC_N_SES and VC_F_SES for VC12 bin.
   Type: integer
   Range: 0-810
   Default: 0.
10. dayrtrvcsesvc12
    Day reset threshold for VC_N_SES and VC_F_SES for VC12 bin.
    Type: integer
    Range: 0-77760
    Default: 0.
11. qhrtrvcseslovc3
    15-minute reset threshold for VC_N_SES and VC_F_SES for lower order VC3 bin.
    Type: integer
    Range: 0-810
    Default: 0.
12. dayrtrvcseslovc3
    Day reset threshold for VC_N_SES and VC_F_SES for lower order VC3 bin.
    Type: integer
    Range: 0-77760
    Default: 0.
13. qhrtrvcuasvc12
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for VC12 bin.
    Type: integer
    Range: 0-900
    Default: 0.
14. dayrtrvcuasvc12
    Day reset threshold for VC_N_UAS and VC_F_UAS for VC12 bin.
    Type: integer
    Range: 0-86400
    Default: 0.
15. qhrtrvcuaslovc3
    15-minute reset threshold for VC_N_UAS and VC_F_UAS for lower order VC3 bin.
    Type: integer
    Range: 0-900
    Default: 0.
16. dayrtrvcuaslovc3
    Day reset threshold for VC_N_UAS and VC_F_UAS for lower order VC3 bin.
    Type: integer
    Range: 0-86400
    Default: 0.

Command parameters - profile parameters of type LOPATH

1. qhcvvt1
   15-minute threshold for CV-P and CV-PFE bin for VT1.
   Type: integer
   Range: 0-14399100
   Default: 75.
2. daycvvt1
   Day threshold for CV-P and CV-PFE bin for VT1.
   Type: integer
   Range: 0-1382313600
   Default: 750.
3. qhesvt1
   15-minute threshold for ES-P and ES-PFE bin for VT1.
   Type: integer
   Range: 0-900
   Default: 40.
4. dayesvt1
   Day threshold for ES-P and ES-PFE bin for VT1.
   Type: integer
   Range: 0-86400
   Default: 900.
5. qhsesvt1
   15-minute threshold for SES-P and SES-PFE bin for VT1.
   Type: integer
   Range: 0-810
   Default: 40.
6. daysesvt1
   Day threshold for SES-P and SES-PFE bin for VT1.
   Type: integer
   Range: 0-77760
   Default: 900.
7. qhuasvt1
   15-minute threshold for UAS-P and UAS-PFE bin for VT1.
   Type: integer
   Range: 0-900
   Default: 40.
8. dayuasvt1
   Day threshold for UAS-P and UAS-PFE bin for VT1.
   Type: integer
   Range: 0-86400
   Default: 900.

Command parameters - profile parameters of type DS3

1. qhcvl
   15-minute threshold for CV-L bin of DS3 Line.
   Type: integer
   Range: 0-7200000
   Default: 387.
2. daycvl
   Day threshold for CV-L bin of DS3 Line.
   Type: integer
   Range: 0- 691200000
   Default: 3865.
3. qhesl
   15-minute threshold for Es-L bin of DS3 Line.
   Type: integer
   Range: 0-900
   Default: 25.
4. dayesl
   Day threshold for ES-L bin of DS3 Line.
   Type: integer
   Range: 0-86400
   Default: 250.
5. qhesal
   15-minute threshold for ESA-L bin of DS3 Line.
   Type: integer
   Range: 0-900
   Default: 25.
6. dayesal
   Day threshold for ESB-L bin of DS3 Line.
   Type: integer
   Range: 0-86400
   Default: 250.
7. qhesbl
   15-minute threshold for ESB-L bin of DS3 Line.
   Type: integer
   Range: 0-900
   Default: 25.
8. dayesbl
   Day threshold for ESB-L bin of DS3 Line.
   Type: integer
   Range: 0-86400
   Default: 250.

9. qhsesl
   15-minute threshold for SES-L bin of DS3 Line.
   Type: integer
   Range: 0-810
   Default: 4.
10. daysesl
    Day threshold for SES-L bin of DS3 Line.
    Type: integer
    Range: 0-77760
    Default: 40.
11. qhcvp
    15-minute threshold for CV-P and CV-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-7200000
    Default: 382.
12. daycvp
    Day threshold for CV-P and CV-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-691200000
    Default: 3820.
13. qhesp
    15-minute threshold for ES-P and ES-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-900
    Default: 25.
14. dayesp
    Day threshold for ES-P and ES-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-86400
    Default: 250.
15. qhesap
    15-minute threshold for ESA-P and ESA-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-900
    Default: 25.

16. dayesap
    Day threshold for ESA-P and ESA-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-86400
    Default: 250.
17. qhesbp
    15-minute threshold for ESB-P and ESB-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-900
    Default: 25.
18. dayesbp
    Day threshold for ESB-P and ESB-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-86400
    Default: 250.
19. qhsesp
    15-minute threshold for SES-P and SES-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-810
    Default: 4.
20. daysesp
    Day threshold for SES-P and SES-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-77760
    Default: 40.
21. qhuasp
    15-minute threshold for UAS-P and UAS-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-900
    Default: 10.
22. dayuasp
    Day threshold for UAS-P and UAS-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-86400
    Default: 10.

23. qhsasp
    15-minute threshold for SAS-P and SAS-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-900
    Default: 2.
24. daysasp
    Day threshold for SAS-P and SAS-PFE bin of DS3 Path ingress and egress direction.
    Type: integer
    Range: 0-86400
    Default: 8.

Detailed behaviour description

The command shall retrieve the list of profile names of the specified profile type, if only the profile type is specified in the command. If profile type and profile name is specified, and a profile with the specified name exists, then the parameters of the profile shall be retrieved. If the profile does not exist, the system shall not return a response to the command.

Example input/output

The following example shows the successful completion of a RTRV-TCA-PROF command by the NE:

```
RTRV-TCA-PROF:UNITE-NE::123456::section-line;
   UNITE-NE 00-01-01 08:00:00
M  123456 COMPLD
   "SECTION-LINE:DEFAULT"
   "SECTION-LINE:DEFAULTO"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the RTRV-TCA-PROF command.

Related TL1 messages

- "DLT-TCA-PROF: Delete TCA Profile" (p. 4-186)
- "ED-TCA-PROF: Edit TCA profile" (p. 4-852)
- "ENT-TCA-PROF: Enter TCA Profile" (p. 4-1345)

References

GR-833-CORE

RTRV-ULS: Retrieve upper layer stack

The RTRV-ULS command is used to retrieve global parameters of the TCP/IP stack.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S1

Priority: 1

Abortable: Yes.

Input format

Command Syntax: **RTRV-ULS**:tid*::ctag;*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.

Output format

If the RTRV-ULS request is successful, the following normal completion message shall be returned:

```
   sid date time
M  ctag COMPLD
   "spec_block"
   .    .    .
   .    .    .
   .    .    .
   "spec_block"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736) .

Output parameters

1. ip_ad_astn – IP Address of ASTN
   This parameter shall be used to set or retrieve the router ID for the SCN and the ONNS node.
   Note: As a consequence, if ip_ad_astn is not configured the whole SWISS application can not be enabled. See also parameter xcsetup in RTRV/ED-EQPT (system).
   Type: Four dot separated numeric strings OR empty string.
   The empty string value is used as indication for an undefined IP address.
   Range: Each numeric string: 0 .. 255.
   Default: empty string.
2. ip_drad – IP Default Router Address
   This parameter shall be used to set or retrieve the IP default router address (IPv4) to which the host points to, needed for the T-TD functionality.
   Type: Four dot separated numeric strings OR empty string The empty string value is used as indication for an invalid/undefined IP address.
   Range: Each numeric string: 0 .. 255.
   Default: empty string.
3. ip_drlan – IP Default Router LAN port AID
   This parameter specifies with which LAN port the default router is associated.
   Type: AID.
   Range: LanPortAID. The value lanall is not allowed.
   Default: 1-1-lan1.
4. lv_port – T-TD Length Value Port
   This parameter shall be used to set or retrieve the port number over which the T-TD function is accessible using the Length Value encoding method.
   Type: Numeric string
   Range: Each numeric string: 0 .. 65535, except the vlaue 3083.
   Default: 3081.
5. raw_port – T-TD Raw Mode Port
   This parameter shall be used to set or retrieve the port AID of number over which the T-TD function is accessible using raw-mode encoding.
   Type: Numeric string
   Range: Each numeric string: 0 .. 65535, except the vlaue 3083.
   Default: 3082.

Detailed behavior description

The command retrieves system parameters as described in the Output parameter section.

Example input/output

The following example shows the result of a RTRV-ULS command:

```
RTRV-ULS:LT-UNITE::123456;
```

```
   LT-UNITE 00-11-01 08:00:00
M  123456 COMPLD
   "ip_ad_astn=127.93.94.10"
   "ip_drad=198.84.65.20"
   "ip_drlan=1-1-lan1"
   "lv_port=3081"
   "raw_port=3082"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the RTRV-NE command.

Related TL1 Messages

"ENT-ULS: Enter upper layer stack" (p. 4-1386)

□

RTRV-ULSDCC-L3: Retrieve layer 3 related parameters

The RTRV-ULSDCC-L3 command is used to retrieve the layer 3 parameters of the OSI nodes or the SCN node. Up to 8 independent OSI nodes can exist in an NE: Node-1 has an NSAP and is created by default. Node 2-8 have each a Network Entity Title (NET). NSAP = NET + SEL . Node 2-8 can be created and deleted, see commands ENT-ULSDCC-L3, DLT-ULSDCC-L3. The SCN node is created when an ASTN IP address is defined (see ENT-ULS), for this node the command retrieves only the NSAP parameter used by I-ISIS. For OSI nodes the parameters of the NSAP field, IS level, IS domain, RA prefix and RA destination node are retrieved.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S1

Priority: 1

Abortable: Yes.

Input format

Command Syntax: `RTRV-ULSDCC-L3`*:tid::ctag[::osinode];*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
3. osinode
   A *LambdaUnite*® MSS NE can have up to 8 instances of the OSI stack and one SCN node. Node-1 is default. Node 2-8 can be created and configured, see command ENT-ULSDCC-L3. The SCN node is created when an ASTN IP address is defined, see ENT-ULS.
   Type AID.
   Range: OSI_node_AID | SCN_node_AID.
   Default: If this field is omitted then the command shall provide output for all nodes which are created.

Output format

If the RTRV-ULSDCC-L3 is successful, the following normal completion response is returned:

```
sid date time
```

```
M  ctag COMPLD
   "osinode:spec_block"
       ...
   "osinode:spec_block"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736) .

Output parameters

Command parameters

1. osinode
   See definition of input parameter *osinode* in RTRV-ULSDCC-L3 The value *osinodeall* is not allowed as output parameter.

Spec block parameters

1. l3afi – NSAP/NET Authority and Format Identifier
   This parameter sets or retrieves the format for the rest of the address.
   Type: hexadecimal number.
   Range: 10 – 99
   Default: 39. This value identifies the iso_dcc format.
2. l3idi – NSAP/NET initial Domain Identifier
   This parameter consists of two values:
   - a 3 semi-octet (3-digit hexadecimal) IDI part to specify the country code indicating the registration authority responsible for the allocation and assignment of the NSAP address.
   - a 1 semi-octet (1-digit hexadecimal) IDI pad part. The parameter is used for set and retrieve values.

   Type: hexadecimal number.
   Range: 0000 – FFFF
   Default:
   SONET: IDI = 840; IDI pad = F
   SDH: IDI = 000; IDI pad = 0.
3. l3dfi – NSAP/NET DSP Format Identifier
   This parameter (2-digit hex) NSAP is used to set or retrieve the format for the rest of the address.
   Type: hexadecimal number.
   Range: 00 – FF.
   Default: 80. This value represents the SONET DSP format.

4. l3org – NSAP/NET Organization Identifier
   This parameter of NSAP is used to set or retrieve the NSP (allocated Company Code).
   Type: hexadecimal number.
   Range: 000000 – FFFFFF.
   Default: 000000.
5. l3res – NSAP/NET Reserved
   This NSAP part currently has not been assigned a specific purpose.
   Type: hexadecimal number.
   Range: 0000 – FFFF.
   Default: 0000.
6. l3rd – NSAP/NET Routing Domain
   This parameter of NSAP is used to set or retrieve a unique routing domain within an administrative domain. A standard for use has not been defined until now.
   Type: hexadecimal number.
   Range: 0000 – FFFF.
   Default: 0000.
7. l3area – NSAP/NET Area Identifier
   This parameter of NSAP is used to set or retrieve the area. So NEs can be identified in the same area.
   Type: hexadecimal number.
   Range: 0000 – FFFF.
   Default: 0000.
8. l3sys – NSAP/NET System Identifier
   This system parameter of the NSAP is set by the Equipment Manufacturer. The value is fix and globally unique among all NEs. For values of NSAP/NET system parameter see chapter Default below.
   Type: hexadecimal number.
   Range: 000000000000 – FFFFFFFFFFFF
   Default:
   - Node-1: IEEE-MAC address of LAN1
   - Node-2: IEEE-MAC address of LAN1 +1
   - Node-3: IEEE-MAC address of LAN1 +2
   - Node-4: IEEE-MAC address of LAN1 +3
   - Node-5: IEEE-MAC address of LAN1 +4
   - Node-6: IEEE-MAC address of LAN1 +5
   - Node-7: IEEE-MAC address of LAN1 +6
   - Node-8: IEEE-MAC address of LAN1 +7
   - scnnode: IEEE-MAC address of LAN1 +8 (default)

9. l3sel – NSAP Selector
   This parameter serves to differentiate multiple access points (NSAPs) for the same NE (node-1). The values cannot be set manually. The NET addresses of node 2-8 have *l3sel*=00.
   Type: hexadecimal number.
   Range: 00 – FF. Values:
   - 1D: For TP4 PDUs, whenTP4 runs over CLNP, Also used for SDH supporting NEs
   - 00: For NET, used for exchanging PDUs in the ES-IS and IS-IS routing exchange protocols
   - 04: For NSAP of CLNP PDUs, encapsulated IP packets
   - AF: For TARP PDUs, when TARP is run over CLNP.

   Default: 1D, see NET addresses of node 2-8 are reported as NSAP with *l3sel*=00.
10. l3isisnl – Layer 3 IS Level
    This parameter indicates the network router type: ES-IS (level1, value L1), IS-IS (level2, value L2) and partition repair capability (value3).
    Note: This parameter is not reported when output parameter *osinode*=scnnode.
    Type: alphanumeric string.
    Range:
    - L1: this means level1, IS-IS, only allowed when parameter l3radesnode=0
    - L12: this means level2, IS-IS which contains also level1, ES-IS
    - L12PRC : this means partition repair capable (PRC) and contains also level1 and level2.

    Default: L1.
11. l3domain – Layer3 IS Domain
    Per node in a NE, a domain group must be specified. This will be done with this parameter which can be set and retrieved. All nodes in the NE with the same domain-number are interconnected and can communicate without the need for inter-domain routing via RA-PREFIX.
    Note: This parameter is not reported when output parameter *osinode*=scnnode.
    Type: alphanumeric string.
    Range:
    - 1 for osinode1
    - 1 – 2 for osinode2 to osinode8.

    Default: 1.

12. l3raprefix – Layer3 Reachable Address Prefix
    This value specifies an area address or a part of an area address representing an area address group. This parameter is needed when nodes in different routing domains (see *l3domain*) must communicate. The node must forward then CLNP PDUs to the RA-Destination-Node if the destination NSAPs of CLNP PDUs match with the PA-Prefix.
    Note: This parameter is not reported when output parameter *osinode*=scnnode.
    Type: hexadecimal number.
    Range:
    - NONE,
    - a string of 1 to 13 bytes: first byte (most significant): 10 – 99; rest: 0000 – FFFF.

    The value represents an area address or a part of an area address beginning with AFI.
    Default: empty string.
13. l3radesnode – Layer3 Reachable Address Destination Node
    This parameter is in combination with parameter l3raprefix necessary. The value represents the destination node in the same NE. An internal connection over a domain-boundary is established between this node and the RA-Destination-Node, with IS-IS disabled over that connection.
    Note: This parameter is not reported when output parameter *osinode*=scnnode.
    Type: AID and digit value.
    Range:
    - 0, osinode{2-8} for osinode1
    - 0, osinode1 for osinode2 to osinode 8.

    Value 0 indicates that functionality of RA-Prefix is disabled.
    Default: 0.
14. nsapcount - Number of OSI Nodes in Level 1 Area
    This parameter indicates the number of OSI nodes (NSAPs) for the level 1 area in which the OSI node specified by the osinode parameter is located. When the number of OSI nodes in the level 1 area is more than the maximum supported number (250), the value of this parameter is shown as ″250+″,which indicates a

state of NSAP count overflowed. The parameter shall be omitted for the SCN node.
Type: value set
Range: 1 - 250 if the number of nodes is less or equal to 250. 250+ if the number of nodes exceeds 250.
Default: 1

15. nsapthlev - Number of OSI Nodes Threshold Level
    This parameter indicates the NSAP count threshold level for monitoring the number of OSI nodes (NSAPs) for the level 1 area in which the OSI node specified by the *osinode* parameter is located. A threshold value of zero (0) indicates that NSAP threshold alarming is disabled. The parameter shall be omitted for the SCN node.
    Type: numeric string
    Range: 0 no alarming; 1 - 250 threshold alarming
    Default: 0

Detailed behavior description

The command retrieves system parameter as described in the Output parameter section.

Example input/output

The following example shows the result of RTRV-ULSDCC-L3:

```
RTRV-ULSDCC-L3:NE-UNITE::123456::osinode1;
   NE-UNITE 00-12-24 11:01:59
M  123456 COMPLD
   "osinode1:L3AFI=39,L3IDI=840F,L3DFI=80,
   L3ORG=100100,L3res=0000,L3RD=0000,L3AREA=0000,
   L3SYS=08006A112345,L3SEL=1D,L3ISISNL=L12PRC,
   L3DOMAIN=1,L3RADESNODE=0,NSAPCOUNT=2,NSAPTHLEV=0"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the RTRV-ULSDCC-L3 command.

Related TL1 messages

- "ENT-ULSDCC-L3: Create a further OSI node" (p. 4-1391)
- "ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack." (p. 4-929)
- "DLT-ULSDCC-L3: Delete a node ID other than node-1" (p. 4-190)

□

RTRV-ULSDCC-L4: Retrieve OSI layer 4 related parameters

The RTRV-ULSDCC-L4 command is used to retrieve layer 4 parameters of the OSI stacks. Layer 4 include some TARP parameter which can be modified and the TARP Manual Adjacencies parameter which can be provided, modified or deleted.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S1

Priority: 1

Abortable: Yes.

Input format

Command Syntax: `RTRV-ULSDCC-L4`*:tid::ctag[::osinode];*

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for input parameter syntax and description of this parameter.

Output format

If the RTRV-ULSDCC-L4 is successful, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
   "osinode:spec_block"
        ...
   "osinode:spec_block"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736) .

Manual adjacencies

If more than one manual adjacency is defined for one osinode, they appears on separate output lines.

Example:

```
   sid date time
M  ctag COMPLD
   "osinode1:<other spec_block parameters>"
   "osinode1:l4ajnsap=39840F80000000000000000000001
   23456789ABC00"
   "osinode1:l4ajnsap=39840F80000000000000000000002
   3456789ABCD00"
;
```

Output parameters

Spec block parameters

1. l4etdc - TARP Data Cache
   This parameter is only valid for node-1. It is used to enable or disable TARP data cache.
   Type: Alphanumeric value set
   Range: ENABLE (default), DISABLE.
2. l4etof - TARP origination
   This parameter only valid for node-1. It is used to enable or disable TARP Origination function and is valid for all interfaces of a node.
   Type: Alphanumeric value set.
   Range: ENABLE, DISABLE.
   Default: ENABLE (for osinode1), DISABLE (for osinode2-8, fixed).
3. l4etpf – TARP propagation
   This parameter is used to enable or disable TARP Propagation function for a node.
   Type: Alphanumeric value set.
   Range:
   - ENABLE (default)
   - DISABLE.
4. l4etrf – TARP responder
   This parameter is only valid for node-1. It is used to enable or disable TARP responder function
   Type: Alphanumeric value set
   Range:
   - ENABLE
   - DISABLE.

   Default: For node-1: ENABLE DISABLE (fixed for nodes 2-8).

5. l4ajnsap – TARP Manual Adjacency List
   This parameter specifies the NSAP address portion of an entry in the TARP Manual Adjacent NE list. Up to two addresses are possible for each node in a *LambdaUnite*® MSS NE.
   Type: hexadecimal number or alphanumeric value set.
   Range: NONE, 20 octet (40-digit hex) long address.
   The NSAP address / NET is composed of the following components:
   - l4ajafi 10 – 99
   - l4ajidi 0000 – FFFF
   - l4dfi 00 – FF
   - l4alorg 000000 – FFFFFF
   - l4ajres 0000 – FFFF
   - l4jrd 0000 – FFFF
   - l4jarea 0000 – FFFF
   - l4ajsys 000000000000 – FFFFFFFFFFFF
   - SEL 00 The last byte indicates the selector and is not to set.

   Note: For more details see description of ENT-ULSDCC-L3.
   Default: NONE (no TARP manual adjacencies).

Detailed behavior description

The command retrieves system parameter as described in the Output parameter section.

Example input/output

The following example shows the result of RTRV-ULSDCC-L4:

```
RTRV-ULSDCC-L4:NE-UNITE::456789::osinode1;
   NE-UNITE 01-17-01 18:11:01
M  456789 COMPLD
   "OSINODE1:l4etof=DISABLE,l4etpf=ENABLE,l4etrf=ENABLE,
   l4etdc=ENABLE,
   l4ajnsap=39840F800000000000000000000123456789ABC00"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the RTRV-ULSDCC-L4 command.

Related TL1 messages

- "ENT-ULSDCC-L4: Enter layer 4 related parameters of the OSI stacks " (p. 4-1401)
- "DLT-ULSDCC-L4: Delete TARP manual adjacent NSAP address in layer 4 of the specified OSI stack" (p. 4-194)

□

RTRV-USER: Retrieve user

The RTRV-USER command retrieves a user's own security information.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S2

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-USER:`*tid*`::`*ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output format

After receiving the RTRV-USER command, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
   "uid::spec_block"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. uid – User ID
   User ID whose security parameters are to be retrieved.
   This is the unique user login identifier for which the ACT-USER login command is intended. Grouping and/or ranging of uid values for the ACT-USER command are not allowed. Valid uid values for the ACT-USER command are case-sensitive

alphanumeric strings which have been previously provisioned as valid login IDs in the NE.
Type: alphanumeric string (case-sensitive)
Range: 5 - 10 characters. The uid ALL is not allowed in any combination of upper or lower cases.

Spec block parameters

1. page – Password Aging Interval
   This parameter specifies the period in days after which the user has to change the password of their account. If the value is set to 0 then the password aging function is disabled.
   Type: integer
   Range: 0, 7-999 [days]
   Default: 90
2. screen – Message Screening
   This parameter specifies what output messages are associated with the *uid*. This parameter is omitted if the user has none of these values. Any combination of these values may be specified using ampersand (&)
   Type: alphanumeric string An '&' is also allowed for concatenation of values.
   Range:
   - DBCHG
     Data Base Change notifications – changes in creation of entities, in user provisionable parameters, in deletion of entities will be reported (data base changes). The user will receive REPT DBCHG messages.
   - STCHG
     State Change notifications – report changes in user non-provisionable parameters (state changes). The user will receive REPT DBCHG messages.
   - PSCHG
     Protection switch notifications – report protection switch changes. User will receive REPT EVT and REPT SW messages.
   - ALARMS
     Alarm notifications. The user will receive REPT ALM ENV, REPT ALM, and REPT EVT messages.
   - ONNS
     ONNS Notifications. Database and state changes associated with entities managed by ONNS application and only issued when *xcsetup* = NN. The related ONNS TL1 notifications are REPT PTHCHG, REPT PTHEVT, REPT NNCHG, REPT NNEVT.
   - OWN
     Responses to own commands. The user will receive no other notifications.
     Note: OWN will never be shown in conjunction with DBCHG, STCHG, PSCHG or ALARMS.
   - NA

Not applicable. This value is reserved for users with uidclass=MEMADMIN. The notification behavior is controlled in this case by the user class.

Default: OWN

If more than one value is set the values will be concatenated by '&'.

Example: DBCHG&STCHG&ALARMS

3. tmout – Inactivity Timeout Period
   If there are no messages between the user and the NE over the Timeout Period, the session is logged off. A value of 0 disables the timeout function.
   Type: integer
   Range: 0 – 999 [minutes]
   Default: 30
4. uidclass – UID Class
   This is the user class of a *uid*.
   Type: alphanumeric value set
   Range:
   - OTHER – This is the default class. For users in this class, command privileges and notifications are controlled only by their UPCs and their notification Registration List.
   - MEMADMIN – User class for memory administration users. All users of this class share the same atag counter for autonomous messages and are allowed to execute the command RTRV-AO.

   Default: OTHER
5. upc – User Privilege Code List
   This parameter specifies the user privilege code UCFC/UCAL pair assigned to a user. Multiple UCFC/UCALs can be specified using single ampersands (&). If a user try to operate a command with a privilege code higher than assigned to the user for the category of the command the command will be denied.
   Type: alphanumeric string Also allowed is '&' for concatenation.
   Range: Pi, Mi, Ti, Si, PMi, Di where ″i″ is an integer ranging from 0 to 5, with i=0 implying that there is no authorization for the functional category. S0 is not allowed.
   Default: P1&M1&T1&S1&PM1 except for super users: P5&M5&T5&S5&PM5
   Note: The system does not support commands for the D (DEBUG) category. Setting this privilege code does not have any effect on the system behavior and it will not be visible in output direction. It is only for compatibility.
   See also "List of user privilege codes" (p. 15-2).

Example input/output

The following example shows the successful completion of RTRV-USER command by the NE:

```
RTRV-USER:LT-UNITE-123::123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
   ″nbguser1::upc=P3&M3,screen=DBCHG&STCHG&ALARMS,page=999,
```

```
   uidclass=OTHER,tmout=3"
;
```

Error responses

The RTRV-USER command reports no special error responses. The general error responses defined in "RTRV-HDR: Retrieve header" (p. 4-1736) are also valid for this command.

Related TL1 messages

- "ED-USER: Edit user" (p. 4-940)
- "RTRV-USER-SECU: Retrieve user security" (p. 4-2240)

References

TR-NWT-000835, OTGR Section 12.5: Operations Applications Messages – NE and Network System Security Administration Messages.

□

RTRV-USER-SECU: Retrieve user security

The RTRV-USER-SECU command can be initiated by a user to retrieve user security information of one or all the users in the NE.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S4

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-USER-SECU`:*tid*:[*uid*]:*ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. uid – User ID
   If this parameter is omitted, all *uid*s will be retrieved.
   See definition of "ACT-USER: Activate user" (p. 4-14).
3. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output format

If the NE has logins to report, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
   "uid::spec_block"
   .
   .
   "uid::spec_block"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. uid – User ID
   This is the unique user login identifier for which the ACT-USER login command is intended. Grouping and/or ranging of uid values for the ACT-USER command are not allowed. Valid uid values for the ACT-USER command are case-sensitive alphanumeric strings which have been previously provisioned as valid login IDs in the NE.
   Type: alphanumeric string (case-sensitive)
   Range: 5 - 10 characters. The uid ALL is not allowed in any combination of upper or lower cases.

Spec block parameters

1. alw_login – Allow Login
   This parameter displays the enable/disable state of a User ID.
   A User ID can be automatically disabled by the system when the time specified by parameter *usrage* (see "RTRV-NE-SECU: Retrieve NE security" (p. 4-1828)) expires or via the ED-USER-SECU command. A User ID can be enabled via the ED-USER-SECU command.
   If a User ID is disabled, logins with that User ID are denied.
   Type: alphanumeric value set
   Range:
   - YES: User ID is enabled
   - NO: User ID is disabled

   Default: YES
2. initobs – Initialization Observability
   This parameter allows the system to accept commands before it has completed initialization. Do not enable this parameter in networks using a Telcordia operations system.
   Type: alphanumeric value set
   Range: DISABLE – The feature is disabled.
   Default: DISABLE
   Note: *LambdaUnite*® MSS does not support Initialization Observability feature. This parameter is only for compatibility. The DISABLE value will be returned as fixed value.
3. page – Password Aging Interval
   This parameter specifies the period in days after which the user has to change the password of their account. If the value is set to 0 then the password aging function is disabled.
   Type: integer
   Range: 0, 7-999 [days]
   Default: 90

4. screen – Message Screening
   This parameter specifies what output messages are associated with the *uid*. This parameter is omitted if the user has none of these values. Any combination of these values may be specified using ampersand (&)
   Type: alphanumeric string An '&' is also allowed for concatenation of values.
   Range:
   - DBCHG

     Data Base Change notifications: changes in creation of entities, in user provisionable parameters, in deletion of entities will be reported (data base changes).

     File Transfer In-progress notifications: The user will receive REPT DBCHG and REPT EVT FXFR messages.
   - STCHG

     State Change notifications – report changes in user non-provisionable parameters (state changes). The user will receive REPT DBCHG messages.
   - PSCHG

     Protection switch notifications – report protection switch changes. User will receive REPT EVT and REPT SW messages.
   - ALARMS

     Alarm notifications. The user will receive REPT ALM ENV, REPT ALM, and REPT EVT messages.
   - ONNS

     ONNS Notifications. Database and state changes associated with entities managed by ONNS application and only issued when *xcsetup* = NN. The related ONNS TL1 notifications are REPT PTHCHG, REPT PTHEVT, REPT NNCHG, REPT NNEVT.
   - SECURITY: Security event notifications
   - OWN

     Responses to own commands. The user will receive no other notifications.

     Note: OWN will never be shown in conjunction with DBCHG, STCHG, PSCHG or ALARMS.
   - NA

     Not applicable. For users with uidclass=MEMADMIN only this value is allowed. The notification behavior is controlled in this case by the user class. If the value NA is applied for users of other user classes, then the value has the same effect as DBCHG.

   Default: OWN
   If more than one value is set the values will be concatenated by '&'.
   Example: DBCHG&STCHG&ALARMS

5. tmout – Inactivity Timeout Period
   If there are no messages between the user and the NE over the Timeout Period, the session is logged off. A value of 0 disables the timeout function.
   Type: integer
   Range: 0 – 999 [minutes]
   Default: 30
6. ucpl – User Community Priority Level
   This parameter specifies with which priority the commands of a user will be operated by the NE. Input commands from users with higher priority are executed before commands from users with lower priority.
   Type: integer
   Range: 1
   Default: 1
   Note: *LambdaUnite*® MSS does not support User Community Priority Level's. Only the default value 1 will be reported. The value is not setable.
7. uidclass – UID Class
   This is the user class of a *uid*.
   Type: alphanumeric value set
   Range:
   - OTHER – This is the default class. For users in this class, command privileges and notifications are controlled only by their UPCs and their notification Registration List.
   - MEMADMIN – User class for memory administration users. All users of this class share the same atag counter for autonomous messages and are allowed to execute the command RTRV-AO.

   Default: OTHER
8. upc – User Privilege Code List
   This parameter specifies the user privilege code UCFC/UCAL pair assigned to a user. Multiple UCFC/UCALs can be specified using single ampersands (&). If a user try to operate a command with a privilege code higher than assigned to the user for the category of the command the command will be denied.
   Type: alphanumeric string Also allowed is '&' for concatenation.
   Range: Pi, Mi, Ti, Si, PMi, Di where ″i″ is an integer ranging from 0 to 5, with i=0 implying that there is no authorization for the functional category. S0 is not allowed.
   Default: P1&M1&T1&S1&PM1 except for super users: P5&M5&T5&S5&PM5
   Note: The system does not support commands for the D (DEBUG) category. Setting this privilege code does not have any effect on the system behavior and it will not be visible in output direction. It is only for compatibility.
   See also "List of user privilege codes" (p. 15-2).

Example input/output

Example for specified user:

The following example shows the successful completion of RTRV-USER-SECU command by the NE. The example below retrieves the security information associated with the user specified in the uid field:

```
RTRV-USER-SECU:LT-UNITE-123:nbguser1:123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
   "nbguser1::upc=P3&M3,screen=DBCHG&STCHG&ALARMS,page=90,
   tmout=30,alw_login=YES,uidclass=OTHER"
;
```

Example for all users:

The following example shows the successful completion of RTRV-USER-SECU command by the NE. The example below retrieves the security information associated with all the users from the NE:

```
RTRV-USER-SECU:LT-UNITE-123::123456;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
   "LUC01::upc=S5,screen=DBCHG&STCHG&PSCHG&ALARMS,
   page=90,tmout=30,alw_login=YES,uidclass=OTHER"
   "LUC02::upc=S5,screen=DBCHG&STCHG&PSCHG&ALARMS,
   page=47,tmout=11,alw_login=YES,uidclass=OTHER"
   "hugo::upc=P3&M3,screen=DBCHG&STCHG&ALARMS,page=999,
   tmout=3,alw_login=YES,uidclass=OTHER"
   "egon::upc=P3&M3&T3&PM3,screen=PSCHG,page=7,
   tmout=999,alw_login=NO,uidclass=OTHER"
   "ronald::upc=T2,screen=DBCHG&STCHG&PSCHG&ALARMS,
   page=0,tmout=0,alw_login=YES,uidclass=OTHER"
   "cathrin::upc=T2,screen=OWN,page=90,tmout=30,
   alw_login=YES,uidclass=OTHER"
;
```

Error responses

The RTRV-USER-SECU command reports no special error responses. The general error responses defined in "RTRV-HDR: Retrieve header" (p. 4-1736) are also valid for this command.

Validation rule: invalid uid

If the NE receives an RTRV-USER-SECU command with an invalid (unknown) Only the own *uid* value.

Error code: `IDNV - Input, Data Not Valid, invalid UID`

Related TL1 messages

- "ED-USER: Edit user" (p. 4-940)
- "ENT-USER-SECU: Enter user security" (p. 4-1410)
- "ED-USER-SECU: Edit user security" (p. 4-945)
- "DLT-USER-SECU: Delete user security" (p. 4-197)
- "RTRV-USER: Retrieve user" (p. 4-2236)

References

TR-NWT-000835, OTGR Section 12.5: Operations Applications Messages – NE and Network System Security Administration Messages.

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RTRV-VC3: Retrieve VC3 tributary

General

The RTRV-VC3 command is used to retrieve all parameters related to a VC3 tributary.

Note: If a tributary AID (Access IDentifier) is specifed in the RTRV-VC3 request for a slot provisioned with a GE1 pack (e.g. 1-1-#-#-1-1-1 is used), then an empty reply is returned instead of: `IENE - Input, Entity Not Exists`.

For GE1 the "RTRV-VCGTRIB: Retrieve virtual concatenation group tributary" (p. 4-2274) command must be used.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-VC3:`*tid:aid:ctag*;

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
   AID of a SDH tributary. The keyword `all` is allowed on slot, port and tributary level. The so called ″dynamic parameters″ shall be reported, if a `all` is used at the tributary level.
   The ″dynamic parameters″ are:
   - *ptrc*, *ptrcst*, *siglb*, *trailstate*.
     Type: AID
     Range: STS1NumAID.
3. ctag – Correlation Tag
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and description of this parameter.

   Important! To retrieve the dynamic parameters (*ptrc*, *ptrcst*, *siglb*, *trailstate*) of all tributaries use the ("RTRV-ALL: Retrieve all (trib)" (p. 4-1596)) command and set the parameter *dyn* to YES.

Output format

In response to a valid RTRV-VC3 command, the following output report is returned:

```
   sid date time
M  ctag COMPLD
   "aid[:spec_block]"
        ...
        ...
   "aid[:spec_block]"
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. aid – Access Identifier
   Description: AID of the SDH tributary. The keyword `all` is not allowed on any level.
   Type: AID
   Range: STS1NumAID

Spec block parameters

1. brstintvl – Bursty Interval
   Measurement period for determining bursty errors The setting of this parameter is used when *sdsfmode*=BURST.
   Type: numeric value set.
   Range: 2 to 10.
   Default: 7.
2. brstthr – Bursty Error Threshold
   The values are set in percent for the degradation threshold. The setting of this parameter is used when *sdsfmode*=BURST.
   Type: numeric value set.
   Range (as percentage): 5, 10, 15, 20, 25, 30, ... 50.
   Default: 30.
3. crslpbkrate – Cross-connect loopback Rate
   It is independent from the current interface standard and therefore both SDH and SONET values are allowed.
   The parameter *crslpbkrate* is not reported if the parameter *crlspbkstat* indicates that no loopback is set.
   Type: alphanumeric value set.

Range:

- VC3
- VC4
- VC44C
- VC416C
- VC464C
- STS1
- STS3
- STS12
- STS48
- STS192

4. crslpbkstat – Cross-connect loopback status
   State of cross- connect loopback.
   Type: alphanumeric value set.
   Range:
   - YES = Cross-connect loopback is provisioned
   - NO (default) = No cross-connect loopback is provisioned.
5. degthr – Signal Degrade Threshold
   The setting of this parameter are used when *sdsfmode*=POISSON
   Type: numeric value set.
   Range (as exponents of 10): –5; –6 (default); –7; –8; –9
6. dexcthr – Excessive Degrade Threshold
   The setting of this parameter are used when *sdsfmode*=POISSON. The values are set as exponent of 10.
   Type: numeric value set.
   Range (as exponent of 10) –3 (default); –4; –5.
7. exphptrc – Expected Path Trace (J1)
   The parameter *exphptrc* specifying the expected path trace is only relevant for the path trace supervision when the path trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: Hexadecimal digits
   Range: 16 byte string. Each byte is expressed as two hexadecimal digits (example value: 6D). The first byte value is in the range from 80 to FF. The other byte values are in the range from 00 to 7F.
   Default: 89hex followed by 15 bytes 00hex.
8. feppm – Far-End Path PM Enable
   It indicates whether this performance monitoring feature is enabled or disabled.
   Type: alphanumeric value set.

Range:

- ENABLE
- DISABLE (default).

9. hptimmon – Path Trace Monitoring Enable (J1)
   Description: High order path trace (J1) identifier mismatch (TIM) monitor enable. This parameter is relevant only if the related trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set.
   Range:
   - ENABLE
   - DISABLE (default).
10. loca – Ring A-node TID
    This parameter specifies the TID of the node at which the service is added to the BLSR ring. This parameter is required for the input of tributaries to be used by ONNS on ports of *portClass* =EDGE being members in BLSR/MSSPRING protection groups. The *loca* parameter value shall be an empty string for all other tributaries.
    loca is introduced specifically for use related to ONNS application.
    Type: TID or empty-string.
    Range: Please refer to the TID definition in "RTRV-HDR: Retrieve header" (p. 4-1736) description.
    Default: empty string: ″″. This is displayed as \″\″ in output direction.
11. locz – Ring Z-node TID
    This parameter specifies the TID of the node at which the service is dropped from the BLSR ring. This parameter is required for the output of tributaries to be used by ONNS on ports of *portClass*=EDG E being members in BLSR/MSSPRING protection groups. The *locz* parameter value shall be an empty string for all other tributaries.
    locz is introduced specifically for use related to ONNS application.
    Type: TID or empty-string.
    Range: Please refer to the TID definition in the "RTRV-HDR: Retrieve header" (p. 4-1736) description.
    Default: empty string: ″″. This is displayed as \″\″ in output direction.
12. neppm – Near-End Path PM Enable
    It indicates whether this performance monitoring feature is enabled or disabled.
    Type: alphanumeric value set.
    Range:
    - ENABLE
    - DISABLE (default).

13. pmhpfeses – Performance Monitoring Path Far-End SES Threshold
    This parameter describes the Path Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. When the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of ranges for SDH and SONET): 1-64000.
    Default: 2400.
14. pmhpneses – Performance Monitoring Path Near-End SES Threshold
    This parameter describes the Path Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severely errored. When the interface standard is changed the current default value is not adapted automatically.
    Type: numeric value set.
    Range (superset of ranges for SDH and SONET): 1-64000.
    Default: 2400.
15. ptca – Path TCA Profile Pointer
    Type: alphanumeric string.
    Range: string with up to 24 characters.
    Default: DEFAULT0.
16. ptrc – Path Trace (J1)
    This parameter shows the value of the path trace identifier on the incoming path overhead J1 byte of a non-terminated tributary. The length depends on the value of the parameter *ptrcrfmt*. The status of this value is contained in parameter *ptrcst*. If *ptrcst* indicates NORMAL, then ptrc contains a valid value. If *ptrcst* indicates UNAVAILABLE or AIS, then no valid incoming path trace identifier could be obtained by the system, e.g. due to a signal-fail condition or intra-NE communication problems, and the output parameter ptrc is omitted from the response. For concatenated tributaries the system shall not return this parameter (see detailed behavior below).
    Type: hexadecimal (each byte is expressed as two hexadecimal digits. An example of a byte is 6D).
    Range:
    - 1 byte for non-specific repeating byte
    - 16 byte: These 16 byte shall consist of 15 byte information and the CRC7 byte
    - 64 bytes: This is a pure byte stream without any restrictions.
17. ptrcrfmt – Path Trace Read Format (J1)
    The read format of J1, the incoming path trace (ptrc).
    Type: numeric string.

Range:

- 2: for non-specific repeating byte
- 16: for 16 byte specific string.
- 64: for 64 byte string.

  Default: 2.

18. ptrcst - Status of Incoming Path Trace (J1)
    This parameter shows the status of the value of the incoming path trace identifier which is available with parameter ptrc. For concatenated tributaries the system shall not return this parameter (see detailed behavior below).
    Type: alphanumeric value set.
    Range:
    - NORMAL: ptrc contains a valid value
    - UNAVAILABLE: no valid value for ptrc could be obtained by the system
    - AIS: no valid value for ptrc due to an SF condition.
19. sdsfmode – Signal Degrade/Signal Fail Mode
    The degraded state is detected in BURST or POISSON mode.
    Type: alphanumeric value set.
    Range:
    - BURST (default)
    - POISSON
20. siglb - Signal Label
    This parameter shows the value of the signal label on the incoming path overhead C2 byte of a non-terminated VC tributary. The parameter shall not be reported if the *trailstate* parameter indicates a fail condition, i.e. has the value AIS or UNAVAILABLE. For concatenated tributaries the system shall not return this parameter (see detailed behavior below) .
    Type: alphanumeric value set.
    Range: 00, 01, ..., FE, FF; i.e. two hexadecimal digits.
21. substr - Sub Structured
    This parameter indicates if the tributary is sub structured. A sub structured HO tributary has a HO path termination associated which provides LO tributaries to be used for LO cross-connections.
    The parameter *substr* is set autonomously when LO cross connections are created or deleted with ENT-CRS or DLT-CRS commands. (See also the lower order cross-connection creation/deletion behaviour description for the commands ENT-CRS and DLT-CRS.) A sub structured HO tributary cannot be used to set up HO cross-connections.
    Type: alphanumeric value set.
    Range: YES, NO
22. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.

Two thresholding methods are applicable:

- TR-only (also known as the implicit reset method)
- TR-RTR (also known as the explicit reset method).

  Type: alphanumeric value set.
  Range: TR, TRRTR (default).

23. tmonmd – Tributary Monitoring Mode
    This parameter indicates the mode of the tributary.
    Type: alphanumeric value set.
    Range:
    - MON = alarm monitoring is taking place on the port.
    - NMON (default) = alarm monitoring is not occurring on the port.
24. trailstate - Trail State (C2)
    It shall be possible to read the accepted trail value status (C2) of every VC which is terminated/monitored in the system. For concatenated tributaries the system shall not return this parameter (see detailed behavior below).
    Type: alphanumeric value set.
    Range:
    - NORMAL: for accepted TSL which has valid payload type
    - AIS: for SSF, VC-AIS, dTIM or dUNEQ
    - UNAVAILABLE: for TSL which does not meet the acceptance criteria or no reporting is possible.

    Default: UNAVAILABLE.
25. tribsdhpn – Tributary Alarm Severity Assignment Profile
    This parameter points to a tributary ASAP profile name of type PATH for the designated AID.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: string with a maximum of 24 characters.
    Default: DEFAULT.

Detailed behavior description

Applicability for VC4 and concatenated signals

The RTRV-VC3 command is also applicable to VC4 tributaries. Even though a VC4 signal is not a concatenated VC3 signal in a strict sense, from a pointer processor viewpoint it can be considered to be comprised of three VC3 signals which have the properties of a concatenated signal. Thus it is not necessary to have a separate RTRV command for VC4.

Retrieval of concatenated tributaries

It is allowed to retrieve data from concatenated tributaries and the system responds by returning all parameters which are not derived from traffic. The details can be found in the parameter description.

Concatenated tributaries are such tributaries, that are not the leftmost ones in concatenated signals, e.g. if an OC 48 port is provisioned for a fixed traffic of AU4-16c, STS-1 #1 represents the VC4-16c defined and all other STS-1s #2 to #48 do currently not represent valid substructures and thus are concatenated tributaries. The retrievable values e.g. for the STS-1s #2 to #48 are irrelevant for transmission.

Parameters derived from traffic are data like trace identifiers and signal labels which are collected from the actual input signal and thus do not exist for concatenated tributaries.

Behavior for non-existing entities

If the specified VC3/VC4 tributaries do not exist, the command shall return an empty response. E.g. if an attempt is made, to retrieve VC3/VC4 tributaries on a GbE circuit pack.

Example input/output

```
RTRV-VC3:LT-UNITE:1-1-#-#-3-1-1:123456;
   LT-UNITE 00-11-27 08:00:00
M  123456 COMPLD
   "1-1-#-#-3-1-1:crslpbkstat=NO,tmonmd=NMON,
   tribsdhpn=Default,ptca=Default0,neppm=DISABLE,
   pmhpneses=30,pmhpfeses=30,degthr=-6,...,
   ptrcrfmt=1,dexcthr=-3,ptrc=00,ptrcst=NORMAL,
   sdsfmode=POISSON"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the RTRV-VC3 command.

Check CCB against istd for related port

Validation rule: Check CCB against *istd*

Check wether the CCB fits to *istd* of the related port.

Error code: `ICNV - Input, Command Not Valid, Interface Standard does not match`.

E.g. DENY, if a command with rr=VC3 is made on a port which is provisioned as *istd*=SONET.

References

GR-199-CORE (RTRV-*rr*)

□

RTRV-VCG: Retrieve virtual concatenation group

The RTRV-VCG command retrieves the attributes of a virtual concatenation group.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes.

Input format

Command Syntax: `RTRV-VCG`*:tid:aid:ctag[:::spec_block];*

Input parameters

Command parameters

1. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
2. aid – Access Identifier
   This parameter specifies the virtual concatenation group (VCG) to be operated on.
   Type: AID.
   Range: VCGAID as defined in AID structure. The values
   - *vall* for Simple_VCGAID and
   - *usall* for Simple_UnivSlotAID

   are accepted.
3. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the network element in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters Note: Current implementation also allows ’0’ as valid CTAG, which is an extension to GR-831.

Spec block parameter

1. dyn - Retrieve Dynamic Parameters
   This parameter controls whether dynamic parameters shall be reported with the command reply or not. It shall be given only when using any of the wildcard values *usall* or *vall* at the appropriate positions of the input AID. For input AIDs not using *usall* or *vall* this parameter is not allowed. This implies that with such input AIDs the dynamic parameters are always returned.
   The following output parameters of a vcgport port are affected: *mfiv*, *macaddr*, *stmd*, *stpop*, *stpid, stprole*, *vss*, *vvidlsd.*
   Type: alphanumeric value set.
   Range:
   - YES: Report dynamic parameters in the reply as well
   - NO (default): Do not report dynamic parameters in the reply.

Output format

If the NE fully complies with the RTRV-VCG request, the following normal completion response is returned:

```
sid date time
M  ctag COMPLD
   "aid::spec_block"
      <1 or more of the line above>
   "tribaid:mfiv,MFIV"
    <several lines, one for each tribaid belonging to aid,
     or no lines, depending on dynamic data retrieval mode>
       ...
       ...
   "aid::spec_block"
      <1 or more of the line above>
   "tribaid:mfiv,MFIV"
    <several lines, one for each tribaid belonging to aid,
     or no lines, depending on dynamic data retrieval mode>
;
```

The output parameters *sid*, *date*, *time* and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter specifies the VCG to be operated on.
   Type: AID.
   Range: VCGAID as defined in AID structure with the exception of the value *vall.*
2. tribaid – Tributary Access Identifier
   The tributary access identifier shall specify a tributary belonging to the virtual concatenation group (VCG) given by the aid above.
   Type: AID.
   Range: VCGNumAID as defined in AID structure with the exception of the value all.
3. mfiv - Multiframe Indicator Value
   This parameter reports the differential delay between the tributary addressed by *tribaid* (see above) and the fastest tributary of the VCG. The fastest tributary has the value zero. For each retrieve of a VCG there is a report of mfiv for all tributaries belonging to the VCG.
   Type: alphanumeric value set.
   Range:
   - 0, 125, 250, 375, ..., 511750, 511875 [microseconds]
   - NA
   - UNAVAILABLE

   In fact the reported range for delay is 0 ... 255875 microseconds. Other values can only be reported as raw values without a delay calculation between the tributaries. UNAVAILABLE is reported when the accepted MFI contents do not meet the basic acceptance criteria (multiframe alignment not completed), or intra-NE communication with the reporting entity is disrupted. NA (Not Applicable) shall be reported under defect conditions detected by the Sn[i] termination function or the VC-n is not part of an S-n-Xv group.

Spec block parameters

1. cnprole – Customer/Network Port Role
   This parameter specifies whether the addressed port is used as a customer WAN port or a network WAN port.
   Type: alphanumeric value set.
   Range: CUSTOMER, for a customer WAN port. NETWORK (default), for a network WAN port.
2. dftpri – Default User Priority
   This parameter specifies the default user priority acc. the IEEE 802.1Q tagging scheme.
   Type: alphanumeric value set.

Range:

- HIGH
- LOW (default).

3. enetpn – Ethernet Alarm Severity Assignment Profile Name
   This parameter points to a tributary ASAP profile name of type ENET for the designated AID.
   Ethernet port and VCG port have the same ASAP profile named ENET.
   Type: Alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: 1 … 24 characters length.
   Default: DEFAULT.
4. enettca – Ethernet TCA Profile Name
   This parameter specifies the name of the threshold crossing alert (TCA) profile used for the VCG.
   Type: alphanumeric string.
   Range: 1 ... 24 characters length.
   Default: DEFAULT0.
5. eportClass – Ethernet Port Class
   This identifies the ethernet port class of the AID. *eportClass* is used to specify ethernet ports for use by NN application.
   Type: alphanumeric value set.
   Range: TRADITIONAL (default), EDGE .
6. eportControl – Ethernet Port Control (Ethernet Port Administrative Mode)
   This identifies the administrative mode of ethernet ports of *eportlass*=EDGE. For ethernet ports of other ethernet port class this parameter shall not be relevant. *eportControl* is introduced specifically for use by NN application.
   Type: alphanumeric value set.
   Range: NORMAL (default), MAINT, LOCKOUT .
7. htmr – Hold-Off Time
   The parameter *htmr* shall specify the hold off time for the LCAS protection. If a tributary is configured to take part on transmission for the VCG and it goes to state faulty then this tributary is taken out of transmission by LCAS after the hold off time. This time is configured on group level, i.e. all tributaries have the same value for hold-off time. This parameter only affects NE behaviour if lcasmd=ENABLED.
   Type: numeric value set.
   Range: 0 (default), 100, 200, ..., 9900, 10000 [milliseconds].
8. inputsig – Tributary Input Signal Rate List
   This parameter reports the tributary structure of the VCG port in input direction. This will implicitly give the maximum capacity of the VCG port, too. The tributary structure depends on interface standard specified for this VCG by istd . For definition of *istd* refer to "RTRV-VCG: Retrieve virtual concatenation group" (p. 4-2254) Output parameters.

Type: numeric string of the form NX

- N shall specify the count of container type X
- X shall specify the container type (or envelope).

Range:

- istd=SDH: N=7, X = 4 for VC-4
- istd=SONET: N=21, X=1 for STS-1.

Default: istd=SDH: 74; istd=SONET: 211.

9. istd – Interface Standard
   This parameter specifies the interface standard of this VCG. This value is applied for both input and output direction.
   Type: alphanumeric value set.
   Range:
   - SDH
   - SONET.

   Default: As derived from parameter *istddflt* specified at configuration management, section System RTRV-EQPT.
10. lcasmd – LCAS Mode
    This parameter specifies the operation mode of the Link Capacity Adjustment Scheme for this VCG. This value is bi-directional.
    Type: alphanumeric value set.
    Range:
    - DISABLE
    - ENABLE (default).
11. macaddr – Port MAC Address
    This parameter specifies the MAC address of the port.
    Type: alphanumeric value set.
    Range: 000000000000 to FFFFFFFFFFFF or UNAVAILABLE if the value can not be retrieved.
12. stdis – Spanning Tree Protocol Disable
    This parameter allows to enable or disable the Spanning Tree Protocol for the given port. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: alphanumeric value set.
    Range: DISABLE, STP is disabled, i.e. the port is not used to build the spanning tree. ENABLE (default), STP is enabled, i.e. the port is used to build the spanning tree.
    As VCGs are by default network ports the default value is to enable STP.

13. stmd – Spanning Tree Protocol Mode
    This parameter returns whether the normal STP according to IEEE802.1D or the rapid spanning tree protocol rSTP according to IEEE802.1w is used on the given port. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: alphanumeric value set.
    Range:
    - 802.1D, for the normal ST
    - 802.1W, for rSTP
    - UNAVAILABLE if the value can not be retrieved.

    Default: There is no default value.
14. stpcost – Spanning Tree Path Cost
    This parameter specifies the STP-related cost of the path egressing the given port. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: integer.
    Range: 1 to 200000000.
    Default: 20000.
    The default value depends on the provisioned VCG size. As currently only a fix size of 7 VC4s or 21 STS1s corresponding to approx. 1 Gbit is supported the default value is as shown above.
15. stpid – Spanning Tree Port Identifier
    The port identifier is a 16 bit parameter consisting of the port priority (high-order bits) and the port number (low-order bits). The port number is assigned by the system to a port and is not provisionable. This parameter is applicable only if the port is a network port (cnprole == NETWORK). For customer ports (cnprole == CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: alphanumeric value set.
    Range: 0 to 65535 and UNAVAILABLE if the value can not be retrieved.
16. stpop – Spanning Tree Protocol Operational
    This parameter indicates whether the Spanning Tree Protocol is operational or not. This parameter is applicable only if the port is a network port (cnprole == NETWORK). For customer ports (cnprole == CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: alphanumeric value set.
    Range: YES, operational; NO, not operational, UNAVAILABLE if the value can not be retrieved.

17. stpp – Spanning Tree Port Priority
    This parameter specifies the priority of the given port for the Spanning Tree Protocol. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: integer.
    Range: 0 to 255.
    The stepping as recommended by the standard (steps of 16 starting at 0) should be implemented by the management system. The NE will accept any value in the range described above. This has the consequence, that also the range restriction ″0 to 240″ is not done by the NE.
    Default: 128.
18. stprole – Spanning Tree Protocol Role
    This parameter reports the role of the given port in rSTP. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK) and operates in rSTP mode (*stmd* = 802.1W). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    Type: alphanumeric value set.
    Range:
    - ROOT, root
    - DESG, designated
    - ALT, alternative
    - BACKUP, backup
    - UNAVAILABLE if the value can not be retrieved.
19. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable: TR-only, (also known as the implicit reset method). TR-RTR, (also known as the explicit reset method).
    Type: alphanumeric value set.
    Range: TR, TRRTR.
    Default: TRRTR in SDH mode; TR in SONET mode.
20. unequiposig – Unequipped Tributary Output Signal Rate List
    The parameter unequiposig shall specify the tributary structure and the capacity of the VCG port in output direction. As long as there is no cross-connection applied the specified tributaries shall be occupied by an unequipped signal. The parameter will implicitly give the maximum capacity of the VCG port, too. The tributary structure depends on interface standard specified for this VCG by istd . For definition of istd refer to RTRV-VCG Output Parameters. The signal will be immediately terminated on the unit. So no unequipped signal is visible to the outside world.

Type: numeric string of the form NX

- N shall specify the count of container type X
- X shall specify the container type (or envelope).

Range:

- istd=SDH: N=7, X=4 for VC-4
- istd=SONET: N=21, X=1 for STS-1.

Default: istd=SDH: 74; istd=SONET: 211.

21. vmode – VCG Monitoring Mode
    The parameter vmode shall specify the monitoring mode for VCG. Alarms for this port will be reported if in mode MON otherwise not. There is no automatic mode.
    Type: alphanumeric value set.
    Range:
    - MON, for monitored
    - NMON (default), for not monitored.
22. vpm – VCG Performance Monitoring
    The parameter *vpm* shall specify whether the performance monitoring is enabled or disabled for this port.
    Type: alphanumeric value set.
    Range:
    - DISABLE (default)
    - ENABLE.
23. vrtswid – Virtual Switch Identifier
    This parameter identifies the instance of the virtual switch.
    Type: integer
    Range: 1 - Currently this is the only allowed value
    This parameter is reported only if the virtual switch entity exists (i.e. the VLAN tagging mode vlantagmd of the slot the addressed EPort belongs to is set to 802.1TAG).
24. vss – Spanning Tree Status
    This parameter returns the status of the spanning tree protocol for the given port. This parameter is applicable only if the port is a network port (*cnprole* = NETWORK). For customer ports (*cnprole* = CUSTOMER) this parameter has no effect. However, changes shall be stored in the database.
    The name of this parameter originally stands for VCG STP status which is somewhat misleading for an EPORT but is kept for consistency reasons with other products. (When using an EPORT as a network port it participates in STP and therefore also has status information.)
    Type: alphanumeric value set.
    Range:
    - FWG, Forwarding
    - LRG, Learning

- LIS, Listening (IEEE8102.D/STP only)
- BLK, Blocking (IEEE8102.D/STP only)
- DISF, Disabled due to a failure (IEEE8102.D/STP only)
- DISA, Disabled via provisioning
- BRK, Broken (IEEE8102.w/rSTP only)
- DCD, Discarding (IEEE8102.w/rSTP only)
- UNAVAILABLE if the value can not be retrieved.

25. vvidls – Valid VLAN Identifier List (static)
    This parameter specifies a list of all static VLAN identifiers allowed for this port. The list shall be ampersand grouped (& and &&). The list shall be packed by the NE and the management systems as good as possible by using '&' and '&&' . The vlan identifier of an incoming frame must be a member of this static VLAN Id list or the dynamic VLAN Id list *vvidlsd*. Frames tagged by a vlan identifier not member of these lists will be discarded. The port VLAN identifier (refer to parameter dftvlan of RTRV-EPORT Output Parameters) is not part of this list. This parameter is also used in transparent tagging mode to specify the list of valid customer tags (CIDs) for network ports (cnprole == NETWORK).
    Type: alphanumeric string and the character '&'.
    Range:
    - Value of each single member (valid VLAN identifier) in the list 1, 2, ..., 4092, 4093
    - In case the list has no members (empty list) -1.

    The length of the list is limited only by the usual system limitations like e.g. TL1 line length. The number of entries in this list is limited to 64 by some NE-internal restrictions. Ranging and grouping by using the operators '&' and '&&' has no impact on the number of entries, it only reduces the length of the list being transported to/from CIT/EMS.
    Default: -1.
    Example 1:
    vvidls=-1. The list has no members (empty list).
    Example 2:
    vvidls=3&5&40&&45. This list has the members 3, 5, 40, 41, 42, 43, 44 and 45.
    Example 3:
    vvidls=1&&4093 This list has the members 1,2, 3, ..., 4092, 4093.
26. vvidlsd - Valid VLAN Identifier List (dynamic)
    This parameter gives the list of all dynamic VLAN identifiers allowed for this port as gathered autonomously via GVRP. The list is ampersand grouped (& and &&). The vlan identifier of an incoming frame must be a member of this dynamic VLAN Id list or the static VLAN Id list vvidls. Frames tagged by a vlan identifier not member of these lists will be discarded. This parameter is also used in transparent tagging mode to report the list of valid customer tags (CIDs) for network ports (cnprole == NETWORK) collected by GVRP.

Option: This parameter is reported only if

- the virtual switch entity exists (i.e. the VLAN tagging mode vlantagmd of the slot the addressed EPort belongs to is set to 802.1TAG) AND
- GVRP is enabled on the virtual switch (*gvrpmode* = ENABLED)
- the port is a NETWORK port (*cnprole* = NETWORK).

Type: alphanumeric string and the character '&'.

Range:

- Value of each single member (valid VLAN identifier) in the list 1, 2, ..., 4092, 4093
- In case the list has no members (empty list) -1.

If the value can not be retrieved: UNAVAILABLE
Default: There is no default value.
Example 1:
vvidlsd=-1 The list has no members (empty list).
Example 2:
vvidlsd=3&5&40&&45 This list has the members 3, 5, 40, 41, 42, 43, 44 and 45.

27. wtr – Wait To Restore Time
    The parameter wtr shall specify the wait to restore time for the LCAS protection. If a tributary is configured to take part on transmission for the VCG and it recovers from a faulty state then this tributary is taken in again to transmission by LCAS after the wait-to-restore time. This time is configured on group level, i.e. all tributaries have the same value for the wait-to-restore time. This parameter only affects NE behaviour if lcasmd=ENABLED.
    Type: alphanumeric value set.
    Range: 0, 1, 2, ..., 59, 60 [minutes].
    Default: 0.

Detailed behavior description

The RTRV-VCG does not generate a REPT DBCHG message. The command retrieves all VCG parameters as described in section Output parameters.

The values of the following parameters are directly requested form the hardware:

- mfiv
- macaddr
- stmd
- stpop
- stpid
- stprole
- vss
- vvidlsd.

Example input/output

```
RTRV-VCG:LT-UNITE:1-1-#-#-2-v3:123456;
   LT-UNITE 01-03-20 09:05:00
M 123456 COMPLD
   "1-1-#-#-02-v3:cnprole=NETWORK,dftpri=LOW,
   dftvlan=UNAVAILABLE,enetpn=DEFAULT,enettca=DEFAULTO,
   htmr=0,inputsig=211,istd=SONET,lcasmd=ENABLE,
   macaddr=112233445566,rstpmd=ENABLE,stdis=ENABLE,
   stmd=802.1W,stpcost=20000,stpp=128,stprole=DESG,
   tcamd=TR,unequiposig=211,vmode=NMON,vpm=DISABLE,
   vrtswid=1,vss=FWG,vvidls=-1,vvidlsd=1&24,wtr=5"
   "1-1-#-#-02-v3-1:125,MFIV"
   .
   . for all 21 VCG members
   .
   "1-1-#-#-02-v3-21:250,MFIV"
;

RTRV-VCG:LT-UNITE:1-1-#-#-2-vall:123456;
   LT-UNITE 01-03-20 09:05:00
M 123456 COMPLD
   "1-1-#-#-02-v1:cnprole=NETWORK,dftpri=LOW,
   dftvlan=UNAVAILABLE,enetpn=DEFAULT,enettca=DEFAULTO,
   htmr=0,inputsig=211,istd=SONET,lcasmd=ENABLE,
   rstpmd=ENABLE,stdis=ENABLE,stpcost=20000,stpp=128,
   tcamd=TR,unequiposig=211,vmode=NMON,vpm=DISABLE,
   vrtswid=1,vvidls=-1,wtr=5"
   "1-1-#-#-02-v2:cnprole=NETWORK,dftpri=LOW,
   dftvlan=UNAVAILABLE,enetpn=DEFAULT,enettca=DEFAULTO,
   htmr=0,inputsig=211,istd=SONET,lcasmd=ENABLE,
   rstpmd=ENABLE,stdis=ENABLE,stpcost=20000,stpp=128,
   tcamd=TR,unequiposig=211,vmode=NMON,vpm=DISABLE,
   vrtswid=1,vvidls=-1,wtr=5"
   "1-1-#-#-02-v3:cnprole=NETWORK,dftpri=LOW,
   dftvlan=UNAVAILABLE,enetpn=DEFAULT,enettca=DEFAULTO,
   htmr=0,inputsig=211,istd=SONET,lcasmd=ENABLE,
   rstpmd=ENABLE,stdis=ENABLE,stpcost=20000,stpp=128,
   tcamd=TR,unequiposig=211,vmode=NMON,vpm=DISABLE,
   vrtswid=1,vvidls=-1,wtr=5"
   "1-1-#-#-02-v4:cnprole=NETWORK,dftpri=LOW,
   dftvlan=UNAVAILABLE,enetpn=DEFAULT,enettca=DEFAULTO,
   htmr=0,inputsig=211,istd=SONET,lcasmd=ENABLE,
   rstpmd=ENABLE,stdis=ENABLE,stpcost=20000,stpp=128,
   tcamd=TR,unequiposig=211,vmode=NMON,vpm=DISABLE,
   vrtswid=1,vvidls=-1,wtr=5"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the RTRV-VCG command, too.

Validation rule: Command only allowed for VCG on Gigabit Ethernet Packs

If the command is not applied to a VCG on a Gigabit Ethernet pack, then the command shall be denied.

Error Code: `IENE - Input, Entity Not Exists`

Related TL1 messages

"ED-VCG: Edit virtual concatenation group" (p. 4-969)

□

RTRV-VCG-TRANS: Retrieve virtual concatenation group transparent

The RTRV-VCG-TRANS command retrieves the attributes of a virtual concatenation group, used for fully transparent applications.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes.

Input format

Command Syntax: `RTRV-VCG-TRANS`*:tid:aid:ctag[:::spec_block];*

Input parameters

Command parameters

1. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
2. aid – Access Identifier
   This parameter specifies the virtual concatenation group (VCG) to be operated on.
   Type: AID.
   Range: VCGAID as defined in AID structure. The values
   - *vall* for Simple_VCGAID and
   - *usall* for Simple_UnivSlotAID

   are accepted.
3. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the network element in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters Note: Current implementation also allows ’0’ as valid CTAG, which is an extension to GR-831.

Spec block parameter

1. dyn - Retrieve Dynamic Parameters
   This parameter controls whether dynamic parameters shall be reported with the command reply or not. It shall be given only when using any of the wildcard values usall or vall at the appropriate positions of the input AID. For input AIDs not using usall or vall this parameter shall not be considered. This implies that with such input AIDs the dynamic parameters are always returned.
   The following output parameters of a vcgport port are affected: *mfiv*, *rplt*.
   Type: alphanumeric value set.
   Range:
   - YES: Report dynamic parameters in the reply as well
   - NO (default): Do not report dynamic parameters in the reply.

Output format

If the NE fully complies with the RTRV-VCG request, the following normal completion response is returned:

```
sid date time
M  ctag COMPLD
   "aid::spec_block"
      <1 or more of the line above>
   "tribaid:mfiv,MFIV"
    <several lines, one for each tribaid belonging to aid,
     or no lines, depending on dynamic data retrieval mode>
       ...
       ...
   "aid::spec_block"
      <1 or more of the line above>
   "tribaid:mfiv,MFIV"
    <several lines, one for each tribaid belonging to aid,
     or no lines, depending on dynamic data retrieval mode>
;
```

The output parameters *sid*, *date*, *time* and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter specifies the VCG to be operated on.
   Type: AID.
   Range: VCGAID as defined in AID structure with the exception of the value *vall.*
2. tribaid – Tributary Access Identifier
   The tributary access identifier shall specify a tributary belonging to the virtual concatenation group (VCG) given by the aid above.
   Type: AID.
   Range: VCGNumAID as defined in AID structure with the exception of the value *all*.
3. mfiv - Multiframe Indicator Value
   This parameter reports the differential delay between the tributary addressed by *tribaid* (see above) and the fastest tributary of the VCG. The fastest tributary has the value zero. For each retrieve of a VCG there is a report of *mfiv* for all tributaries belonging to the VCG.
   Type: alphanumeric value set.
   Range:
   - 0, 125, 250, 375, ..., 511750, 511875 [microseconds]
   - NA
   - UNAVAILABLE

   In fact the reported range for delay is 0 ... 255875 microseconds. Other values can only be reported as raw values without a delay calculation between the tributaries. UNAVAILABLE is reported when the accepted MFI contents do not meet the basic acceptance criteria (multiframe alignment not completed), or intra-NE communication with the reporting entity is disrupted. NA (Not Applicable) shall be reported under defect conditions detected by the Sn[i] termination function or the VC-n is not part of an S-n-Xv group.

Spec block parameters

1. camd - Consequent Action Mode
   This parameter specifies the mode of the consequent action to be executed in egress direction (to the synchronous port) on detected signal fail conditions (dPLM, AI_TSF or detected generic AIS) on the ODU layer
   Type: alphanumeric value set.
   Range: GENERICAIS (default), MSAIS, LASEROFF
2. enetpn – Ethernet Alarm Severity Assignment Profile Name
   This parameter points to a tributary ASAP profile name of type ENET for the designated AID.
   Some VCG related alarms have to be referenced via the ASAP profile named ENET.
   Type: Alphanumeric string. A hyphen (-) is additionally allowed in the name.
   Range: 1 … 24 characters length.
   Default: DEFAULT.
3. fevpm - Far End VCG Performance Monitoring
   The parameter fevpm shall specify whether the far end performance monitoring is enabled or disabled for this port. For the fully transparent application performance monitoring is actually done on the ODUkP layer and on the VCG level. This parameter enables/disable therefore far end PM on the ODUkP layer.
   Type: alphanumeric value set.
   Range: DISABLE (default), ENABLE
4. inputsig – Tributary Input Signal Rate List
   This parameter reports the tributary structure of the VCG port in input direction. This will implicitly give the maximum capacity of the VCG port, too. The tributary structure is independent from the interface standard istd specified for this VCG.
   Type: numeric string of the form NX
   - N shall specify the count of container type X
   - X shall specify the container type (or envelope).

   Range:
   - N=17,
   - X = 4 for VC-4 / STS3.

   Default: 174.
5. istd – Interface Standard
   This parameter specifies the interface standard of this VCG. This value is applied for both input and output direction.
   Type: alphanumeric value set.
   Range:
   - SDH
   - SONET.

   Default: As derived from parameter *istddflt* specified at configuration management, section System RTRV-EQPT.

6. nevpm - Near End VCG Performance Monitoring
   This parameter specifies whether the near end performance monitoring is enabled or disabled for this port. For the fully transparent application performance monitoring is actually done on the ODUkP layer and on the VCG level. This parameter enables/disable therefore near end PM on the ODUkP layer.
   Type: alphanumeric value set.
   Range: DISABLE (default), ENABLE
7. pmvcgfeses - Performance Monitoring VCG Far-End SES Threshold
   This parameter describes the VCG (actually ODUkP) Far-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severly errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
   Type: numeric value set.
   Range: (the range depends on the ODUkP rate but is identical for the corresponding SDH and SONET rates): ODU1P: 1 - 163360
   Default: ODU1P: 3064. Currently only SDH Performance Monitoring is supported on the ODUkP layer.
8. pmvcgneses - Performance Monitoring VCG Near-End SES Threshold
   This parameter describes the VCG (actually ODUkP) Near-End SES threshold value. It indicates the number of errored blocks (SDH) or code violations (SONET) per second to declare a second as severly errored. The default value depends on the interface standard and may differ between SDH and SONET. If the interface standard is changed the current default value is not adapted automatically.
   Type: numeric value set.
   Range: (the range depends on the ODUkP rate but is identical for the corresponding SDH and SONET rates): ODU1P: 1 - 163360
   Default: ODU1P: 3064. Currently only SDH Performance Monitoring is supported on the ODUkP layer.
9. rplt - Reported Payload Type
   The parameter rplt shall report the received payload type for the constant bit rate mapping on the ODU layer.
   Type: alphanumeric value set.
   Range:
   - 00, 01, ..., FE, FF i.e. two hexadecimal digits
   - UNAVAILABLE
10. tcamd – TCA mode
    This parameter shows the modus of the PM thresholding.
    Two thresholding methods are applicable: TR-only, (also known as the implicit reset method). TR-RTR, (also known as the explicit reset method).
    Type: alphanumeric value set.
    Range: TR, TRRTR.
    Default: TRRTR in SDH mode; TR in SONET mode.

11. transpn - Transparent Alarm Severity Assignment Profile Name
    This parameter points to a ASAP profile name of type TRANSPARENCY for the designated AID.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: 1 ... 24 characters length
    Default: DEFAULT.
12. transtca - Transparent TCA Profile Name
    The parameter transtca shall specify the name of the threshold crossing alert (TCA) profile used for the VCG..
    Type: alphanumeric string.
    Range: 1 ... 24 characters length
    Default: DEFAULT0
13. unequiposig - Unequipped Tributary Output Signal Rate List
    This parameter specifies the tributary structure and the capacity of the VCG port in output direction. As long as there is no cross-connection applied the specified tributaries shall be occupied by an unequipped signal. The parameter will implicitly give the maximum capacity of the VCG port, too. The tributary structure is independentof the interface standard specified for this VCG.
    The signal will be immediately terminated on the unit. So no unequipped signal is visible to the outside world.

    Type: numeric string of the form NX.

    - N shall specify the count of container type X
    - X shall specify the container type (or envelope)

    Range:

    - N = 17
    - X = 4 for VC-4 / STS-3C

    Default: 174
14. vmode - VCG Monitoring Mode
    This parameter wtr specifies the monitoring mode for VCG. Alarms for this port will be reported if in mode MON otherwise not. There is no automatic mode.
    Type: alphanumeric value set.
    Range: MON: for monitored; NMON (default): for not monitored.

Detailed behavior description

The RTRV-VCG-TRANS does not generate a REPT DBCHG message. The command retrieves all VCG parameters as described in section Output parameters.

The values of the following parameters are directly requested form the hardware:

- *mfiv*
- *rplt*

Thus the value ″UNAVAILABLE″ is reported, if the CP HW is not available in the system.

Example input/output

Example 1:

```
RTRV-VCG-TRANS:LT-UNITE:1-1-#-#-2-v3:123456;
   LT-UNITE 01-03-20 09:05:00
M  123456 COMPLD
   "1-1-#-#-02-v3:camd=GENERICAIS,enetpn=DEFAULT,
   fevpm=DISABLE,inputsig=174,istd=SDH,nevpm=DISABLE,
   pmvcgfeses=3064,pmvcgneses=3064,rplt=01,
   tcamd=TRRTR,transpn=DEFAULT,transtca=DEFAULTO,
   unequiposig=174,vmode=NMON"1-1-#-#-02-v3-1:125,MFIV"
   .
   . for all 17 VCG members
   .
   "1-1-#-#-02-v3-17:250,MFIV"
;
```

Example 2:

```
RTRV-VCG-TRANS:LT-UNITE:1-1-#-#-2-vall:123456;
   LT-UNITE 01-03-20 09:05:00
M  123456 COMPLD
   "1-1-#-#-02-v1:camd=GENERICAIS,enetpn=DEFAULT,
   fevpm=DISABLE,inputsig=174,istd=SDH,nevpm=DISABLE,
   pmvcgfeses=3064,pmvcgneses=3064,rplt=01,
   tcamd=TRRTR,transpn=DEFAULT,transtca=DEFAULTO,
   unequiposig=174,vmode=NMON"
   "1-1-#-#-02-v2:camd=GENERICAIS,enetpn=DEFAULT,fevpm=
   DISABLE,inputsig=174,istd=SDH,nevpm=DISABLE,
   pmvcgfeses=3064,pmvcgneses=3064,rplt=01,tcamd=TRRTR,
   transpn=DEFAULT,transtca=DEFAULTO,unequiposig=174,
   vmode=NMON"
   "1-1-#-#-02-v3:camd=GENERICAIS,enetpn=DEFAULT,fevpm=
   DISABLE,inputsig=174,istd=SDH,nevpm=DISABLE,
   pmvcgfeses=3064,pmvcgneses=3064,rplt=01,tcamd=TRRTR,
   transpn=DEFAULT,transtca=DEFAULTO,unequiposig=174,
   vmode=NMON"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the RTRV-VCG-TRANS command, too.

Validation rule: Command only allowed for VCG on Transparent Packs

If the command is not applied to a VCG on a transparent pack, then the command shall be denied.

Error Code: `IENE - Input, Entity Not Exists`

Related TL1 messages

"ED-VCG-TRANS: Edit virtual concatenation group for fully transparent application" (p. 4-984)

□

RTRV-VCGTRIB: Retrieve virtual concatenation group tributary

The RTRV-VCGTRIB command retrieves the attributes of a VCG tributary used for GE1 or fully transpartent applications.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-VCGTRIB-`*modifier:tid:aid:ctag*[*:::spec_block*];

Input parameters

Command parameters

1. modifier
   This parameter specifies the type of the tributary. The purpose is to distinguish between SDH/SONET tributaries and between the application of the VCG the tributary belongs to. Current applications are GE1 and fully transparency.
   Type: alphanumeric value set.
   Range:
   - ALL
   - STS
   - VC.
   - STST
   - VCT.

   To distinguish the fully transparent application from the GE1 application, a letter ″T″ is appended.
2. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
3. aid – Access Identifier
   This parameter specifies VCG tributary to be operated on.
   Type: AID.

Range: VCGNumAID as defined in AID structure. The values

- *all* for Simple_VCGNumAID
- *vall* for Simple_VCGAID
- *usall* for Simple_UnivSlotAID

shall be accepted.

4. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the network element in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters Note: Current implementation also allows '0' as valid CTAG, which is an extension to GR-831.

Spec block parameter

dyn - Retrieve Dynamic Parameters

This parameter controls whether dynamic parameters shall be reported with the command reply or not. It shall be given only when using any of the wildcard values all, usall or vall at the appropriate positions of the input AID. For input AIDs not using all, usall or vall this parameter shall not be allowed.

The following output parameters of a vcgtrib are affected:

- aseqno
- tseqno
- ptrc
- ptrcst
- rsiglb
- trailst.

Type: alphanumeric value set.

Range: YES: Report dynamic parameters in the reply as well; NO (default): Do not report dynamic parameters in the reply.

Output format

If the NE fully complies with the RTRV-VCGTRIB request, the following normal completion response is returned:

```
sid date time
M  ctag COMPLD
   "aid::spec_block set1"
    <1 or more of the line above,
     or no lines, depending on dynamic data retrieval mode>
   "aid,aidtype::spec_block set2"
    <1 or more of the line above>
```

```
    ...
    ...
  "aid::spec_block set1"
   <1 or more of the line above,
    or no lines, depending on dynamic data retrieval mode>
  "aid,aidtype::spec_block set2"
   <1 or more of the line above>
;
```

The output parameters *sid*, *date*, *time* and *ctag* included in the normal completion response are specified in the Output Parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter specifies the VCG tributary whose attributes are reported.
   Type: AID.
   Range: VCGNumAID as defined in AID structure with exception of value all.
2. aidtype - Access Identifier Type
   This parameter specifies the type of the tributary.
   Type: alphanumeric value set.
   Range: STS or VC or STST or VCT.

To distinguish the fully transparent application from the GE1 application, a letter "T" is appended.

Spec block parameters Set 1

1. aseqno - Accepted Sequence Number
   This parameter reports the accepted sequence number of the tributary. In case that the received sequence no. does not meet the basic acceptance criteria, a disrupted intra-NE communication with the reporting entity, or under defect conditions 'not available' shall be reported. If the tributary to be reported is no configured member of the VCG 'not applicable' shall be reported.
   Type: alphanumeric value set.
   Range:
   - 0, 1, 2, ..., 254, 255
   - NA, for not applicable
   - UNAVAILABLE, for not available/unavailable.

Although the normal accepted sequence no. is limited to 20 for 21 tributaries, the NE is not prevented to report a higher one if received (accompanied by a proper alarm).

2. tseqno - Transmitted Sequence Number
   This parameter reports the transmitted sequence number of the tributary. In case of a disrupted intra-NE communication with the reporting unit 'not available' shall be reported. If the tributary to be reported is no configured member of the VCG 'not applicable' shall be reported.
   Type: alphanumeric value set.
   Range:
   - For modifier STS: 0, 1, 2, ..., 19, 20
   - For modifier VC: 0, 1, 2, ..., 5, 6
   - For modifier STST or VCT: 0, 1, 2, ..., 15, 16
   - For modifier STS or VC: NA for not applicable
   - For all modifiers: UNAVAILABLE for not available/unavailable.

   For GE1 applications the actual range could be less, dependent on
   - different tributary type (0 ... 6 for VC-4)
   - configured membership
   - actual membership (because of LCAS).

For OPT2G5 applications the tributaries of type VC-4 or STS-3c have a fixed allocation of sequence numbers to be transmitted (always all 17 are needed and no LCAS is supported). The allocation is as follows:

- Tributary Number 1, tseqno 0
- Tributary Number 2, tseqno 1
- .....
- Tributary Number 17, tseqno 16

Intra NE communication is not needed to derive these values, therefore.

Spec block parameters Set 2

Mode STS | VC

Some of the spec block parameters set 2 depend on the *modifier* (for RTRV) or *aidtype* (for ED, ED Not. and ENT Not.). Those parameters are only applicable for the given mode, i.e in the other mode they shall be neither reported nor modifiable.

1. brstintvl - Bursty Interval
   This parameter specifies the measurement period for degraded defect if *sdsfmode* is set to BURST. If *sdsfmode* is not set to BURST then *brstintvl* has no affect to NE behaviour. The parameter *brstintvl* is only valid for modifiers different from STST and VCT, .e. shall be omitted in the command response for STST and VCT.
   Type: integer..
   Range: 2, 3, ..., 10 [seconds].
   Default: 7 [seconds].
2. brstthr - Bursty Error Threshold
   This parameter specifies the degradation threshold for degraded defect if *sdsfmode* is set to BURST. If *sdsfmode* is not set to BURST then *brstthr* has no affect to NE behaviour. The parameter brstthr is only valid for modifiers different from STST and VCT, i.e. shall be omitted in the command response for STST and VCT.
   Type: integer.
   Range: 5, 10, 15, ... 50 [%].
   Default: 30 [%].
3. crslpbkstat - Cross-connect Loopback Status
   This parameter reports the configuration of the cross-connection loopback of this tributary. For changing the loopback operation refer to “OPR-LPBK (here cross-connection loopback)” (p. 4-1458).
   Type: alphanumeric value set.
   Range: YES, for enabled loopback; NO, for disabled loopback.
4. degthr - Signal Degrade Threshold
   This parameter specifies the exponent to base 10 for building the degraded threshold level. The degraded threshold level is used for building the degraded defect if sdsfmode is set to POISSON. If *sdsfmode* is not set to POISSON then *degthr* has no affect to NE behaviour. For the definition of *sdsfmode* refer to the Output parameters section. The parameter degthr is only valid for modifiers different from STST and VCT, i.e. shall be omitted in the command response for STST and VCT.
   Type: integer.
   Range: -5, -6, -7, -8, -9 i.e. range is 10exp-9 to 10exp-5.
   Default: -6
5. dexcthr - Excessive Degrade Threshold
   This parameter specifies the exponent to base 10 for building the excessive threshold level. The excessive threshold level is used for building the excessive bit error defect if *sdsfmode* is set to POISSON. If *sdsfmode* is not set to POISSON then *dexcthr* has no affect to NE behaviour. For the definition of *sdsfmode* refer to the Output parameters section. The parameter *dexcthr* is only valid for modifiers

different from STST and VCT, i.e. shall be omitted in the command response for STST and VCT.
Type: integer.
Range: -3, -4, -5 i.e. range is 10exp-5 to 10exp-3.
Default: -3.

6. exphptrc - Expected HP trace identifier
   This parameter specifies the Expected Higher Order Path Trace Identifier (J1). The first byte value shall be in the range from 80 to FF (MSB always set to 1). The other byte values shall be in the range from 00 to 7F (MSB always set to 0). This parameter is only useful if ptrcrfmt is set to 16.
   Type: hexadecimal number without a preceding 'H'.
   Range: length, 32 hexadecimal digits; value, specific string acc. ITU/ETSI mode 1.
   Default: 89000000000000000000000000000000.
7. feppm - Far End Path PM Enable
   This parameter specifies whether the performance monitoring for the far end is enabled or disabled for this tributary. The parameter *feppm* is only valid for modifiers different from STST and VCT, i.e. shall be omitted in the command response for STST and VCT.
   Type: alphanumeric value set.
   Range: DISABLE (default), ENABLE.
8. hptimais - HP Trace Identifier Mismatch AIS Insertion
   This parameter specifies if a detected TIM will cause AIS insertion. This parameter is relevant only if the related trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set.
   Range: DISABLE , ENABLE.
   Default: The default value depends on interface standard specified by istd for the VCG owning this tributary. For definition of *istd* refer to "RTRV-VCG: Retrieve virtual concatenation group" (p. 4-2254) Output parameters. DISABLE, if *istd*=SONET; ENABLE, if *istd*=SDH.
9. hptimmon - HP Trace Identifier Mismatch Monitor
   This parameter specifies if the mode of the TIM detection. This parameter is relevant only if the related trace read format *ptrcrfmt* is set to 16 (16-byte-specific-string mode).
   Type: alphanumeric value set.
   Range: DISABLE (default), ENABLE.
10. inmbs - Input Membership
    This parameter specifies if the tributary shall take part to the transmission of its owning VCG in input direction. Input direction in this case means from the LCAS source on the GE1 pack to the cross-connect pack XCn. The addressing scheme of the tributaries by using VCGNumAIDs is ensuring that only legal AIDs are used. So no consideration about the 'illegal' tributaries (e.g. 1-1-#-#-1-1-3 for VC-4) is necessary. The parameter *inmbs* is only valid for modifiers different from STST and VCT, i.e. shall be omitted in the command response for STST and VCT.

Type: alphanumeric value set.
Range: DISABLE , ENABLE.
Default: for modifiers STST or VCT:ENABLE. for all other modifiers:DISABLE. The VCG has as default the size 0, i.e. it has no member. So the default for the parameter above for VCGTRIB needs to be DISABLE.

11. inmbst - Input Member Status
    This parameter reports the status of the tributary related to its VCG membership in input direction. The parameter *inmbst* is only valid for modifiers different from STST and VCT, i.e. shall be omitted in the command response for STST and VCT.
    Type: alphanumeric value set.
    Range:
    - for modifiers STST or VCT always ACTIVE shall be reported
    - for all other modifiers:
    - NA, for not applicable, i.e. the trib. is no member of the VCG
    - ADD, the tributary is in the LCAS state ″Wait-for-Add″, ″Add″ or ″Wait-for-ACK″
    - ACTIVE, the tributary is member of the VCG and working
    - DNU, the tributary is member of the VCG but taken off by LCAS (incoming failed condition for the sink tributary)
    - UNAVAILABLE, for not available, i.e. the trib. is member of the VCG but the current data is not retrievable for any reason.

      The state DNU can only be reported if lcasmd is set to ENABLE for the VCG owning this tributary. For parameter *lcasmd* refer to the Output parameters section of “RTRV-VCG: Retrieve virtual concatenation group” (p. 4-2254). For a detailed explanation of the ADD state in the LCAS protection scheme, please refer to SRD_DATA_Virtual_Concatenation.
12. neppm - Near End Path PM Enable
    This parameter specifies whether the performance monitoring for the near end is enabled or disabled for this tributary. The parameter neppm is only valid for modifiers different from STST and VCT, i.e. shall be omitted in the command response for STST and VCT.
    Type: alphanumeric value set.
    Range:
    - DISABLE (default)
    - ENABLE.
13. outmbs - Output Membership
    This parameter specifies if the tributary shall take part to the transmission of its owning VCG in input direction. Output direction in this case means from the cross-connect pack XCn to the LCAS sink on the GE1 pack. The parameter *outmbs* is only valid for modifiers different from STST and VCT, i.e. shall be omitted in the command response for STST and VCT.
    Type: alphanumeric value set.

Range:

- DISABLE
- ENABLE.

Default: for modifiers STST or VCT: ENABLE. for all other modifiers:DISABLE. The GE1 VCG has as default the size 0, i.e. it has no member. So the default for the parameter above for VCGTRIB needs to be DISABLE.

14. outmbst - Output Member Status
    This parameter reports the status of the tributary related to its VCG membership in output direction. The parameter *outmbst* is only valid for modifiers different from STST and VCT, i.e. shall be omitted in the command response for STST and VCT.
    Type: alphanumeric value set.
    Range:
    - for modifiers STST or VCT always ACTIVE shall be reported, for all other modifiers:
    - NA, for not applicable, i.e. the trib. is no member of the VCG
    - ADD, the tributary is in the LCAS state ″Wait-for-Add″ or ″Wait-for-Data″
    - ACTIVE, the tributary is member of the VCG and working
    - FAILED, the tributary is member of the VCG but not working due to a failure condition. Includes period during ″Hold-Off″.
    - WTR, failure condition has cleared, tributary is in wait to restore condition.
    - UNAVAILABLE, for not available, i.e. the trib. is member status is not retrievable for any reason.

      The state WTR can only be reported if lcasmd is set to ENABLE for the VCG owning this tributary. For parameter lcasmd refer to RTRV-VCG Output Parameters. For a detailed explanation of the ADD state in the LCAS protection scheme, please refer to SRD_DATA_Virtual_Concatenation.
15. pmhpfeses - PM HP Far End SES Threshold
    This parameter specifies the Higher Order Path Far End Severely Errored Seconds Performance Monitoring Threshold for errored frames. If errored frames are crossing this threshold this will result in an SES count for the far end. The behaviour depends on interface standard specified by *istd* for the VCG owning this tributary. For definition of *istd* refer to the output parameters section of “RTRV-VCG: Retrieve virtual concatenation group” (p. 4-2254). If *istd* is not set to SDH then *pmhpfeses* has no affect to NE behaviour. The parameter *pmhpfeses* is only valid for modifiers different from STST and VCT, i.e. shall be omitted in the command response for STST and VCT..
    Type: integer.
    Range: 1, 2, 3, ..., 63998, 63999, 64000, includes SDH/SONET range.
    Default: 2400.

16. pmhpneses - PM HP Near End SES Threshold
    This parameter specifies the Higher Order Path Near End Severely Errored Seconds Performance Monitoring Threshold for errored frames. If errored frames are crossing this threshold this will result in an SES count for the near end.
    The behaviour depends on interface standard specified by *istd* for the VCG owning this tributary. For definition of *istd* refer to the output parameters section of "RTRV-VCG: Retrieve virtual concatenation group" (p. 4-2254). If *istd* is not set to SDH then *pmhpneses* has no affect to NE behaviour.
    The parameter pmhpneses is only valid for modifiers different from STST and VCT, i.e. shall be omitted in the command response for STST and VCT.
    Type: integer.
    Range: 1, 2, 3, ..., 63998, 63999, 64000, includes SDH/SONET range.
    Default: 2400.
17. ptca - Path TCA Profile Pointer
    This parameter specifies the name of the threshold crossing alert (TCA) profile used for this tributary.
    The parameter *ptca* is only valid for modifiers different from STST and VCT, i.e. shall be omitted in the command response for STST and VCT.
    Type: alphanumeric string.
    Range: 1 ... 24 characters.
    Default: DEFAULT0.
18. ptpn - Path Terminating ASA Profile Name
    This parameter points to a tributary ASAP profile name pfname for the designated AID.
    Type: alphanumeric string. A hyphen (-) is additionally allowed in the name.
    Range: 1 ... 24 characters.
    Default: DEFAULT.
19. ptrc - Incoming Path Trace
    This parameter reports the accepted higher order path trace identifier (J1). The length depends on the value of the parameter ptrcrfmt. The status of this value is contained in parameter *ptrcst*. If ptrcst indicates NORMAL, then *ptrc* contains a valid value. If *ptrcst* indicates UNAVAILABLE or AIS, then no valid incoming path trace identifier could be obtained by the system, e.g. due to not meeting the basic acceptance criteria or intra-NE communication problems, and the output parameter *ptrc* is omitted from the response.
    Type: hexadecimal.
    Range: the range depends on the parameter ptrcrfmt specified in RTRV-VCGTRIB Output Parameters
    - 2 hexadecimal digits, if ptrcrfmt=2
    - 32 hexadecimal digits, if ptrcrfmt=16
    - 128 hexadecimal digits, if ptrcrfmt=64.

20. ptrcrfmt - Path Trace Read Format
    This parameter specifies the format of the path trace (J1 byte) to be received (sink).
    Type: numeric string.
    Range:
    - 2, for non-specific repeating byte
    - 16, for 16 byte specific string
    - 64, for 64 byte string.

    Default: 2.
21. ptrcst - Status of Incoming Path Trace
    This parameter shows the status of the value of the incoming Path Trace Identifier (J1) which is available with parameter *ptrc*.
    Type: alphanumeric value set.
    Range:
    - NORMAL, *ptrc* contains a valid value
    - UNAVAILABLE, no valid value for *ptrc* could be obtained by the system
    - AIS , no valid value for ptrc could be obtained due to SF condition.
22. ptrcwfmt - Path Trace Write Format
    This parameter specifies the format of the path trace (J1 byte) to be sent (source).
    Type: numeric string.
    Range:
    - 2, for non-specific repeating byte
    - 16, for 16 byte specific string
    - 64, for 64 byte string.

    Default: 2.
23. rsiglb - Received Signal Label
    This parameter reports the accepted trail signal label (C2). The parameter shall not be reported if the *trailst* parameter indicates a fail condition, i.e. has the value AIS or UNAVAILABLE.
    Type: alphanumeric value set.
    Range: 00, 01, ..., FE, FF, i.e. two hexadecimal digits.
24. sdsfmode - Signal Degrade/Signal Fail Mode
    This parameter specifies the determination mode of degraded defect for transmission. The parameter sdsfmode is only valid for modifiers different from STST and VCT, i.e. shall be omitted in the command response for STST and VCT.
    Type: alphanumeric value set.
    Range: BURST or POISSON.
    Default: The default value depends on interface standard specified by istd for the VCG owning this tributary. For definition of istd refer to RTRV-VCG Output Parameters. POISSON, if *istd*=SONET BURST, if *istd*=SDH.

25. tcamd - TCA mode
    This parameter is only available for SDH modeand the modifier must be VC. The parameter shows the modus of the PM thresholding. Two thresholding methods are applicable for SDH: TR-only (also known as the implicit reset method), TR-RTR (also known as the explicit reset method). For SONET the parameter *tcamd* does not exist. SONET ports only support ″TR-only″ mode. Thus the mode must be internally set to ″TR-only″.
    Type: alphanumeric value set.
    Range: TR, TRRTR.
    Default: SDH mode: TRRTR. SONET mode: TR (internal). For SONET the parameter tcamd does not exist. SONET ports only support ″TR-only″ mode. Thus the mode must be internally set to ″TR-only″.
    The parameter *tcamd* is only valid for modifiers different from STST and VCT, i.e. shall be omitted in the command response for STST and VCT.
26. tmonmd - Tributary Monitoring Mode
    This parameter specifies the monitoring mode for the tributary.
    Type: alphanumeric value set.
    Range: MON or NMON (default).
27. trailst - Trail Status
    This parameter reports the accepted trail status value.
    Type: alphanumeric string.
    Range:
    - AIS, for Alarm Indication Signal in case of Trail Signal Fail Condition
    - UNAVAILABLE, for unavailable
    - NORMAL.
28. trc - Outgoing Path Trace
    This parameter specifies the path trace (J1) to be sent (source). For the 16 byte path trace format the following syntactical rule shall be applied: The first byte value shall be in the range from 80 to FF (MSB always set to 1). The other byte values shall be in the range from 00 to 7F (MSB always set to 0). This parameter is irrelevant if the format is non-specific repeating byte (ptrcwfmt=2).
    Type: hexadecimal number without a preceding H’.
    Range: the range depends on the parameter ptrcwfmt specified in RTRV-VCGTRIB Output parameters length
    - 32, hexadecimal digits, if ptrcwfmt=16
    - 128, hexadecimal digits, if ptrcwfmt=64
    - value: specific string acc. ITU/ETSI mode 1, if ptrcwfmt=16; 64 byte string, if ptrcwfmt=64.

    Default: 00. This implies also that ptrcwfmt is set to 2. Refer to [18] for details.
29. tslmmon - Trail Signal Label Mismatch Monitor
    This parameter specifies the mode of the TSL mismatch detection.
    Type: alphanumeric value set.

Range:

- DISABLE
- ENABLE (default).

Detailed behavior description

The RTRV-VCGTRIB does not generate a REPT DBCHG message. The command retrieves all port parameter as described in section Output parameters.

Dependencies

brstintvl and *brstthr* are only meaningful if *sdfsmode* is set to BURST. *degthr* and *dexcthr* are only meaningful if *sdfsmode* is set to POISSON.

Parameters which are not meaningful at the moment are reported with their default values, nevertheless.

Example input/output

```
RTRV-VCGTRIB-STS:LT-UNITE:1-1-#-#-1-V2-4:123456;
   LT-UNITE 00-11-11 11:11:00
M  123456 COMPLD
   "1-1-#-#-1-v2-4::aseqno=2,tseqno=2"
   "1-1-#-#-1-v2-4,STS::brstintvl=7,brstthr=30,
   crslbkstat=NO,degthr=-6",dexcthr=-3,hptimais=ENABLE,
   exphptrc=8900000000000000000000000000000,
   hptimmon=DISABLE,inmbs=DISABLE,inmbst=NA,
   outmbs=DISABLE,outmbst=NA,ptpn=DEFAULT,ptrc=00,
   ptrcrfmt=1,ptrcst=NORMAL,ptrcwfmt=1,rsiglb=1B,
   sdsfmode=BURST,tmonmd=NMON,trailst=NORM,trc=00,
   tslmmon=ENABLE"
;

RTRV-VCGTRIB-STS:LT-UNITE:1-1-#-#-1-V2-all:123456;
   LT-UNITE 00-11-11 11:11:00
M  123456 COMPLD
   "1-1-#-#-1-v2-1,STS::brstintvl=7,brstthr=30,
   crslbkstat=NO,degthr=-6",dexcthr=-3,hptimais=ENABLE,
   exphptrc=8900000000000000000000000000000,
   hptimmon=DISABLE,inmbs=DISABLE,inmbst=NA,
   outmbs=DISABLE,outmbst=NA,ptpn=DEFAULT, ptrcrfmt=1,
   ptrcwfmt=1,sdsfmode=BURST,tmonmd=NMON,trc=00,
   tslmmon=ENABLE"
   "1-1-#-#-1-v2-3,STS::brstintvl=7,brstthr=30,
   crslbkstat=NO,degthr=-6",dexcthr=-3,hptimais=ENABLE,
   exphptrc=8900000000000000000000000000000,
   hptimmon=DISABLE,inmbs=DISABLE,inmbst=NA,
   outmbs=DISABLE,outmbst=NA,ptpn=DEFAULT,
   ptrcrfmt=1,ptrcwfmt=1,sdsfmode=BURST,tmonmd=NMON,
   trc=00,tslmmon=ENABLE"
```

```
<listing all VCGTRIB's of this VCG>
   "1-1-#-#-1-v2-21,STS::brstintvl=7,brstthr=30,
   crslbkstat=NO,degthr=-6",dexcthr=-3,hptimais=ENABLE,
   exphptrc=8900000000000000000000000000000000,
   hptimmon=DISABLE,inmbs=DISABLE,inmbst=NA,
   outmbs=DISABLE,outmbst=NA,ptpn=DEFAULT,
   ptrcrfmt=1,ptrcwfmt=1,sdsfmode=BURST,tmonmd=NMON,
   trc=00,tslmmon=ENABLE"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the RTRV-VCGTRIB command, too.

Validation rule: Check *modifier* against circuit pack type

If the command is applied

- with modifier = VC or STS to a VCG Tributary on a Transparent pack or
- with modifier = VCT or STST to a VCG Tributary on a Gigabit Ethernet pack,

then the command shall be denied.

Error Code: `IENE - Input, Entity Not Exists`

Validation rule: Check CCB against *istd* of related VCG

Check wether the CCB fits to *istd* of the related VCG.

Error code: `ICNV - Input, Command Not Valid, Interface Standard does not match`.

E.g. DENY, if a command with modifier=VC or modifier=VCT is made on a port which is provisionened as istd=SONET.

Related TL1 messages

- "ED-VCGTRIB: Edit virtual concatenation group tributary" (p. 4-995)
- "OPR-VCGTRIB: Operate virtual concatenation group tributary" (p. 4-1497)

□

RTRV-VRTSW: Retrieve Virtual Switch

The RTRV-VRTSW command retrieves the attributes of a virtual switch of a GEn pack.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): P1

Priority: 1

Abortable: Yes

Input format

Command Syntax: `RTRV-VRTSW`:*tid*:*aid*:*ctag[:::spec_block]*;

Input parameters

Command parameters

1. tid – Target Identifier
   Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command for the input parameter syntax and the description of this parameter.
2. aid – Access Identifier
   The access identifier specifies the slot containing a GE1 pack.
   Type: AID.
   Range: UnivSlotAID as defined in AID structure.
   The values
   - all and
   - usall for Simple_UnivSlotAID

   shall be accepted.
3. ctag – Correlation Tag
   See defintion of *ctag* in "RTRV-HDR: Retrieve header" (p. 4-1736).

Spec block parameters

1. dyn – Retrieve Dynamic Parameters
   This parameter controls whether dynamic parameters shall be reported with the command reply or not. It shall be given only when using any of the wildcard values all or usall at the appropriate positions of the input AID. For input AIDs not using *all* or *usall* this parameter shall not be allowed. This implies that with such input AIDs the dynamic parameters are always returned.
   The following output parameters of a virtual switch are affected:
   - *macaddr*
   - *rootpriority*
   - *rootmacaddr*

- *rootcost*
- *rootport*.

Type: alphanumeric value set.
Range: YES, report dynamic parameters in the reply as well. NO (default), do not report dynamic parameters in the reply.

Output format

After receiving the RTRV-VRTSW command, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
   "aid:vrtswid:spec_block"
   <this entire block is repeated for another vrtswid>
   <this entire structure is repeated for another slot>
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are described in the Output parameter section of.

The output is in the form of a nested list. The primary list is based on the slot AID. For each slot AID, there is a nested list for each instance of a virtual switch giving the spec_block parameters.

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter specifies the slot containing a GE1 pack to be operated on.
   Type: AID.
   Range: UnivSlotAID as defined in AID structure with the exception of the value all and usall.
2. vrtswid - Virtual Switch Identifier
   This parameter identifiers the instance of the virtual switch.
   - A Virtual Switch ID is unique within a single circuit pack. When creating a new Virtual Switch, the system automatically assigns a unique ID to it.
   - There will be one virtual switch per physical switch, implicitly all LAN ports and all WAN ports on the physical switch are part of the single virtual switch. The ID of this virtual switch is fixed to 1. A future release may support multiple virtual switches per physical switch.

   Type: integer.
   Range: 1 - Currently this is the only allowed value.
   Default: 1.

Spec block parameters

1. eplst – EPORT AID list
   This parameter specifies a list of EPORT instances connected to the virtual switch instance as specified by *vrtswid*.
   In R3 there is only one virtual switch instance to which all ports are mapped. Therefore this list is fix.
   Type: AID list.
   Range: A list of EPortAIDs as specified in the AID definition section with the exception of the values all and usall in the respective components of the AID, separated by an ampersand ('&')
   Example: If all four EPORTs of a GE1 are mapped to one virtual switch:
   1-#-#-1-1-1&1-#-#-1-1-2&1-#-#-1-1-3&1-#-#-1-1-4
2. ethertype – VLAN tag protocol ID
   This parameter specifies the VLAN tag protocol ID necessary for interworking purposes. This parameter is used to control whether the virtual switch operates in IEEE802.1Q tagging mode (i.e. set to 0x8100) or in transparent tagging mode (i.e. set to value different to 0x8100).
   Type: hexadecimal value.
   Range: 0x0600 .. 0xFFFF.

   The following values have a specific meaning:

   - 0x8100: virtual switch operates in IEEE802.1Q tagging mode
   - any other value: virtual switch operates in transparent tagging mode.

   Default: 0x8100.
3. gvrpmode – GVRP mode
   The parameter *gvrpmode* allows to control the dynamic VLAN registration mode.
   Type: alphanumeric value set.
   Range: ENABLED, GVRP is enabled. DISABLED (default), GVRP is disabled.
4. macaddr – Bridge ID address
   The parameter *macaddr* specifies the bridge address field of the bridge identifier.
   Type: alphanumeric value set.
   Range: 000000000000 to FFFFFFFFFFFF (hexadecimal value) and UNAVAILABLE, if the value can not be retrieved.
5. rootcost – Cost of Path to root bridge
   This parameter specifies the cost of the path to the root bridge as determined by the *Spanning Tree Protocol*.
   Type: alphanumeric value set.
   Range: 0 to 4 294 967 295 and UNAVAILABLE if the value can not be retrieved.
6. rootmacaddr – Root bridge ID address
   This parameter specifies the bridge identifier of the root bridge as determined by the *Spanning Tree Protocol*.
   Type: alphanumeric value set.
   Range: 000000000000 to FFFFFFFFFFFF (hexadecimal value) and UNAVAILABLE if the value can not be retrieved.

7. rootport – Root port identifier
   This parameter specifies the identifier of the root port, which offers the lowest cost path from the virtual switch to the root bridge.
   Type: AID or alphanumeric string.
   Range: *EPortAID* or *VCGAID* as specified in the AID definition section with the exception of the values *all*, *usall* and *vall* in the respective components of the AID; UNAVAILABLE.
   The value UNAVAILABLE is returned when the addressed virtual switch is currently the spanning tree root bridge. This is also the case if STP is disabled for all ports belonging to the virtual switch. The Value UNAVAILABLE is returned if the value can not be retrieved from the HW.
8. rootpriority – Root bridge priority
   The parameter *rootpriority* specifies the priority of the root bridge as determined by the Spanning Tree Protocol.
   The virtual switch defined with the lowest value for its bridge priority compared to other virtual switches in the network will be elected as the root bridge.
   Type: AID or alphanumeric string.
   Range: 0 to 65535 and UNAVAILABLE if the value can not be retrieved.
   Default: 32678.
9. rstpmd - Rapid Spanning Tree Protocol Mode
   This parameter allows to enable or disable the Rapid Spanning Tree Protocol for the given virtual switch.
   Type: alphanumeric value set.
   Range: DISABLE (rSTP is disabled, i.e. the virtual switch only supports normal STP (IEEE802.1D)); ENABLE (rSTP is enabled, i.e. the virtual switch also supports rSTP (IEEE802.1w)).
   Default: ENABLE
10. stbrpriority – Spanning tree bridge priority
    This parameter specifies the priority of the bridge to be used by the Spanning Tree Protocol.
    Type: integer.
    Range: 0 to 65535.
    The stepping as recommended by the standard (steps of 4096 starting at 0) should be implemented by the management system. The NE will accept any value in the range described above. This has the consequence, that also the range restriction ″0 to 61440″ is not done by the NE.
    Default: 32768.
11. stfdtm – Spanning Tree forward delay timer
    The parameter *stfdtm* specifies the rSTP-related bridge forward delay timer. This parameter is relevant for both rSTP and STP.
    Type: integer.
    Range: 1 .. 255.
    Default: 15.

12. sthellotm – Spanning Tree hello timer
    The parameter *sthellotm* specifies the rSTP-related bridge hello timer. This parameter is relevant for both rSTP and STP.
    Type: integer.
    Range: 1 .. 225.
    Default: 2.
13. stmaxage – Spanning Tree maximum age timer
    The parameter *stmaxage* specifies the rSTP-related maximum PDU transmission delay timer. This parameter is relevant for both rSTP and STP.
    Type: integer.
    Range: 1 .. 255.
    Default: 20.
14. vcglst – VCG AID list
    The parameter *vcglst* specifies a list of VCG instances connected to the virtual switch instance as specified by *vrtswid*.
    In R3 there is only one virtual switch instance to which all eports are mapped. Therefore this list is fix.
    Type: AID list.
    Range: A list of VCGAIDs as specified in the AID definition section with the exception of the values all, usall and vall in the respective components of the AID, separated by an ampersand ('&').
    Example: If all four VCGs of a GE1 are mapped to one virtual switch: 1-#-#-1-1-v1&1-#-#-1-1-v2&1-#-#-1-1-v3&1-#-#-1-1-v4.

Detailed behavior description

Omit dynamic parameters if not accessible

If the system cannot access dynamic data related to the addressed slot, e.g. due to a missing or defect pack or a system-internal communication outage, the following parameters shall response the value ″UNAVAILABLE″::

- *macaddr*
- *rootpriority*
- *rootmacaddr*
- *rootcost*
- *rootport.*

Example input/output

```
RTRV-VRTSW:LT-UNITE:1-1-#-#-1:123456;
   LT-UNITE 02-05-15 13:31:30
M  123456 COMPLD
   ″1-1-#-#-1:1:eplst=1-1-#-#-1-1&1-1-#-#-1-2&
   1-1-#-#-1-3&1-1-#-#-1-4,gvrpmode=ENABLE,
   macaddr=010203040506,rootcost=1234567890,
   rootmacaddr=112233445566,rootport=1-1-#-#-1-v2,
```

```
   rootpriority=32678,stbrpriority=32768,stfdtm=15,
   sthellotm=2,stmaxage=20,ethertype=0x8100,
   vcglst=1-1-#-#-1-v1&1-1-#-#-1-v2&1-1-#-#-1-v3&
   1-1-#-#-1-v4"
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there apply to the RTRV-EPORT command.

Related TL1 messages

- "ED-VRTSW: Edit Virtual Switch" (p. 4-1011)

□

Security event notification

Output format

The security event notification shall use the general format of a REPT EVT notification.

Syntax:

```
REPT EVT modifier aid:condtype,condeff,ocrdat,ocrtm:conddescr;
```

Output parameters

Command parameters

1. modifier - Modifier
   The parameter shall specify the value 'COM' as an event that applies to the whole NE.
   Type: alphanumeric value set
   Range: COM
2. aid - Access Identifier
   Type: AID
   Range: SystemAID
3. condtype - Condition Type
   This parameter specifies/identifies the type of security event being reported.
   Type: alphanumeric value set
   Range:
   - SEC-LOGIN: Succesful user login
   - SEC-USERLOGOUT: Logout by user
   - SEC-FORCEDLOGOUT: Forced logout by security administrator
   - SEC-SESSIONTIMEOUT: User session time out
   - SEC-DISCONNECTED: User session disconnected
4. condeff - Condition Effect
   The parameter shall indicate the effect of the reported security event on the NE.
   Type: alphanumeric value set
   Rang: SC, for condtype = LOGIN; C, for condtype ={USERLOGOUT | FORCEDLOGOUT | SESSIONTIMEOUT | DISCONNECTED}.
5. ocrdat - Occurrence Date
   The parameter shall indicate the date of the security event being reported.
   Type: value set of format MM-DD
   Range: M, D are digits. Leading zeros are not suppressed. MM represents month, DD the day.

6. ocrtm - Occurrence Time
   The parameter shall indicate the time of the security event being reported.
   Type: value set of format HH-MM-SS
   Range: H, M, S are digits. Leading zeros are not suppressed. HH represents hours, MM minutes, SS seconds.
7. conddescr - Condition Description
   The parameter shall provide additional information w.r.t. the security event.
   Type: inner string
   Range:

   The string shall depend on the security event as follows:

   - condtype - conddescr
   - SEC-LOGIN \"login - <uid>\"
   - SEC-USERLOGOUT\"logout - <uid>\"
   - SEC-FORCEDLOGOUT\"forced logout - <uid> \"
   - SEC-SESSIONTIMOUT\"inactivity timeout - \"
   - SEC-DISCONNECTED\"logout, disconnected - <uid> \"

   The security event notification is related to the user session which is indicated by the user ID (uid).

Example output

```
   LT-UNITE 03-01-10 08:12:00
A  002 REPT EVT COM
   "system:SEC-LOGIN,SC,01-10,08-12-00:\"login - USER1\""
```

□

SET-ATTR-CONT: Set attribute control

The SET-ATTR-CONT command can be initiated by users to set the description associated with an MDO port (Miscellaneous Discrete Output / external discrete control).

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M3

Priority: 1

Abortable: No.

Input format

Command Syntax: `SET-ATTR-CONT`:*tid*:*aid*:*ctag*::*contmsg*[,,*asgcond*];

Input parameters

Command parameters

1. tid – Target Identifier
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   This is the address of the MDO port entities on which the command operates. If misc_outall is specified the configuration of all MDO's will be retrieved.
   Type: AID
   Range: Miscellaneous_out_discreteAID
   Default: misc_outall (if the *aid* is omitted).
3. ctag – Correlation Tag
   See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
4. contmsg – Control Message
   This is the name associated to a MDO port (environmental control).
   Type: text string
   Range: A string of up to 26 characters, any character except ″ and \, upper and lower cases considered. An empty string is allowed. The value would be ″″.
5. asgncond – Assigned Condition Type
   This parameter identifies the probable cause (type of alarm indication) which is assigned to an MDO port (external control). If one or more alarm(s) of this probable cause appears then the MDO port (external control) will be switched on.
   Type: alphanumeric value set. Additionally a ″-″ will be allowed (not the first character).
   Range: All defined probable causes and UNDEF: if no probable cause is assigned. For the value range of *asgncond* refer to "Alarm, event, ASAP tables" (p. 7-17).
   Default: UNDEF.
   If the value is omitted, then the actual value shall not be changed.

Output format

The following example shows the successful completion of the SET-ATTR-CONT command by the NE:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The name of a MDO via the aid specified will be updated according the value of *contmsg*. The update will be reported via a SET-ATTR-CONT - REPT DBCHG message. Refer to the definition of the SET-ATTR-CONT notification.

Example input/output

The following example shows the successful completion of the SET-ATTR-CONT command by the NE:

```
SET-ATTR-CONT:LT-UNITE-123:MISC_OUT3:123456::"fan 3",,FANF;
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
;
```

The following example shows the successful completion of the SET-ATTR-CONT command by the NE if the *asgncond* parameter will be unchanged:

```
SET-ATTR-CONT:LT-UNITE-123:MISC_OUT3:123456::"fan 3";
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command error responses section. The error responses listed there also apply to the SET-ATTR-CONT command.

Related TL1 messages

- "RTRV-ACTL-CONT: Retrieve actual condition types" (p. 4-1636)
- "RTRV-ATTR-CONT: Retrieve attribute control" (p. 4-1621)
- "OPR-EXT-CONT: Operate External Control" (p. 4-1455)
- "RLS-EXT-CONT: Release external control" (p. 4-1561).

References

GR-833-CORE, Issue 4, June 2000, OTGR Section 12.3, Network Maintenance: Network Element and Transport Surveillance Messages.

□

SET-ATTR-CONT notification

Output format

See definition of "REPT DBCHG: Report data base change" (p. 4-1517).

The SET-ATTR-CONT notification has the following specific syntax:

`SET-ATTR-CONT:`*aid::contmsg,,asgncond*

Output parameters

Command parameters

1. aid - Access Identifier
   This is the address of the MDO port entity for which the configuration is retrieved or on which an operation is performed.
   Type: AID.
   Range: Miscellaneous_out_discreteAID. misc_outall must not be reported or used.
2. contmsg - Control Message
   This is the name associated to a MDO port (environmental control). It is a description which can be retrieved by the management system.
   Type: inner string.
   Range: string up to 26 characters, any character except ″ and \, upper and lower cases considered. A empty string is allowed. The value would be \″\″.
   Default: MDO port #n. n is the number of the port 1 ... 8.
3. asgncond - Assigned Condition Type
   This parameter identifies the probable cause (type of alarm indication) which is assigned to an MDO port (external control). If one or more alarm(s) of this probable cause appears then the MDO port (external control) will be switched on.
   Type: alphanumeric value set. Additionally a ″-″ will be allowed (not the first character).
   Range: All defined probable causes and UNDEF: if no probable cause is assigned. For the value range of *asgncond* refer to "Alarm, event, ASAP tables" (p. 7-17).
   Default: UNDEF.

Example output

The example shows a normal SET-ATTR-CONT notification:

```
   LT-UNITE-123 00-01-01 08:00:50
A 815 REPT DBCHG
   ″TIME=08-00-12,DATE=00-01-01:SET-ATTR-CONT:MISC_OUT3::\″fan 3\″,,FANF″
;
```

□

SET-ATTR-ENV: Set attribute environment

ET-ATTR-ENV: Set Attribute Environment The SET-ATTR-ENV command can be used to set the alarm message, name and assigned ASAP of an miscellaneous discrete input (MDI/environmental point).

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M3

Priority: 1

Abortable: No

Input format

Command Syntax: `SET-ALM-ENV`:*tid*:*aid*:*ctag*::,,*almmsg*,*envname*:*spec_block*;

Input parameters

Command parameters

- tid – Target Identifier
  See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).
- aid – Access Identifier
  This is the address of the MDI port entities for which an alarm condition or the configuration is being reported. If misc_inall is specified the information for all entities will be retrieved.
  Type: AID.
  Range: Miscellaneous_in_discreteAID.
  Default: misc_inall (if the aid is omitted).
- ctag – Correlation Tag
  See definition of "RTRV-HDR: Retrieve header" (p. 4-1736).

- almmsg – Alarm Message
  This is the condition description which is associated with the MDI port (environmental point). This description will be sent with the alarm generated from the MDI port.
  Type: inner string.
  Range: a string up to 32 characters, any character except ″ and \, upper and lower cases are considered.
  Default: Miscellaneous Discrete #<N> with N = 1 .. 8 for the different MDI ports.
- envname – Environmental Point Name
  This is the name associated to a MDI port (environmental point). It is a description which can be retrieved by the management system. It is not to be mixed up with the envmsg parameter. The envname is just a name of the MDI port and not reported via the condition description of an alarm.
  Type: inner string
  Range: a string up to 26 characters, any character except ″ and \, upper and lower cases considered.
  Default: MDI port #n; n is the number of the port 1 ... 8.

Spec block parameters

- envinv – Environmental Alarm Inversion
  This parameter indicates for the MDI (environmental point) whether an alarm shall be generated if the port is on or if the port is off.
  Type: alphanumeric value set.
  Range:
  - YES: The alarm will be inverted
  - NO: The alarm will be not inverted.
- pfname – Profile Name
  This is the name of the ASAP that is assigned to the MDI port (environmental point). The ASAP must be of the type ENV.
  Type: alphanumeric character string. A hyphen (-) is additional allowed in the name.
  Range: string up to 24 characters.
  Default: DEFAULT.

Output format

The following example shows the successful completion of the SET-ATTR-ENV command by the NE:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the output parameter section of “RTRV-HDR: Retrieve header” (p. 4-1736).

Detailed behavior description

The SET-ATTR-ENV command updates the configuration of the almmsg, envname, pfname of the via aid specified MDI port. The changes will be reported via a REPT DBCHG message. See definition of SET-ATTR-ENV notification.

Example input/output

The following example shows the successful completion of the SET-ATTR-ENV command by the NE:

```
SET-ATTR-ENV:LT-UNITE-123:MISC_IN7:123456::,,"open door","door":pfname=ENV_NM,env
   LT-UNITE-123 00-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command error responses section. The error responses listed there also apply to the RTRV-ATTR-ENV command.

Validation Rule: *pfname* does not exist

An ASAP with the name pfname does not exist for an ASAP type ENV.

Error Code: `IDNV - Input Data Not Valid, ASAP profile does not exist`

Related TL1 messages

- "ED-ASAP-PROF: Edit alarm severity assignment profile" (p. 4-206)
- "ENT-ASAP-PROF: Enter alarm severity assignment profile" (p. 4-1018)
- "REPT-ALM-ENV: Report Alarm Environment" (p. 4-1514)
- "RTRV-ALM-ENV: Retrieve alarm environment" (p. 4-1605)
- "RTRV-ATTR-ENV: Retrieve attribute environment" (p. 4-1624).

References

GR-833-CORE, Issue 4, June 2000, OTGR Section 12.3, Network Maintenance: Network Element and Transport Surveillance Messages.

□

SET-ATTR-ENV notification

Output format

The SET-ATTR-ENV notification has the following specific syntax:

`SET-ATTR-ENV:`*aid,,almmsg,envname:spec_block*;

Output parameters

Command parameters

- aid – Access Identifier
  This is the address of the MDI port entities for which an alarm condition or the configuration is being reported. If misc_inall is specified the information for all entities will be retrieved.
  Type: AID.
  Range: Miscellaneous_in_discreteAID.
  Default: misc_inall (if the aid is omitted).
- almmsg – Alarm Message
  This is the condition description which is associated with the MDI port (environmental point). This description will be sent with the alarm generated from the MDI port.
  Type: inner string.
  Range: a string up to 32 characters, any character except ″ and \, upper and lower cases are considered.
  Default: Miscellaneous Discrete #<N> with N = 1 .. 8 for the different MDI ports.
- envname – Environmental Point Name
  This is the name associated to a MDI port (environmental point). It is a description which can be retrieved by the management system. It is not to be mixed up with the envmsg parameter. The envname is just a name of the MDI port and not reported via the condition description of an alarm.
  Type: inner string
  Range: a string up to 26 characters, any character except ″ and \, upper and lower cases considered.
  Default: MDI port #n; n is the number of the port 1 ... 8.

Spec block parameters

- envinv – Environmental Alarm Inversion
  This parameter indicates for the MDI (environmental point) whether an alarm shall be generated if the port is on or if the port is off.
  Type: alphanumeric value set.

Range:

– YES: The alarm will be inverted

– NO: The alarm will be not inverted.

- pfname – Profile Name
  This is the name of the ASAP that is assigned to the MDI port (environmental point). The ASAP must be of the type ENV.
  Type: alphanumeric character string. A hyphen (-) is additional allowed in the name.
  Range: string up to 24 characters.
  Default: DEFAULT.

Example output

The example shows a normal notification after an SET-ATTR-ENV Command:

```
   LT-UNITE-123 00-01-01 08:00:50
A 815 REPT DBCHG
   "TIME=08-00-12,DATE=00-01-01:SET-ATTR-ENV:MISC_IN7::,,\"open
     door\",\"door\":pfname=ENV_NM,envinv=YES"
;
```

□

SET-MAP-RING: Set map ring

The SET-MAP-RING command writes the transitional, manually provisioned ring map to NVM for use by the MS-SPRing/BLSR protection group.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M3

Priority: 1

Abortable: No

Input format

Command Syntax: `SET-MAP-RING`:*tid*:[*aid*]:*ctag*::[*rid*]*;*

Input parameters

Command parameters

1. tid – Target Identifier
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – Access Identifier
   This parameter specifies the aid of a MS-SPRing/BLSR protection group or an port aid being a member of the group.
   Option: If *rid* is specified, then *aid* can be omitted.
   Type: AID.
   Range: TwoFibre_ProtGrpAID (not ranged) or FourFibre_ProtGrpAID (not ranged) or SPortAID (not ranged)
3. ctag – Correlation Tag
   See definition in input parameters section "RTRV-HDR: Retrieve header" (p. 4-1736).
4. rid – Ring Identification
   This parameter specifies the ring identification name. Storage and retrieval of the *rid* is case sensitive, but actual use of the rid to determine the corresponding protection group is case insensitive. The parameter is used as an alias to identify exactly one MS-SPRing/BLSR protection group of any type. Therefore the value shall be unique for all protection groups of type 2F or 4F within the NE.
   Type: text string of chars allowed for TID strings.
   Range: 1 to 15 characters.
   Default: NONE.
   Option: If *aid* is specified, then *rid* can be omitted.

Output format

After receiving the SET-MAP-RING command, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

Output parameters

See definition in output parameters section in "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The SET-MAP-RING command is used to move the transitional manually provisioned ring map to NVM foe use by the BLSR port protection group. This command will be denied if automatic ring discovery is enabled.

The SET-MAP-RING command is also denied if the list does not contain the local node , if the list does not contain at least 2 nodes, or if duplicate nid values appear in the list. The SET-MAP-RING command generates a REPT DBCHG message.

Example input/output

The following is an example of a SET-MAP-RING command:

```
SET-MAP-RING:NENAME-1::123456::rid1;
   NENAME-1 98-01-01 08:00:00
M  123456 COMPLD
;
```

Error responses

Validation rule: Automatic ring discovery to be disabled

If the automatic ring discovery is enabled, the following error response shall be returned:

Error Code: `SNVS - Status, Not Valid State`

Validation rule: consistent aid and rid

If both an aid and an rid are specified as input parameters and they are inconsistent, then the following error response is returned

Error Code: `IDNV - Input, Data Not Valid, inconsistent aid and rid`

Related TL1 messages

- "ED-FETID: Edit Far End Target Identifier" (p. 4-299)§
- "ED-MAP-RING: Edit map ring" (p. 4-316)
- "ED-PROTN-GRP: Edit protection group" (p. 4-551)
- "ENT-PROTN-GRP: Enter protection group" (p. 4-1222)

References

GR-199-CORE

□

SET-MAP-RING: notification

Output format

The SET-MAP-RING notification shall use the general format of a REPT DBCHG (Report Database Change) notification.

Command Syntax: `SET-MAP-RING:`*aid[:rid];*

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter specifies the aid of a MS-SPRing/BLSR protection group or an port aid being a member of the group.
   Option: If *rid* is specified, then *aid* can be omitted.
   Type: AID.
   Range: TwoFibre_ProtGrpAID (not ranged) or FourFibre_ProtGrpAID (not ranged) or SPortAID (not ranged)
2. rid – Ring Identification
   This parameter specifies the ring identification name. Storage and retrieval of the *rid* is case sensitive, but actual use of the rid to determine the corresponding protection group is case insensitive. The parameter is used as an alias to identify exactly one MS-SPRing/BLSR protection group of any type. Therefore the value shall be unique for all protection groups of type 2F or 4F within the NE.
   Type: text string of chars allowed for TID strings.
   Range: 1 to 15 characters.
   Default: NONE.
   Option: The rid is only included in the SET-MAP-RING notification if the rid has been specified in the SET-MAP-RING command.

Example input/output

The following example reports the creation of a ring map in LT-UNITE's NVM:

```
LT-UNITE 00-11-03 15:00:00
A  000 REPT DBCHG
   "TIME=15-00-00,DATE=00-11-03:SET-MAP-RING:rid1"
;
```

□

SET-OW: Set Orderwire and User Bytes

General

The SET-OW command associates the overhead byte (E1 or E2 or F1) on an optical port to an overhead access port or removes this association. Furthermore the port-interface (either G.703 or V.11) of the overhead access port can be specified.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M3

Priority: 1

Abortable: No.

Input format

Command Syntax: `SET-OW`:*tid*:*aid*:*ctag*:::*spec_block*;

Input parameters

Command parameters

1. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
2. aid – Access Identifier
   The parameter *aid* specifies the overhead access port to be used for association (or removing the association).
   Type: UserBytePortAID.
   Range: As given by the UserBytePortAID definition, the value ″ubioall″ is not allowed.
3. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the network element in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters Note: Current implementation also allows ’0’ as valid CTAG, which is an extension to GR-831.

Spec block parameters

1. intfctype – Interface Type
   This parameter specifies which electrical interface standard of the overhead access port is used.
   Two different settings are possible:
   - electrical interface according to G.703
   - electrical interface according to V.11.

   Note: The overhead access ports with AIDs ubio1, .. ubio4 are configurable to either G703 or V11. The overhead access ports with AIDs ubio5, ubio6 are fixed to V11.
   Type: Alphanumeric value set.
   Range: G703, V11.
   Default: G703 (for the overhead access ports given by the AIDs ubio1 .. ubio4); V11 (for the overhead access ports given by the AIDs ubio5, ubio6 - fixed to V11).
2. ohbyte – Overhead-Byte
   This parameter specifies which of the overhead bytes is used.
   Three channels are possible:
   - E1 and F1 in the RSOH (section overhead)
   - E2 in the MSOH (line overhead).

   Type: Alphanumeric value set.
   Range: E1, F1, E2.
   Default: E1.
   Note: In output direction the empty string appears as \″\″.
3. portaid – Port Access Identifier
   This parameter specifies the optical/electrical port (of an OPn/EPn) of the userbyte to which the overhead access port (given by the command parameter aid) is associated, respectively dis-associated.
   Type: In case an association is established: SPortAID; in case an association will be removed: Alphanumeric value set (i.e. the string ″NOCONNECT″).
   Range: In case an association is established: SPortAID (No ″all″ value is supported); in case an association will be removed: NOCONNECT.
   Default: NOCONNECT.

Output format

If the SET-OW command completes successfully, then the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are described in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

The attributes *portaid*, *ohbyte* and *intfctype* of the entity Userbyte port shall be updated by this command.

This update shall be reported by a SET-OW notification.

Example:

SET-OW:UNITE-NE:ubio3:123456:::portaid=1-1-#-#-5-1,ohbyte=E2,intfctype=V11;

REPT DBCHG

SET-OW:ubio3::port_aid=1-1-#-#-5-1,ohbyte=E2,intfctype=V11;

Update affected entities

Apart from the Userbyte port entity no further entities are affected by the SET-OW command.

Example input/output

Example 1

Suppose the Userbyte port given by AID ubio1, to be configured to V11, shall be associated to the E1-Byte channel of the optical port of an OP10G in slot 10:

```
SET-OW:UNITE-NE:1-1-ubio1:123456:::portaid=1-1-#-#-10-1-1,ohbyte=E1,intfctype=V11;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
;
```

Example 2

Suppose the association as made in Example-1 shall be removed (i.e. dis-associated):

```
SET-OW:UNITE-NE:1-1-ubio1:123456:::portaid=NOCONNECT,
ohbyte=E1,intfctype=V11;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
;
```

Error responses

Validation Rule: Interface type compliant with port

Command processing shall verify that setting the interface type to G.703 is only possible for the UserByte-Ports *ubio1*, .. *ubio4* (but not for ubio5 and ubio6).

Error Code: `IDNV - Input, Data Not Valid, Interface type not settable for specified UserByte-Port`

Validation rule: No association present (when associating)

Command processing shall verify that when setting up an association no association is already present.

This means, that only a one to one relation is allowed between the specified:

- Userbyte of a SDH/SONET optical/electrical port and
- UserByte port.

Error Code: `SNVS - Status, Not in Valid State, association already exists`

Validation rule: Association present (when dis-associating)

Command processing shall verify that an association exists when trying to remove it.

Error Code: `IENE - Input, Entity Not Exists, Specified association does not exist`

Validation rule: *ohbyte* and *intfctype* values correct (when dis-associating)

Command processing shall verify in case of removing the association that the entered value for the parameters ohbyte and intfctype are identical with the current ones.

Error Code: `IDNV - Input, Data Not Valid, discrepancy between entered values and current value of spec-block parameters`

Validation rule: Port exists (when associating)

When setting up an association, the command processing shall verify that the specified SDH/SONET optical/electrical port exists.

Error Code: `IENE - Input, Entity Not Exists, Specified port does not exist`

Validation rule: No Userbyte access at EC1 ports on EP51 pack

When setting up an association, the command processing shall verify that the specified port is not a EC1 port on an EP51 pack.

Error Code: `IDNV - Input, Data Not Valid, No Userbyte access at the specified port`

Related TL1 messages

- "RTRV-OW: Retrieve Orderwire and User Bytes" (p. 4-1943)

□

SET-OW notification

General

The SET-OW notification uses the general format of a REPT DBCHG (Report Database Change) notification.

Command Syntax: `SET-OW`*:aid::spec-block;*

Output parameters

Command parameters

1. aid – Access Identifier
   This parameter specifies the overhead access port for which the following spec_block parameters are returned.
   Type: UserBytePortAID.
   Range: As given by the UserBytePortAID definition, the value ″ubioall″ is not allowed.

Spec block parameters

1. intfctype – Interface Type
   This parameter specifies which electrical interface standard of the overhead access port is used.
   Two different settings are possible:
   - electrical interface according to G.703
   - electrical interface according to V.11.

   Note: The overhead access ports with AIDs ubio1, .. ubio4 are configurable to either G703 or V11. The overhead access ports with AIDs ubio5, ubio6 are fixed to V11.
   Type: Alphanumeric value set.
   Range: G703, V11.
   Default: G703 (for the overhead access ports given by the AIDs ubio1 .. ubio4); V11 (for the overhead access ports given by the AIDs ubio5, ubio6 - fixed to V11).
2. ohbyte – Overhead-Byte
   This parameter specifies which of the overhead bytes is used.

Three channels are possible:

- E1 and F1 in the RSOH (section overhead)
- E2 in the MSOH (line overhead).

Type: Alphanumeric value set.
Range: E1, F1, E2.
Default: E1.
Note: In output direction the empty string appears as \″\″.

3. portaid – Port Access Identifier
   This parameter specifies the optical/electrical port (of an OPn/EPn) of the userbyte to which the overhead access port (given by the command parameter aid) is associated, respectively dis-associated.
   Type: In case an association is established: SPortAID; in case an association will be removed: Alphanumeric value set (i.e. the string ″NOCONNECT″).
   Range: In case an association is established: SPortAID (No ″all″ value is supported); in case an association will be removed: NOCONNECT.
   Default: NOCONNECT.

Behaviour description

Refer to the *Detailed behaviour description* of “SET-OW: Set Orderwire and User Bytes” (p. 4-2308).

□

SET-SID: Set SID

SET-SID is used to change the target/source identification of the NE. The SET-SID command is denied if the system is not in maintenance condition.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): S4

Priority: 1

Abortable: no

Input format

Command Syntax: `SET-SID`*:tid::ctag::newsid*;

Input parameters

Command parameters

1. tid – Target Identifier
   This is the currently active name of the network element to which the command is addressed. The tid is a case insensitive character string.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed.
   Range: 1 to 20 characters
   Default: LUCENT-UNITE-NE
2. ctag – Correlation Tag
   This is included in the command by the TL1 user and is repeated by the network element in the response to allow the TL1 user to associate the command and response messages.
   Type: alphanumeric string
   Range: non-zero decimal number or identifier of up to 6 characters.
   Note: Current implementation also allows ’0’ as valid CTAG, which is an extension to GR-831.
3. newsid – New Target/Source Identification
   This is the new name of the NE. Future commands must use this name instead of the current name.
   Type: identifier, in addition the special character underscore (″_″) and the password characters are allowed, except the characters plus sign (″+″), number sign (″#″) and percent sign (″%″).
   Range: 1 to 20 characters.

Output format

If the NE fully complies with the SET-SID request, the normal completion response is returned as shown below:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

This command provides a new name to the NE.

The update is reported by means of an SET-SID notification.

The SET-SID command is denied if the system is not in maintenance condition. Maintenance condition applies only to NE.

The new SID will come into effect only after reset of the CTL. This reset takes place autonomously when the maintenance condition is left. Commands after the reset must use the new SID instead of the current name.

The response as well as corresponding REPT DBCHG notification use the old SID in the *sid* parameter.

The SET-SID command generates a REPT DBCHG message.

Updated affected entities

There is no further entities affected.

If the NE is a node in a BLSR ring/MS-SPRing and the TID is changed, then this may impact cross-connection entities of ring neighbors. Since these updates are reported by NEs not addressed in the command request, these events are treated like autonomous events. For further details see corresponding section in the transmission chapter – entity cross-connection.

Example input/output

The following shows an example of the SET-SID command where the target/source identification of the NE was changed to HARRY:

```
SET-SID:LT-UNITE::123456::HARRY;
   LT-UNITE 00-11-15 08:00:00
M  123456 COMPLD
;
```

Error responses

Refer to the "RTRV-HDR: Retrieve header" (p. 4-1736) command Error responses section. The error responses listed there also apply to the SET-SID command.

Validation rule: Check of Maintenance Condition

If a SET-SID command is entered when the administrative state of the system is not in maintenance condition, the following error response is returned.

Error code: `SNVS - Status, Not in Valid State, not in Maintenance Condition`

Validation rule: Uniqueness of TID within Ringmaps

If the new sid conflicts with an existing TID in at least one of the valid ringmaps, the following error response is returned.

Error code: `IDNV - Input, Data Not Valid, sid is already used by another BLSR/MS-SPRing Node`

Related TL1 messages

"RTRV-HDR: Retrieve header" (p. 4-1736)

References

GR-833-CORE, ″Surveillance Messages″

□

SET-SID notification

Output format

The SET-SID notification uses the general format of a REPT DBCHG Report Database Change notification.

Syntax: `SET-SID`::*newsid*

Output parameters

Command parameters

1. newsid – New Target/Source Identification
   See definition of input parameter *tid* in "RTRV-HDR: Retrieve header" (p. 4-1736).

Example output

```
SET-SID:LT-UNITE::805::HARRY;
   LT-UNITE  00-11-17  10:11:00
M  805  COMPLD;
   LT-UNITE  00-11-17  10:12:03
A  610  REPT  DBCHG
   Time=13-49-30,DATE=00-11-17:SET-SID::HARRY"
;
```

□

SET-SYNCN: Set synchronization

The SET-SYNCN command is used to provision system timing clock mode, assign timing references, and external input and output timing port attributes. The command is used not only to assign system timing attributes but also to modify or remove them.

Properties

Login Privilege: User Privilege Code (UCFC/UCAL): M3

Priority: 1

Abortable: No.

Input format

Command Syntax: `SET-SYNCN`:*tid*:*aid*:*ctag*::*:spec_block*;

Input parameters

Command parameters

1. tid – target identifier
   See definition of *tid – target identifier* in "RTRV-HDR: Retrieve header" (p. 4-1736).
2. aid – access identifier
   This parameter specifies the timing related settings. The AID separates the parameter in system timing related parameter, parameters related to assigned timing references and parameters for port provisioning. The values all or *someprefix* all are not allowed in this context.
   Type: AID
   Range: SystemAID, External_timing_ref_AID, Line_timing_ref_AID, External_Timing_input_port_AID, External_Timing_output_port_AID
   Default: Not applicable.
3. ctag – correlation tag
   See definition of *ctag – correlation tag* in "RTRV-HDR: Retrieve header" (p. 4-1736).

Spec block parameters

1. System Timing
   a. clkmod – clock mode
      This parameter specifies the provisioned operational mode of the system timing. In the clockmod == FREE-RUNNING mode the system clock process uses the internal oscillator as reference. In the clockmod == LOCKED mode the system clock process uses the input signal from the system.
      Type: Alphanumeric value set.
      Range: FREE-RUNNING, LOCKED.

Default: FREE-RUNNING.

b. syncmsg – system synchronization status messaging mode

This parameter is used to ENABLE or DISABLE the SSM protocol.

The parameter provisions the automatic reference selection process to use the incoming QLs in QL-enabled mode or to ignore them in QL-disabled mode. In case of DISABLE, for SDH all output SSMs shall be set to DNU, for SONET all output SSMs shall be set to STU.

Type: Alphanumeric value set.

Range: ENABLE, DISABLE.

Default: ENABLE.

c. timing – ASAP name

This parameter specifies the name of the ASAP (Alarm Severity Assignment Profile) that is assigned to timing.

Type: Alphanumeric value set.

Range: PFNAME (alphanumeric string with 1… 24 characters). A hyphen (-) is additionally allowed in the name.

Default: Default

d. wtr – wait to restore

This parameter specifies the provisioned wait to restore timer used for all timing ports for revertive switching. This is the amount of time it takes to switch from lower priority to higher priority references. The value range depends from the system synchronization characteristic.

Type: Alphanumeric value set.

Range:

SONET: 0SEC, 20SEC, 0…60MIN (1 minute steps), 99 (infinite).

SDH: 0SEC, 0…60MIN (1 minute steps); the values “0SEC” and “0MIN” can be used for SONET and SDH to provision a zero wait to restore time.

Default:

SONET: 20SEC

SDH: 5MIN

2. Assigned Timing Reference

a. extout_pri – timing output reference priority

This parameter specifies the priority assignment of the timing link switch of the external output timing. This parameter is only for SDH and for line timing references.

The greater the number the lower the priority. The number ″1″ indicates the highest priority. The priority ″0″ means not assigned for external output.

Type: Numeric value set.

Range: 0 (means DISABLED), 1, 2, 3, 4, 5, 6.

Default: 0 (means DISABLED).

b. ql_prov – quality provisioned

This parameter defines the quality for the specified timing reference to a fixed SSM value. It is the provisioned quality level sync message value that will be received on timing references.

This parameter is related to all assigned timing references (both external timing references and line timing references) and overrides what is received for the respective timing reference. The AUTO value implies sync message support. The AUTO value is rejected if SSM is not supported for the assigned timing reference (i.e. for DS1 SF). The value range depends from the system synchronization characteristic. Per default shall be:

AUTO – for STM-N/OC-N line, 2Mbit/s framed or DS1 ESF with SSM,

SSUT – for 2MHz, 2Mbit/s unframed or framed without SSM

STU – for DS1 SF or DS1 ESF without SSM

Type: Alphanumeric value set.

Range:

SONET: AUTO, PRS, STU, ST2, ST3

SDH: AUTO, PRC, SSUL, SSUT, SEC.

Default:

SONET: AUTO (External_timing_ref_AID, Line_timing_ref_AID)

SDH: AUTO (Line_timing_ref_AID) SSUT (External_timing_ref_AID).

c. syncref_pri – system timing reference priority

This parameter defines the priority for assigned timing references.

When multiple input references have been given the same priority value, it implies non-revertive switching between the associated references. Otherwise, it implies revertive switching to the reference with the highest assigned priority. When the QL-control is disabled, the selection process is controlled by signal status and port priority. The greater the number, the lower the priority. Priority ″0″ means not assigned.

Type: Numeric value set.

Range: 0 (means DISABLE), 1, 2, 3, 4, 5, 6, 7, 8.

Default: 0 (means DISABLE).

d. timing – ASAP name

This parameter specifies the name of the ASAP (Alarm Severity Assignment Profile) that is assigned to timing.

Type: Alphanumeric value set.

Range: PFNAME (alphanumeric string with 1… 24 characters). A hyphen (-) is additionally allowed in the name.

Default: Default

e. tpmode – timing port mode monitoring

This parameter specifies the monitoring status of the timing port. If the timing port is in the MONITORED mode and the reference is in FAILED status alarms are active for this port. The value NOT-MONITORED means that alarm monitoring is not occurring on the port.

Type: Alphanumeric value set.

Range: MONITORED, NOT-MONITORED.

Default: NOT-MONITORED.

f. tref_aid – timing reference assigned port AID

This parameter specifies the port AID of the assigned timing reference AID.

The parameter is rejected, if the timing reference already assigned to a timing port, or if the reference does not support SSM and timing port is provisioned AUTO, or if the unit which delivers the reference is not present or pre-provisioned. It is not possible to assign more then one reference from a unit. It is not possible to un-assign units from which a reference is assigned to a timing port. It is also not possible to assign a reference from a protection port in a protection group. The value NOT-CONNECTED means no reference is assigned to current timing port.

Type: AID.

Range: External_Timing_input_port_AID, SPortAID, NOT-CONNECTED.

Default: NOT-CONNECTED.

3. External Timing Input

a. ext_if – external input signal format

This parameter specifies the format of the external timing input.

The value range depends on the system synchronization characteristic. The external timing input format can be set at both external timing inputs individually. The reference is rejected, if the reference does not support SSM and the timing port is provisioned AUTO.

Type: Alphanumeric value set.

Range:

SONET: SF, ESF

SDH: 2MHz, 2Mbit-unframed, 2Mbit-framed.

Default:

SONET: ESF

SDH: 2MHz.

b. ext_isa – external input sa bit location

This parameter defines the external input Sa bit location. It is only valid for the external timing input format “2Mbit/s” framed; i.e. for ports with format unequal to “2Mbit/s framed” the parameter value is retrievable, but it has no impact on the ports transmission behavior.

The location of the Sa bit is can be set at both external timing inputs individually. One of the Sa4 to Sa8 bits of the 2Mbit/s sub-multiframe is allocated for Synchronization Status Messages (SSM).

Type: Alphanumeric value set.

Range: SA4, SA5, SA6, SA7, SA8.

Default: SA4.

c. ext_issm – external input ssm support

This parameter specifies if the SSM mode is supported or not on the external timing input port.

The parameter is adjustable individually to both external timing input ports.

Type: Alphanumeric value set.

Range: SUPPORTED, NOT-SUPPORTED.

Default: SUPPORTED.

4. External Timing Output

   a. ext_equ – cable equalization

      This parameter specifies the timing output cable equalization to adjust the specified timing reference output signal power. This parameter is valid only for DS1 (SONET).

      This parameter is rejected for all input interfaces except DS1. The values are represented by percentage (3.0dB=100%; 2.4dB=80%; 1.8dB=60%; 1.2dB=40%; 0.6dB=20%).

      Type: Numeric value set.

      Range: 20, 40, 60, 80, 100.

      Default: 20.

   b. ext_of – external output signal format

      This parameter specifies the external output signal format. The value range depends from the system synchronization characteristic.

      Type: Alphanumeric value set.

      Range:

      SONET: SF, ESF

      SDH: 2MHz, 2Mbit-unframed, 2Mbit-framed.

      Default:

      SONET: ESF

      SDH: 2MHz.

   c. ext_osa – external output sa bit location

      This parameter defines the external output Sa bit location. This parameter is only valid for external timing output format “2Mbit/s framed”; i.e. for ports with format unequal to “2Mbit/s framed” the parameter value is retrievable, but it has no impact on the ports transmission behavior.

      Type: Alphanumeric value set.

      Range: SA4, SA5, SA6, SA7, SA8.

      Default: SA4.

   d. extout_en – external timing output enabling/disabling

      This parameter specifies whether the external timing output is enabled or disabled.

      Type: Alphanumeric value set.

      Range: ENABLE, DISABLE.

      Default: DISABLE.

   e. extout_prov – external timing output selection

      This parameter specifies the operation mode of the external output timing.

      The value SETG means the system clock. The value TLS means the output. For SONET both values are fixed to the respective external timing output. The value range depends on the system synchronization characteristic.

      Type: Alphanumeric value set.

Range:

SONET: LINE1 [fix for output 1], LINE2 [fix for output 2]

SDH: SETG, TLS.

Default: SONET: LINE1 [fix for output 1], LINE2 [fix for output 2]

SDH: SETG.

f. extout_ssm – external timing output AIS mode

This parameter specifies which value will be send when the signal level is below the quality acceptance level or when *frcdus* is enabled. The parameter is valid depending from the system synchronization characteristic, for SDH 2Mbit/s framed and for SONET DS1 ESF; i.e. for ports with format unequal to “2Mbit/s framed” or “DS1 ESF” the parameter value is retrievable, but it has no impact on the ports transmission behavior.

The value AISMODE means AIS is inserted in the external timing output signal. The value QLMODE means DUS is inserted in the external timing output signal.

Type: Alphanumeric value set.

Range: AISMODE, QLMODE.

Default: QLMODE.

g. frcdus – forced DNU/DUS

This parameter specifies the synchronization messaging forced DNU/DUS enable or disable for the timing output port. DUS applies to SONET and DNU applies to SDH. This is only valid for ’2Mbit/s framed’ and ’DS1 ESF’; i.e. for ports with format unequal to “2Mbit/s framed” or “DS1 ESF” the parameter value is retrievable, but it has no impact on the ports transmission behavior.

Type: Alphanumeric value set.

Range: ENABLE, DISABLE.

Default: DISABLE.

h. loopdelay – timing regenerator loop delay

This parameter indicates the delay in the SASE/BITS loop operation. The values are represented by seconds in steps of 1 seconds per loop.

Type: Numeric value set.

Range: 0…60 (1 seconds steps).

Default: 10.

i. qlout_tais – acceptance quality level for output threshold AIS

This parameter is the provisioned quality acceptance level for external timing output. When the incoming message is below this level, AIS or DUS (depending from the *extout_ssm* value) will be inserted into the external timing output. The value range depends from the system synchronization characteristic.

Type: Alphanumeric value set.

Range:

SONET: PRS, STU, ST2, ST3

SDH: PRC, SSUT, SSUL, SEC.

Default:

SONET: ST3

SDH: SEC.

j. regen_loop – timing regenerator loop

This parameter specifies the avoiding of loops over the SASE/BITS clocks. When this parameter is set to ENABLED, the synchronization message DUS will be inserted in the traffic output port associated with the traffic input port used as source for the station clock. The parameter is selectable for both external timing outputs individually.

Type: Alphanumeric value set.

Range:

SONET: DISABLE, ENABLE

SDH: DISABLE, EXTREF1, EXTREF2, BOTH.

Default:

SONET: ENABLE

SDH: DISABLE.

k. timing – ASAP name

This parameter specifies the name of the ASAP (Alarm Severity Assignment Profile) that is assigned to timing.

Type: Alphanumeric value set.

Range: PFNAME (alphanumeric string with 1… 24 characters). A hyphen (-) is additionally allowed in the name.

Default: Default

Output format

After receiving the SET-SYNCN command, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the Output parameter section of "RTRV-HDR: Retrieve header" (p. 4-1736).

Detailed behavior description

After successful receiving the SET-SYNCN command a REPT DBCHG database change notification is returned. This notification consists the same parameter as per delivered by the command. Notifications are sent whenever a user-provisionable parameter has been changed.

When the system receives a SET-SYNCN command with changing of the clock mode, a REPT EVT report event notification is returned.

If the system receives a SET-SYNCN command with changing of the active timing reference, a REPT EVT report event notification is returned.

It is not possible to assign a reference from a protection port in a protection group.

If the system synchronization characteristic is SONET and the SSM is invalid the value DUS shall be displayed for QL values.

It is possible to provision a QL acceptance level to the external timing output. If the system quality below this acceptance QL level and QL control is enabled and the external timing output is enabled then an AIS signal or DUS, depending on settings of parameter *extout_ssm*, shall be substituted in the output.

If the system timing QL mode is DISABLED for SDH all output SSMs shall be set to DNU, for SONET all output SSMs shall be set to STU.

If the system synchronization characteristic is SDH and the external timing input format is either 2MHz or 2Mbit/s unframed or 2Mbit/s framed without SSM then the assigned timing reference status shall be default SSUT. If the system synchronization characteristic is SONET and the external timing input format is either SF or ESF without SSM then the assigned timing reference status shall be default STU. The value AUTO shall be rejected if SSM is not supported for the assigned timing reference.

It is possible to provision the automatic reference selection process to use the incoming QLs in QL-enabled mode. The input with the highest quality level is selected. If there is more then one input with the same highest quality level, then the input with the highest port priority is selected. In QL-disabled mode the reference selection is working by priority provisioning. It is possible to assign the same priority to multiple inputs. In this case, it implies non revertive switching between the associated references.

A MS-SPRing/BLSR span or MSP pair is handled as one transport port, so also counts as one reference signal. If one of the sections of the pair do not support SSM, the reported QL status is NOT-SUPPORTED.

If the timing port is in the NOT-MONITORED mode then no Timing Link Fail alarm will be active when reference is in FAILED status or no Timing Link Unequipped alarm will be active when the reference is in NOT-CONNECTED state.

If the external input signal format ext_if is changed to an unframed mode without also specifying the external input ssm support ext_issm then the external input ssm support ext_issm is set to NOT-SUPPORTED autonomously if not already having this value. The change is reported via a SET-SYNCN notification.

Example input/output

The following is an example of the SET-SYNCN command for System Timing:

```
SET-SYNCN:LT-UNITE:system:123456:::clkmod=LOCKED,wtr=1MIN;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
```

```
;
```

The following is an example of the SET-SYNCN command for Assigned Timing Reference:

```
SET-SYNCN:LT-UNITE:extref1:123456:::tref_aid=EXTTMG0,
ql_prov=SSUL;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
;
```

The following is an example of the SET-SYNCN command for External Timing Input:

```
SET-SYNCN:LT-UNITE:exttmg1:123456:::ext_if=2MHZ;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
;
```

The following is an example of the SET-SYNCN command for External Timing Output:

```
SET-SYNCN:LT-UNITE:exttmg0_out:123456:::ext_of=2MHZ,extout_en=ENABLE;
   LT-UNITE 00-11-14 12:00:00
M  123456 COMPLD
;
```

Error responses

Validation rule: Timing reference already assigned

If a timing reference already assigned to a timing port or circuit pack the system responds with:

Error code: `SDNC - Status, Data Not Consistent, reference already assigned`

Validation rule: One timing port for a circuit pack

If a second port of a circuit pack is assigned to a timing reference the system responds with:

Error code: `SDNC - Status, Data Not Consistent, other port already assigned`

Validation rule: No timing port on protection pack of an MS protected timing port

If another port of a circuit pack where the protection port of an MS protection group is located whose associated worker port for this span has already a timing reference being assigned the system shall respond with:

Error Code: `SDNC - Status, Data Not Consistent, other port already assigned`

″MS protection group″ denotes an MSP/APS or a 4 fibre MS SPRING/BLSR group.

Validation rule: No out-of-service state for timing port

If an 'out of service' port (i.e. the port attribute *servcond* has the value 'OUTOFSERVICE') is assigned to a timing reference the system responds with:

Error code: `SDNC - Status, Data Not Consistent, port is out-of-service`

A port must be in the out-of-service before any port loop can be switched. Therefore it is sufficient to request for a timing reference assignment, that a port is not in the out-of-service state in order to prevent timing loops caused by port loops; i.e. a port that is not in out-of-service state will not have a switched port loop.

Validation rule: Timing reference from a protection port in a protection group only allowed in asymmetric spans of a ring

If a timing reference shall be assigned from a protection port in a protection group which is not part of an asymmetric span, the system shall respond with:

Error Code: `SDNC - Status, Data Not Consistent, reference in protection group`

The characteristic of an asymmetric ring is that one or more spans have only protection lines, no working lines (asymmetric spans). In these asymmetric spans it must be possible to use the protection ports for timing.

Validation rule: Port is already assigned to another timing reference

Ports can be assigned only one. If a port already assigned to a timing reference the system responds with:

Error code: `SDNC - Status, Data Not Consistent, port already assigned`

Validation rule: Command rejection if quality evaluation disabled

If the quality mode disabled the setting to forced DUS/DNU or the setting the quality output threshold AIS shall be rejected and the system responds with:

Error code: `SDNC - Status, Data Not Consistent, quality evaluation disabled`

Validation rule: No transparent port as line timing reference

The system shall not allow to use a Transparent Port, i.e. ports with a rate of STM16T or OC48T, as line timing reference.

Error Code: `IDNV - Input, Data Not Valid, Transparent Ports not allowed as line timing reference`

Validation rule: No DS3 Port as line timing reference

The system shall not allow to use a DS3 Port, i.e. a port with a rate of T3, as line timing reference.

Error Code: `IDNV - Input, Data Not Valid, DS3 Ports not allowed as line timing reference`

Validation rule: No EC1 Port as line timing reference

The system shall not allow to use a EC1 Port as line timing reference.

Error Code: `IDNV - Input, Data Not Valid, EC1 Ports not allowed as line timing reference`

Validation rule: SSM not supported

SSM support shall be rejected for invalid input or output format types and the system responds with:

Error code: `IDNV - Input, Data Not Valid, SSM not supported for this format`

Validation rule: SSM not supported for unframed formats

Setting an invalid combination of external input frame format (ext_if) and external input SSM support (ext_issm) by changing one or both parameters shall be rejected and the system shall respond with:

Error code: `IDNV - Input, Data Not Valid, SSM not supported for this format`

Validation rule: Format not supported for forced DNU/DUS

DNU/DUS provisioning shall be rejected for invalid output format types and the system responds with:

Error code: `IDNV - Input, Data Not Valid, forced DUS not supported for this format`

Validation rule: Input / Output format not supported for Sa bit settings

Sa bit location setting is rejected for invalid input or output format types and the system responds with:

Error code: `IDNV - Input, Data Not Valid, Sa bit location not supported`

Validation rule: SSM not supported if timing port provisioned AUTO

If a timing port provisioned AUTO and the reference which is being assigned does not support SSM, the assignment request is rejected and the system responds with:

Error code: `IDNV - Input, Data Not Valid, SSM not supported for provisioned QL`

Validation rule: Output type not supported for AIS mode

If the AIS mode provisioned to a not supported output type then the system responds with:

Error code: `IDNV - Input, Data Not Valid, AIS mode not valid`

Validation rule: Cable equalization not supported

If the cable equalization provisioned to a not supported output type or if the system synchronization characteristic is SDH then the system responds with:

Error code: `IDNV - Input, Data Not Valid, cable equalization not supported`

Validation rule: Timing clock mode inconsistent

If the NE receives a command with FREE-RUNNING provisioning while the clock mode switch request state is forced holdover, the following error response is returned:

Error code: `SNVS, Not in Valid State, timing clock mode inconsistent`

Validation rule: Regenerator loops with SETG as timing output

If the output timing source selection is set to SETG and the timing regenerator loop is provisioned, then the system responds with:

Error code: `IDNV - Input, Data Not Valid, no regen loop with SETG as timing output`

Related TL1 messages

- "RTRV-SYNCN: Retrieve synchronization" (p. 4-2157)
- "OPR-SYNCNSW: Operate synchronization switch " (p. 4-1492)
- "RLS-SYNCNSW: Release synchronization switch" (p. 4-1586)

References

GR-833-CORE

□

SET-SYNCN notification

Output format

Syntax: The SET-SYNCN notification has the following specific syntax:

`SET-SYNCN:`*aid*`::`*spec_block*

Output parameters

Command parameters

1. aid – access identifier
   The AID shall be used to specify the timing related settings. The AID separates the parameter in system timing related parameter, parameters related to assigned timing references and parameters for port provisioning. The values all or someprefix all are not allowed in this context.
   Type: AID
   Range:
   - SystemAID
   - External_timing_ref_AID
   - Line_timing_ref_AID
   - External_Timing_input_port_AID
   - External_Timing_output_port_AID

Spec block parameters

1. System Timing
   a. clkmod – clock mode
      This parameter specifies the provisioned operational mode of the system timing. In the *clockmod* = FREE-RUNNING mode the system clock process uses the internal oscillator as reference. In the *clockmod* = LOCKED mode the system clock process uses the input signal from the system.
      Type: Alphanumeric value set.
      Range: FREE-RUNNING, LOCKED.
      Default: FREE-RUNNING.
   b. syncmsg – system synchronization status messaging mode
      This parameter is used to ENABLE or DISABLE the SSM protocol.
      The parameter provisions the automatic reference selection process to use the incoming QLs in QL-enabled mode or to ignore them in QL-disabled mode. In case of DISABLE, for SDH all output SSMs shall be set to DNU, for SONET all output SSMs shall be set to STU.
      Type: Alphanumeric value set.
      Range: ENABLE, DISABLE.
      Default: ENABLE.
   c. timing – ASAP name

This parameter specifies the name of the ASAP (Alarm Severity Assignment Profile) that is assigned to timing.

Type: Alphanumeric value set.

Range: PFNAME (alphanumeric string with 1… 24 characters). A hyphen (-) is additionally allowed in the name.

Default: Default

d. wtr – wait to restore

This parameter specifies the provisioned wait to restore timer used for all timing ports for revertive switching. This is the amount of time it takes to switch from lower priority to higher priority references. The value range depends from the system synchronization characteristic.

Type: Alphanumeric value set.

Range:

SONET: 0SEC, 20SEC, 0…60MIN (1 minute steps), 99 (infinite).

SDH: 0SEC, 0…60MIN (1 minute steps); the values “0SEC” and “0MIN” can be used for SONET and SDH to provision a zero wait to restore time.

Default:

SONET: 20SEC

SDH: 5MIN

2. Assigned Timing Reference

a. extout_pri – timing output reference priority

This parameter specifies the priority assignment of the timing link switch of the external output timing. This parameter is only for SDH and for line timing references.

The greater the number the lower the priority. The number ″1″ indicates the highest priority. The priority ″0″ means not assigned for external output.

Type: Numeric value set.

Range: 0 (means DISABLED), 1, 2, 3, 4, 5, 6.

Default: 0 (means DISABLED).

b. ql_prov – quality provisioned

This parameter defines the quality for the specified timing reference to a fixed SSM value. It is the provisioned quality level sync message value that will be received on timing references.

This parameter is related to all assigned timing references (both external timing references and line timing references) and overrides what is received for the respective timing reference. The AUTO value implies sync message support. The AUTO value is rejected if SSM is not supported for the assigned timing reference (i.e. for DS1 SF). The value range depends from the system synchronization characteristic. Per default shall be:

AUTO – for STM-N/OC-N line, 2Mbit/s framed or DS1 ESF with SSM,

SSUT – for 2MHz, 2Mbit/s unframed or framed without SSM

STU – for DS1 SF or DS1 ESF without SSM

Type: Alphanumeric value set.

Range:

SONET: AUTO, PRS, STU, ST2, ST3

SDH: AUTO, PRC, SSUL, SSUT, SEC.

Default:

SONET: AUTO (External_timing_ref_AID, Line_timing_ref_AID)

SDH: AUTO (Line_timing_ref_AID) SSUT (External_timing_ref_AID).

c. syncref_pri – system timing reference priority

This parameter defines the priority for assigned timing references.

When multiple input references have been given the same priority value, it implies non-revertive switching between the associated references. Otherwise, it implies revertive switching to the reference with the highest assigned priority. When the QL-control is disabled, the selection process is controlled by signal status and port priority. The greater the number, the lower the priority. Priority ″0″ means not assigned.

Type: Numeric value set.

Range: 0 (means DISABLE), 1, 2, 3, 4, 5, 6, 7, 8.

Default: 0 (means DISABLE).

d. timing – ASAP name

This parameter specifies the name of the ASAP (Alarm Severity Assignment Profile) that is assigned to timing.

Type: Alphanumeric value set.

Range: PFNAME (alphanumeric string with 1… 24 characters). A hyphen (-) is additionally allowed in the name.

Default: Default

e. tpmode – timing port mode monitoring

This parameter specifies the monitoring status of the timing port. If the timing port is in the MONITORED mode and the reference is in FAILED status alarms are active for this port. The value NOT-MONITORED means that alarm monitoring is not occurring on the port.

Type: Alphanumeric value set.

Range: MONITORED, NOT-MONITORED.

Default: NOT-MONITORED.

f. tref_aid – timing reference assigned port AID

This parameter specifies the port AID of the assigned timing reference AID.

The parameter is rejected, if the timing reference already assigned to a timing port, or if the reference does not support SSM and timing port is provisioned AUTO, or if the unit which delivers the reference is not present or pre-provisioned. It is not possible to assign more then one reference from a unit. It is not possible to un-assign units from which a reference is assigned to a timing port. It is also not possible to assign a reference from a protection port in a protection group. The value NOT-CONNECTED means no reference is assigned to current timing port.

Type: AID.

Range: External_Timing_input_port_AID, SPortAID, NOT-CONNECTED.

Default: NOT-CONNECTED.

3. External Timing Input
   a. ext_if – external input signal format

      This parameter specifies the format of the external timing input.

      The value range depends on the system synchronization characteristic. The external timing input format can be set at both external timing inputs individually. The reference is rejected, if the reference does not support SSM and the timing port is provisioned AUTO.

      Type: Alphanumeric value set.

      Range:

      SONET: SF, ESF

      SDH: 2MHz, 2Mbit-unframed, 2Mbit-framed.

      Default:

      SONET: ESF

      SDH: 2MHz.

   b. ext_isa – external input sa bit location

      This parameter defines the external input Sa bit location. It is only valid for the external timing input format “2Mbit/s” framed; i.e. for ports with format unequal to “2Mbit/s framed” the parameter value is retrievable, but it has no impact on the ports transmission behavior.

      The location of the Sa bit is can be set at both external timing inputs individually. One of the Sa4 to Sa8 bits of the 2Mbit/s sub-multiframe is allocated for Synchronization Status Messages (SSM).

      Type: Alphanumeric value set.

      Range: SA4, SA5, SA6, SA7, SA8.

      Default: SA4.

   c. ext_issm – external input ssm support

      This parameter specifies if the SSM mode is supported or not on the external timing input port.

      The parameter is valid depending from the system synchronization characteristic, for SDH 2Mbit/s framed and for SONET DS1 ESF; i.e. for ports with format unequal to “2Mbit/s framed” or “DS1 ES” the parameter value is retrievable, but it has no impact on the ports transmission behavior. The parameter is adjustable individually to both external timing input ports.

      Type: Alphanumeric value set.

      Range: SUPPORTED, NOT-SUPPORTED.

      Default: SUPPORTED.

4. External Timing Output
   a. ext_equ – cable equalization

      This parameter specifies the timing output cable equalization to adjust the specified timing reference output signal power. This parameter is valid only for DS1 (SONET).

      This parameter is rejected for all input interfaces except DS1. The values are represented by percentage (3.0dB=100%; 2.4dB=80%; 1.8dB=60%; 1.2dB=40%; 0.6dB=20%).

Type: Numeric value set.
Range: 20, 40, 60, 80, 100.
Default: 20.

b. ext_of – external output signal format

This parameter specifies the external output signal format. The value range depends from the system synchronization characteristic.
Type: Alphanumeric value set.
Range:
SONET: SF, ESF
SDH: 2MHz, 2Mbit-unframed, 2Mbit-framed.
Default:
SONET: ESF
SDH: 2MHz.

c. ext_osa – external output sa bit location

This parameter defines the external output Sa bit location. This parameter is only valid for external timing output format “2Mbit/s framed”; i.e. for ports with format unequal to “2Mbit/s framed” the parameter value is retrievable, but it has no impact on the ports transmission behavior.
Type: Alphanumeric value set.
Range: SA4, SA5, SA6, SA7, SA8.
Default: SA4.

d. extout_en – external timing output enabling/disabling

This parameter specifies whether the external timing output is enabled or disabled.
Type: Alphanumeric value set.
Range: ENABLE, DISABLE.
Default: DISABLE.

e. extout_prov – external timing output selection

This parameter specifies the operation mode of the external output timing.
The value SETG means the system clock. The value TLS means the output. For SONET both values are fixed to the respective external timing output. The value range depends on the system synchronization characteristic.
Type: Alphanumeric value set.
Range:
SONET: LINE1 [fix for output 1], LINE2 [fix for output 2]
SDH: SETG, TLS.
Default: SONET: LINE1 [fix for output 1], LINE2 [fix for output 2]
SDH: SETG.

f. extout_ssm – external timing output AIS mode

This parameter specifies which value will be send when the signal level is below the quality acceptance level or when *frcdus* is enabled. The parameter is valid depending from the system synchronization characteristic, for SDH 2Mbit/s framed and for SONET DS1 ESF; i.e. for ports with format unequal to “2Mbit/s framed” or “DS1 ESF” the parameter value is retrievable, but it has no impact on the ports transmission behavior.

The value AISMODE means AIS is inserted in the external timing output signal. The value QLMODE means DUS is inserted in the external timing output signal.

Type: Alphanumeric value set.

Range: AISMODE, QLMODE.

Default: QLMODE.

g. frcdus – forced DNU/DUS

This parameter specifies the synchronization messaging forced DNU/DUS enable or disable for the timing output port. DUS applies to SONET and DNU applies to SDH. This is only valid for ’2Mbit/s framed’ and ’DS1 ESF’; i.e. for ports with format unequal to “2Mbit/s framed” or “DS1 ESF” the parameter value is retrievable, but it has no impact on the ports transmission behavior.

Type: Alphanumeric value set.

Range: ENABLE, DISABLE.

Default: DISABLE.

h. loopdelay – timing regenerator loop delay

This parameter indicates the delay in the SASE/BITS loop operation. The values are represented by seconds in steps of 1 seconds per loop.

Type: Numeric value set.

Range: 0…60 (1 seconds steps).

Default: 10.

i. qlout_tais – acceptance quality level for output threshold AIS

This parameter is the provisioned quality acceptance level for external timing output. When the incoming message is below this level, AIS or DUS (depending from the *extout_ssm* value) will be inserted into the external timing output. The value range depends from the system synchronization characteristic.

Type: Alphanumeric value set.

Range:

SONET: PRS, STU, ST2, ST3

SDH: PRC, SSUT, SSUL, SEC.

Default:

SONET: ST3

SDH: SEC.

j. regen_loop – timing regenerator loop

This parameter specifies the avoiding of loops over the SASE/BITS clocks.

When this parameter is set to ENABLED, the synchronization message DUS will be inserted in the traffic output port associated with the traffic input port used as source for the station clock. The parameter is selectable for both external timing outputs individually.

Type: Alphanumeric value set.

Range:

SONET: DISABLE, ENABLE

SDH: DISABLE, EXTREF1, EXTREF2, BOTH.

Default:

SONET: ENABLE

SDH: DISABLE.

k. timing – ASAP name

This parameter specifies the name of the ASAP (Alarm Severity Assignment Profile) that is assigned to timing.

Type: Alphanumeric value set.

Range: PFNAME (alphanumeric string with 1… 24 characters). A hyphen (-) is additionally allowed in the name.

Default: Default

Example output

The following is an example of the SET-SYNCN notification for System Timing:

```
   LT-UNITE 00-11-16 12:00:00
A  000 REPT DBCHG
   "TIME=12-00-00,DATE=00-11-16:SET-SYNCN:SYSTEM::wtr=2MIN"
;
```

The following is an example of the SET-SYNCN notification for Assigned Timing Reference:

```
   LT-UNITE 00-11-16 12:00:00
A  000 REPT DBCHG
   "TIME=12-00-00,DATE=00-11-16:SET-SYNCN:LINE2::ql_prov=PRC"
;
```

The following is an example of the SET-SYNCN notification for External Timing Input:

```
   LT-UNITE 00-11-16 12:00:00
A  000 REPT DBCHG
   "TIME=12-00-00,DATE=00-11-16:SET-SYNCN:EXTTMG0::ext_isa=SA5,
ext_if=2MBIT-FRAMED"
;
```

The following is an example of the SET-SYNCN notification for External Timing Output:

```
   LT-UNITE 00-11-16 12:00:00
```

```
A  000 REPT DBCHG
   "TIME=12-00-00,DATE=00-11-16:SET-SYNCN:EXTTMG1_OUT::ql_out=SEC,
extout_ssm=AISMODE"
;
```

TCA notification

Output format

The Threshold Crossing Alert (TCA) notification shall use the general format of a REPT EVT notification.

Command syntax: `REPT EVT` *modifier*
aid:condtype,condeff,ocrdat,ocrtm,,,,thlev,tmper:conddescr

Output parameter

1. modifier
   This parameter indicates the port type or tributary on which the INIT-REG command is to act on.
   Type: alphanumeric value set.
   Range:
   The following values are for SONET only:
   - STS1, STS3C, STS12C, STS48C, STS192C, OC3, OC12, OC48, OC48T, OC192, OC768, T3, EC1, LOVT1.

   The following values are for SDH only:
   - VC3, VC4, VC44C, VC416C, VC464C, STM1E, STM1, STM4, STM16, STM16T, STM64, STM256, ODU1, LOVC3, LOVC12

   The following value is for Ethernet only:ENET.
2. aid – Access Identifier
   Type: AID
   Range:
   - For STM<N>, STM<N>T, OC<N>, EC1 and OC<N>T ports: SPortAID
   - For Ethernet ports: EPortAID VCGAID
   - For DS3 ports: APortAID
   - For ODU terminations: VCGAID
   - For STS/VC tribs: STS1NumAID
   - For VCG tribs: VCGNumAID
   - For LOXC related LO tribs: GenLOTribAID.
3. condeff – Condition Effect
   This parameter indicates the effect of the reported event on the NE. It is used to distinguish between persistent and transient alarms/events.

Two state transitions can be distinguished for a persistent alarm/event:

- raise transition: state change from not present to present
- clear transition: state change from present to not present.

A transient alarm/event has no 'presence' state; i.e. just the occurrence of that event/alarm is reported. ABN condition are always persistent and not transient.
Type: alphanumeric value set.
Range:

- CL: Standing condition cleared for a persistent alarm/event.
- SC: Standing condition raised for a persistent alarm/event
- TC: Transient condition occurred for a transient alarms/events.

4. conddescr – Description Of The Condition
   The general format is: category, entity, description, additional text. If there is no additional text, then the trailing comma may be omitted.
   Type: inner string
   Range:
   - For STM<N>, STM<N>T, OC<N>T, OC<N> and EC1: Quality of service, {rr} port, TCA where rr is equal to the port rate
   - For ODU<N>: Quality of service, {rr} path, TCA where rr is equal to the ODU rate (e. g., ODU1)
   - For not terminated VC12, VC3, VC4, VC44C, VC416C, VC464C, VT1, STS1, STS3C, STS12C, STS48C and STS192C: Quality of service, {rr} CS, TCA where rr is equal to the signal rate
   - For terminated VC4 and STS1signals: Quality of service, {rr} path, TCA where rr is equal to the Constituent Signal (CS) rate
   - For GE port: Quality of service, GE, TCA
   - For VCG port: Quality of service, VCG, TCA.
   - For DS3 port: Quality od service, T3 port, TCA
5. condtype – Condition Type
   This parameter identifies the type of event indication being reported.
   Type: inner string with the Format: T-<montype>.
   Range:
   The following values are for all OC<N> and EC1 signals: T-CVS, T-ESS, T-SESS, T-SEFS-S, T-CVL, T-ESL, T-SESL, T-UASL, T-CV-LFE, T-ES-LFE, T-SES-LFE, T-UAS-LFE.
   The following values are for all OCN<N>T signals: T-CVS, T-ESS, T-SESS, T-SEFS-S, T-CVS-EGR, T-ESS-EGR, T-SESS-EGR, T-SEFS-S-EGR
   The following values are also for OC192 and OC768 signals: T-FECC-L.
   The following values are for VT1, STS1, STS3C, STS12C, STS48C and STS192C tributaries: T-CVP, T-ESP, T-SESP, T-UASP,T-CV-PFE, T-ES-PFE, T-SES-PFE, T-UAS-PFE.
   The following values are for all STM<N> signals: T-RS-N-ES, T-RS-N-SES,

T-RS-N-BBE, T-RS-N-UAS, T-MS-N-ES, T-MS-N-SES, T-MS-N-BBE, T-MS-N-UAS, T-MS-F-ES, T-MS-F-SES, T-MS-F-BBE, T-MS-F-UAS.
The following values are for all STM<N>T signals: T-RS-N-ES, T-RS-N-SES, T-RS-N-BBE, T-RS-N-UAS, T-RS-N-ES-EGR, T-RS-N-SES-EGR, T-RS-N-BBE-EGR, T-RS-N-UAS-EGR
The following values are for all ODU<N> signals: T-ODU-N-ES, T-ODU-N-SES, T-ODU-N-BBE, T-ODU-N-UAS, T-ODU-F-ES, T-ODU-F-SES, T-ODU-F-BBE, T-ODU-F-UAS
The following values also are for STM64 and STM256 signals: T-MS-N-FECC.
The following values are for T3 modifier: T-CVL, T-ESL, T-ESA-L, T-ESB-L, T-SESL, T-CVP, T-ESP, T-ESA-P, T-ESB-P, T-SESP, T-UASP, T-SAS-P, T-CV-PFE, T-ES-PFE, T-ESA-PFE, T-ESB-PFE, T-SES-PFE, T-UAS-PFE, T-SAS-PFE, T-CVP-EGR, T-ESP-EGR, T-ESA-P-EGR, T-ESB-P-EGR, T-SESP-EGR, T-UASP-EGR, T-SAS-P-EGR, T-CV-PFE-EGR, T-ES-PFE-EGR, T-ESA-PFE-EGR, T-ESB-PFE-EGR, T-SES-PFE-EGR, T-UAS-PFE-EGR, T-SAS-PFE-EGR
The following values are for VC12, VC3, VC4, VC44C, VC416C and VC464C tributaries: T-VC-N-ES, T-VC-N-SES, T-VC-N-BBE, T-VC-N-UAS, T-VC-F-ES, T-VC-F-SES, T-VC-F-BBE, T-VC-F-UAS.
For ENET signals: T-PDE.

6. ocrdat – Occurrence Date
   This parameter indicates the raising / clearing date of the alarm.
   Type: value set of the format MM-DD.
   Range: MM represents the month, DD represents the day, leading zeros are not suppressed.
7. ocrtm – Occurrence Time
   This parameter indicates the raising / clearing time of the alarm. The accuracy should be +/- 1 second.
   Type: value set of the format HH-MM-SS.
   Range: HH represents the hours, MM represents the minutes, SS represents the seconds, leading zeros are not suppressed.
8. thlev – Threshold Level
   This parameter is only used for Threshold Crossing Alerts (TCAs). It reports the threshold level value which is set by ED-TCA-PROF.

   The two applicable thresholding methods (tcamd) must be distinguished. For TR-only mode:

   - the raise TCA threshold value is reported.

For TR-RTR mode:

- the raise TCA threshold value is reported for the raise event
- the reset TCA threshold value is reported for the clear event.

Type: integer.
Range: >1 (1 ... 4294967295). Leading zeros will be suppressed.

9. tmper – Time Period
   This parameter reports the monitored time interval. This parameter is only used for Threshold Crossing Alerts (TCAs).
   Type: value set.
   Range: 15-MIN, 1-DAY.

Example input/output

TCA alarm for an STS-1 SES of slot 14 for port 3 STS-12 (24h register):

```
   UNITE-NE 00-01-01 08:00:50
A  009 REPT EVT STS1
   "1-1-#-#-14-3-2:T-SESP,TC,01-10,08-00-49,,,,250,1-DAY:\"Quality of
     service, STS1 CS, TCA\""
;
```

□

5 TL1 messages - administration & security

Overview

Purpose

This section lists the TL1 interface definition for the domain “administration and security”.

Contents

Session

Overview

Purpose

This entity list the parameters which handle the establishment and removal of sessions between the NE and the Managers.

Contents

List of commands

NE security administration

Overview

Purpose

This entity lists the NE security parameters which are defined for the whole NE.

Contents

List of commands

□

User administration

Overview

Purpose

This entity refers to the User Security Data.

Contents

List of commands

□

Security Activity Log

Overview

Purpose

This entity lists to the security activity log data.

Contents

List of commands

6 TL1 messages - configuration management

Overview

Purpose

This chapter lists the TL1 interface definition for the domain “configuration management”.

Contents

System

Overview

Purpose

This section lists the system level configuration messages.

Contents

List of commands

Autonomous notifications

Change acceptable type list for CTL

During system startup it shall be detected which CTL type is plugged in.

Appropriate to this CTL the acceptable type list of the second controller slot shall be changed

- If the first controller is a CTL, the second controller can be CTL or CTL/2
- If the first controller is a CTL/2, the second controller must be CTL/2.

The term *first* and *second* is related on installation time. No database change notification will be send out during system initialization.

Change of the data base change status

The data base change state (see *dbstate* parameter in "RTRV-STATE-EQPT (system): Retrieve equipment state" (p. 4-2059)) can change autonomously. This change is reported by means of an ED-STATE-EQPT notification.

System start-up with default DB

The system autonomously create the entity *system* when starting up with the default database. No notification is sent.

□

Bay

Overview

Purpose

This section lists the bay level configuration messages.

Contents

RTRV-EQPT: Retrieve equipment (bay)

For description of this parameter refer to “RTRV-EQPT (bay): Retrieve Equipment (bay)” (p. 4-1696).

□

Autonomous notifications

System start-up with default DB

The system autonomously create the entity *bay* when starting up with the default database. No notification is sent.

□

Shelf

Overview

Purpose

This section lists the shelf level configuration messages.

Contents

List of commands

- “RTRV-EQPT (shelf): Retrieve Equipment (shelf)” (p. 4-1705)
- “ED-EQPT (shelf): Edit equipment (shelf)” (p. 4-262)
- “ED-EQPT (shelf) notification” (p. 4-265)

□

Autonomous notifications

System start-up with default DB

The system autonomously create the entity *shelf* when starting up with the default database. No notification is sent.

□

Slot

Overview

Purpose

This section lists the slot level configuration messages.

Contents

List of commands

- “RTRV-EQPT (slot): Retrieve Equipment (slot)” (p. 4-1708)
- “ENT-EQPT (slot): Enter equipment (slot)” (p. 4-1079)
- “ED-EQPT (slot): Edit equipment (slot)” (p. 4-267)
- “ED-EQPT (slot) notification” (p. 4-272)
- “DLT-EQPT (slot): Delete equipment (slot)” (p. 4-116)
- “RTRV-STATE-EQPT (slot): Retrieve equipment state (slot)” (p. 4-2053)
- “ED-STATE-EQPT (slot) notification” (p. 4-596)
- “INIT-EQPT (slot): Initialize equipment (slot)” (p. 4-1446)

Autonomous notifications

Circuit pack plug in

Autoprovisioning

If a circuit pack is plugged into an allowed slot, which is not provisioned to any circuit pack, this slot is auto-provisioned to this plugged-in pack. This change is reported by means of an ED-EQPT notification for this slot for the *nvmname, nvmqual* parameters and an ED-STATE-EQPT notification for the *holdst* parameter.

Unexpected, not acceptable, not recognizable CP handling

If an unexpected or not acceptable circuit pack or a circuit pack which inventory data can not be read is plugged into the slot only the holder status is changed and this is notified by an ED-STATE-EQPT notification.

For all these cases alarms will be sent out in addition.

Report of inventory data

In addition to the notifications above the system reports an ED-EQPT (slot) notification for the parameters *name, qual, app, ssn, clei, eci, sln*.

In case the inventory data can not be read the fields shall be reported as empty (″″).

If circuit packs will be plugged in containing plugged in modules or fixed mounted modules implicit the socket entities will be updated and created according description of auto provisioning of modules.

Create CTL protection group- when plugging a second CTL

When plugging in a second CTL the system shall create one instance of 1+1 equipment protection group of type EQPTCTL

This shall be reported by means of ENT-PROTNGRP notification for 1+1 equipment protection group. The initial protection state shall be reported by means of a protection switch notification for the 1+1 equipment protection group.

Further autonomous notifications

For details on further autonomous notifications when auto-provisioning a slot refer to the detailed behavior of “ENT-EQPT (slot): Enter equipment (slot)” (p. 4-1079) describing the side effects during pre-provisioning.

Circuit pack plug out

If a circuit pack is plugged out the holder state for this board will change. This change is reported by means of an ED-STATE-EQPT notification for the *holdst* parameter.

In addition to the notification above the system reports an ED-EQPT (slot) notification for the parameters *name, qual, app, ssn, clei, eci, sln*.

If a circuit pack is plugged out which contains sockets with plugged in modules, then implicitly the socket entities shall be updated as required for the case of plug out of modules.

Change of functional type for neighbor slots

If a multislot circuit pack with *nvmname*=<XXX> is provisioned to slot n the parameters *nvmname*, *nvmqual* of each slots m to n-1 (n>m) change to <XXX>, EXTD and the parameter *actlname* is set to empty (i.e. the output contains one row with *actlname*=""", see also Example Input/output section of ED-EQPT(slot) notification). This change is reported by means of ED-EQPT notification for slot m to n-1 for *nvmname*, *nvmqual*, *actlname* parameters.

If a circuit pack is provisioned and as side effect it is no longer possible to use one of the neighbor slot for a multislot CP, the parameter *actname* for this slot is changed and all multislot CPs are removed. This change is reported by means of an ED-EQPT notification.

If a multislot circuit pack of slot n is deprovisioned the parameters *nvmname*, *nvmqual* of each slots m to n-1 (n>m) change to UNDEFINED, UNDEF and the parameters *actlname* changes to list of acceptable CPs. This change is reported by means of ED-EQPT notifications for slot m to n-1 for *nvmname*, *nvmqual*, *actlname* parameters.

If a circuit pack is deprovisioned and as side effect it becomes now possible to use one of the neighbor slot for a multislot CP, the parameter *actname* for this slot is changed and all multislot CPs are added. This change is reported by means of an ED-EQPT notification.

System start-up with default DB

The system shall autonomously create all entities addressable by SlotAID when starting up with the default database. No notification is sent.

□

Socket

Overview

Purpose

Circuit packs can contain sockets where modules can be plugged in. For unite in the current version Pluggable Interfaces mainly optical modules will be plugged in. A module with a pluggable interface will be only related to one port (e.g. a STM64 port). The relation is done in that way that a socket number n is related to a port number n of the same slot (e.g.port 1-1-#-#-1-sc3 is related to socket 1-1-#-#-1-3) The port functionality (and the related e.g. tributaries) is not available as long no module is provisioned by a provisioning command or by plugging in. This means the related entities will be only available if a module is provisioned. A socket behaves similar like a slot. That means there can be inventory data of the module read out, it can be (pre- or auto-) provisioned and also the acceptable type list for the socket is available. Also the rules how and when a module can be provisioned or de provisioned are similar.

Contents

List of commands

Autonomous notifications

Module plug in

Auto provisioning

If a module will be plugged into a not provisioned socket the socket will be auto provisioned to the plugged in module if the plugged in module type matches the acceptable type list of the socked. This shall be reported by means of the ED-EQPT (socket) notification. In addition also all entities will be created and updated as described in the detailed behaviour of the ENT-EQPT (socket) command. The update of the holder status of the socket will be reported by means of the ED-STATE-EQPT (socket) notification.

Unexpected, not acceptable, not recognizeable module handling

If an unexpected or not acceptable module or a module whichs inventory data can not be read is plugged into the socket only the holder status is changed and this is notified by an ED-STATE-EQPT(socket) notification. For all these cases alarms will be sent out in addition , either Optical Module Type Mismatch or Optical Module EPROM Access Fail.

Report of inventory data

In addition to the notifications above the system shall report an ED-EQPT (socket) notification for the affected parameters.

Affected parameters for Optical Modules with SFP EEPROM format:

- *clei*, *ccode*, *datecde*, *name*, *prodid*, *qual*, *vendorname*, *vendoroui*, *vendorpartno*, *vendorrevlvl*, *vendorsln*.

Affected parameters for Optical Modules with Small EEPROM format:

- *app*, *clei*, *eci*, *name*, *qual*, *sln*, *ssn*.

In case the inventory data can not be read the fields shall be reported as empty (″″).

Auto provisioning of CPs with plugged in modules

If a circuit pack is auto provisioned which contains already plugged in modules or fixed installed modules or an already provisioned circuit pack will be plugged in where the modules are not provisioned but already plugged in or fixed mounted then is the behaviour the same as the module will be auto provisioned by plugging in a module into a socket of the circuit pack. It can be seen as two independent actions, which will be performed one after the other: (auto) provisioning of the circuit pack with following auto provisioning of modules.

Module plug out

If a module is plugged out the holder state for this socket will change. This change shall be reported by means of an ED-STATE-EQPT (socket) notification for the holdst parameter.

In addition to the notification above the system reports an ED-EQPT (socket) notification for the affected parameters with the defined default value (empty string ″″).

Affected parameters for Optical Modules with SFP EEPROM format:

- *clei*, *ccode*, *datecde*, *name*, *prodid*, *qual*, *vendorname*, *vendoroui*, *vendorpartno*, *vendorrevlvl*, *vendorsln*.

Affected parameters for Optical Modules with Small EEPROM format:

- *app*, *clei*, *eci*, *name*, *qual*, *sln*, *ssn*.

The parameter set in the ED-EQPT (socket) Notification depends on the EEPROM format of the Optical Module which is plugged out.

Circuit pack plug out with plugged in modules

If a circuit pack will be plugged out with plugged in modules or with fixed mounted modules the system behaves like two independent actions, which will be performed one after the other: plug out of the plugged in or fixed mounted modules and plug out of the circuit pack. Regarding modules notifications will be sent as described for module plug out.

□

Circuit pack

Overview

Purpose

This section lists the circuit pack level configuration messages.

Contents

List of commands

Autonomous notifications

System start-up with default DB

The system autonomously creates the following entities when starting up with the default database:

- backplane (backpl)
- user panel (upl)
- fan unit (fan)
- two TIs (tia and tib)
- CI-CTL (cictl)
- two PIs (pia and pib)
- CTL (ctlw-cp).

No notifications is sent.

Change of the operational state

A change of the operational state is autonomously reported by means of an ED-STATE-EQPT notification for this circuit pack.

□

Port

Overview

Purpose

The term port is defined as physical interface of the EP51, EP155 and OPn packs including the 10-Gigabit Ethernet WANPHY interface variant. The ports of the OPn packs can work in SDH or SONET mode. Therefore SDH and SONET related commands are defined for physically identical ports. The ports of the EP155 packs can only work in SDH mode. Therefore only SDH related commands are defined.

TL1 commands related to gigabit Ethernet LAN ports (GE1 packs) are described in the "Virtual switch" (p. 8-15) section.

Contents

List of commands

- "DLT-OC48T notifications" (p. 4-141)
- "ED-OC48T autonomous notifications" (p. 4-451)
- "ED-OC192: Edit OC192 port" (p. 4-457)
- "ED-OC192 notification" (p. 4-485)
- "ENT-OC12 notification" (p. 4-1135)
- "DLT-OC192 notification" (p. 4-142)
- "DLT-OC192 notification" (p. 4-142)
- "ED-OC768: Edit OC768 port" (p. 4-496)
- "ED-OC768 notification" (p. 4-513)
- "ENT-OC48 notification" (p. 4-1145)
- "DLT-OC768 notification" (p. 4-143)
- "ED-OC768 autonomous notifications" (p. 4-512)
- "ED-T3: Edit DS3 port" (p. 4-840)
- "ED-T3 notification" (p. 4-848)
- "ENT-T3 notification" (p. 4-1341)
- "DLT-T3 notifications" (p. 4-185)
- "ED-EC1: Edit EC1 port" (p. 4-231)

□

Tributary

Overview

Purpose

The following chapter lists the commands for VC-3/STS-1 tributaries and path termination functions. The tributaries are related to the synchronous optical/electrical interfaces (e.g. on OPn or EP155). The tributaries with path termination function are related to asynchronous ports (e.g. DS3 port on EP51).

SONET and SDH tributaries are supported to keep the compatibility to current generation equipment as far as possible and to be compatible with the Telcordia manager.

Contents

List of commands

□

Autonomous notification

Impact of ONNS cross-connection creation

On creation of an ONNS cross-connection (*xconcls*=NN), which involves tributaries on EDGE ports (*portClass*=EDGE) which are part of a BLSR/MS-SPRING protection group the non-empty *loca*, *locz* information of the tributaries are copied into the corresponding attributes of the cross-connection and the *loca*, *locz* parameters in the tributaries are reset to its default values.

The reset of the *loca*, *locz* parameters in the tributaries are reported by means of an ED-STS (*istd* of related port SONET) or ED-VC3 (*istd* of related port SDH) notification.

□

7 TL1 messages - fault management

Overview

Purpose

This section lists the TL1 interface definition for the domain *fault management*.

Contents

Introduction

Overview

Purpose

This chapter presents general information necessary to understand the subsequent sections.

Contents

Alarms, events, ASAPs

Alarms/events

The system reports failures via alarms and events. An alarm/event can be persistent or transient. If it is persistent then a declaration (when the alarm will be raised) and a clear (when the alarm will be cleared) message will be sent by the NE. If it is transient only a declaration message will be sent.

Each one has a probable cause assigned. This is an identifier for the alarm/event. It will be reported via the *condtype* parameter in several commands/messages.

Alarms (conditions) with the severity Critical, Major, or Minor – will be reported via REPT ALM and can be retrieved via RTRV-ALM. Events/Alarms (conditions) with severity Warning/Not-Alarmed – will be reported via REPT EVT and can be retrieved via RTRV-COND. Alarms of environmental points will be not reported and retrieved via this commands. Refer to MDI/MDO description. The different reporting messages and retrieve commands are because of TL1 requirements.

Service affecting / non service affecting

An alarm can be service affecting (sa) or non service affecting (nsa). This indicates if transmission on a path may be affected (sa) or not (nsa). It is only a well educated guess based on the limited view of a single NE.

Alarm severity

Each alarm/event will be reported with a severity. The severity specifies the urgency of the alarm/event. The severity which will be sent for a specific probable cause can be configured via ASAPs.

The NE supports the following severities:

- CR – Critical (ITU / Telcordia)
- MJ – Major (ITU / Telcordia)
- MN – Minor (ITU / Telcordia)
- NA – Warning (ITU) / Not-Alarmed (Telcordia)
- NR – Non-Alarmed (ITU) / Not-Reported (Telcordia).

ASAPs

Alarm Severity Assignment Profiles (ASAP) assign for each probable cause and if applicable service affecting and non service affecting independent a severity. Each ASAP parameter of an ASAP refers to a probable cause and if applicable for service affecting or not. There are different types of ASAPs which defines the severities for different sets of probable causes. An entity which can raise an alarm/event will be

assigned an ASAP which defines for the specific alarms/events of the entity the severity. For each ASAP type a default ASAP exists in the NE, which cannot be deleted. ASAPs can be created via ENT-ASAP-PROF, edited via ED-ASAP-PROF, deleted via DLT-ASAP-PROF and retrieved via RTRV-ASAP-PROF.

SONET / SDH Mode

The NE does not distinguishes between SONET and SDH. For both the same alarms will be reported and only one set of severities is supported. Alarms uses probable causes there applicable from the Telcordia (″SONET world″) standard. For alarm description is system specific and not adapted to Telcordia standards.

For severities the notation is used like described in the TL1 standards of telcordia. For explanation the meaning in the SONET and SDH world is added.

□

MDI / MDO

MDI

Miscellaneous Discrete Inputs (MDI / environmental point) are used to have some external input which can raise alarms like from a fire detector. The name and alarm description of an MDI can be configured. The general discussion for alarms/events is also true for MDIs. Only the alarms will be reported via REPT-ALM-ENV and can be retrieved via RTRV-ALM-ENV. The configuration of MDIs can be edited via SET-ATTR-ENV and retrieved via RTRV-ATTR-ENV.

MDO

Miscellaneous Discrete Outputs (MDO / external control) are outputs which can operate equipment outside of the NE like a lamp. Each MDO has a name which can be configured. MDOs can be configured via SET-ATTR-CONT and can be retrieved via RTRV-ATTR-CONT.

MDOs can be operated in two modes: automatically and via management commands. For the automatic mode a MDO gets assigned a probable cause. If at least one alarm of this probable cause is active then the MDO will be operated. For operation with the management commands no probable cause must be assigned to the MDO. The MDO can be operated via OPR-EXT-COND and RLS-EXT-COND. The control state of a MDO can be retrieved with the RTRV-EXT-CONT command.

□

Alarm assignment profiles

Overview

Purpose

This section comprises messages to handle alarm assignment profiles (ASAPs).

Contents

List of commands

- “RTRV-ASAP-PROF: Retrieve ASAP profile” (p. 4-1616)
- “RTRV-ASAP-ASGNMT: Retrieve ASAP assignment” (p. 4-1612)
- “ENT-ASAP-PROF: Enter alarm severity assignment profile” (p. 4-1018)
- “ENT-ASAP-PROF notification” (p. 4-1021)
- “ED-ASAP-PROF: Edit alarm severity assignment profile” (p. 4-206)
- “ED-ASAP-PROF notification” (p. 4-210)
- “DLT-ASAP-PROF: Delete alarm severity assignment profile” (p. 4-92)
- “DLT-ASAP-PROF notification” (p. 4-95)

Alarms

Overview

Purpose

This section lists messages to handle alarms.

Contents

List of commands

Alarm log

Overview

Purpose

This section comprises messages to handle alarm logs.

Contents

RTRV-LOG-ALM: Retrieve log alarm

For description og this alarm refer to “RTRV-LOG-ALM: Retrieve log alarm” (p. 4-1753).

□

MDI

Overview

Purpose

This section lists information about the TL1 commands related to MDI.

Contents

List of commands

- "RTRV-ALM-ENV: Retrieve alarm environment" (p. 4-1605)
- "RTRV-ATTR-ENV: Retrieve attribute environment" (p. 4-1624)
- "SET-ATTR-ENV: Set attribute environment" (p. 4-2299)
- "SET-ATTR-ENV notification" (p. 4-2302)
- "REPT-ALM-ENV: Report Alarm Environment" (p. 4-1514)

□

MDO

Overview

Purpose

This section lists information about the TL1 commands related to MDO.

Contents

List of commands

Alarm, event, ASAP tables

Overview

Purpose

This section describes which alarms and events in the system can occur.

For each possible alarm following will be described:

condtype

The *condtype*, it represents the probable cause.

sa/nsa

States if it is service affecting (sa) or/and non service affecting (nsa).

conddescr

The *conddescr* related to the alarm. It is of the format:

1. \″<category>, <entity>, <description>, <additional text>\″
2. \″<category>, <entity>, <description>, <additional text>-cleared\″.

If there is no additional text, then the trailing comma may be omitted.

The *conddescr* has two forms for persistent alarms:

1. It is used when the alarm is raised.
2. The string: ″-cleared″ is appended. It is used when the alarm will be cleared. Transient alarms uses only the first form.

The description in the tables below defines the text for each part of the *condescr*. The leading and ending ' \″ ' are omitted.

ASAP Parameter

The ASAP parameter which are used in the RTRV-ASAP-PROF, ED-ASAP-PROF, ENT-ASAP-PROF commands for the specific ASAP type.

The name of service affected related ASAP parameters starts with the prefix ″sa_″, for non service affected one with ″nsa_″. The prefix can be omitted if the one probable cause reports only for service affected or non service affected.

default severity

The default alarm severity which is assigned to the ASAP parameter.

Description

A description for explanation.

modifier/aidtype

The to the alarm related *modifier* and *aidtype*.

AID

The AIDs which can be reported related to the alarms. All wildcard aids like `all` must not be used.

Alarm duration

It describes if the alarm is a persistent one or a transient one.

There are separate ASAP parameter for sa and nsa alarms. There applicable each parameter will be described separately together with their default values.

The Alarms will be described per ASAP type.

Please refer also to other fragments of the TL1 documentation where REPT EVT messages related to this fragment will be defined.

Remark to TCA: The alarm level of threshold crossing alarms (TCA) shall always be “not alarmed”, and it is not user provisionable. The system shall not allow the user to change any attribute of TCA alarm through ASA profile. All the attributes, such as TCA reporting enable/disable, that will affect TCA reporting shall be handled by the TCA profile.

Contents

ASAP Type DCN

Properties of all alarms

modifier/aidtype: COM

AID: SystemAID

Alarm duration: persistent.

condtype: PARARREP

sa/nsa: nsa

conddescr: Communication-DCN, DCN, Partitioned Area Repair

ASAP parameter: *pararrep* default severity: MN.

condtype: PROVINVAL

Important! *Please note that this condtype is not supported by the current release.*

sa/nsa: nsa

conddescr: Communication-DCN, DCN, DCN Provisioning Not Valid

ASAP parameter: *provinval* default severity: MJ.

condtype: ADDROV

sa/nsa: nsa

conddescr: Communication-DCN, DCN, Address List Overflow

ASAP parameter: *addrov* default severity: MJ.

condtype: ASTNNBRNAV

sa/nsa: nsa

conddescr: Communication-SCN, SCN, ASTN Neighbor Not Available

ASAP parameter: *astnnbrnav* default severity: MJ.

modifier/aidtype: COM

AID: SystemAID

The alarm information also includes the IP address of the affected ASTN neighbor, which has to be mapped into the *conddescr*.

condtype: NSAPHIGH

sa/nsa: nsa

conddescr: Communication-DCN, DCN, NSAP counter exceeds threshold

ASAP parameter: *nsaphigh* default severity: MN.

condtype: BUFROVLD

sa/nsa: nsa

conddescr: Communication-DCN, DCN, NSAP counter over maximum

ASAP parameter: *bufrovld* default severity: MJ.

□

ASAP Type DS3

Properties of all alarms

modifier/aidtype: T3

AID: APortAID

Alarm duration: persistent.

condtype: DS3LOS

sa/nsa: sa

conddescr: Communication-Transport, T3 port, DS3 Loss of Signal

ASAP parameter: *sa_ds3los* (service affecting).

default severity: MJ

condtype: DS3LineDEG

sa/nsa: sa

conddescr: Communication-Transport, T3 port, Degraded DS3 Line signal

ASAP parameter: *sa_ds3deg* (service affecting).

default severity: MJ

condtype: DS3LOF

sa/nsa: sa

conddescr: Communication-Transport, T3 path, DS3 Loss of Frame

ASAP parameter: *sa_ds3lof* (service affecting).

default severity: MJ

condtype: DS3AIS

sa/nsa: sa

conddescr: Communication-Transport, T3 path, DS3 AIS

ASAP parameter: *sa_ds3ais* (service affecting).

default severity: MJ

condtype: DS3AIC

sa/nsa: sa

conddescr: Communication-Transport, T3 path, DS3 Application Mismatch in

ASAP parameter: *sa_ds3aici* (service affecting).

default severity: MJ

condtype: DS3IDLE

sa/nsa: sa

conddescr: Communication-Transport, T3 path, DS3 IDLE in

ASAP parameter: *sa_ds3idlei* (service affecting).

default severity: MJ

condtype: DS3RAI

sa/nsa: sa

conddescr: Communication-Transport, T3 path, DS3 RAI in

ASAP parameter: *sa_ds3raii* (service affecting).

default severity: MJ

condtype: DS3LOF-EGR

sa/nsa: sa

conddescr: Communication-Transport, T3 path, DS3 LOF egress

ASAP parameter: *sa_ds3lofe* (service affecting).

default severity: NR

condtype: DS3AIS-EGR

sa/nsa: sa

conddescr: Communication-Transport, T3 path, DS3 AIS egress

ASAP parameter: *sa_ds3aise* (service affecting).

default severity: NR

condtype: DS3RAI-EGR

sa/nsa: sa

conddescr: Communication-Transport, T3 path, DS3 RAI egress

ASAP parameter: *sa_ds3raie* (service affecting).

default severity: NR

□

ASAP Type ENET

Properties of all alarms

Alarm duration: persistent

condtype: VCGLOA

sa/nsa: sa / nsa

conddescr: Communication-Transport, VCG, Loss of Alignment

ASAP parameter: sa_vcg_loa (service affecting) default severity: CR

ASAP parameter: nsa_vcg_loa (non service affecting) default severity: MN

modifier/aidtype: VCG

AID: VCGAID.

condtype: VCGLOPC

sa/nsa: sa / nsa

conddescr: Communication-Transport, VCG, Partial Transport Capacity Loss

ASAP parameter: sa_vcg_lopc (service affecting) default severity: MJ

ASAP parameter: nsa_vcg_lopc (non service affecting) default severity: MN

modifier/aidtype: VCG

AID: VCGAID.

condtype: VCGLOTC

sa/nsa: sa / nsa

conddescr: Communication-Transport, VCG, Total Transport Capacity Loss

ASAP parameter: sa_vcg_lotc (service affecting) default severity: CR

ASAP parameter: nsa_vcg_lotc (non service affecting) default severity: MN

modifier/aidtype: VCG

AID: VCGAID.

condtype: VCGFOPT

sa/nsa: sa / nsa

conddescr: Communication-Transport, VCG, Source End Failure of Protocol

ASAP parameter: sa_vcg_fopt (service affecting) default severity: MJ

ASAP parameter: nsa_vcg_fopt (non service affecting) default severity: MN

modifier/aidtype: VCG

AID: VCGAID.

condtype: VCGFOPR

sa/nsa: sa / nsa

conddescr: Communication-Transport, VCG, Sink End Failure of Protocol

ASAP parameter: sa_vcg_fopr (service affecting) default severity: MJ

ASAP parameter: nsa_vcg_fopr (non service affecting) default severity: MN

modifier/aidtype: VCG

AID: VCGAID.

condtype: VCGSSF

sa/nsa: sa / nsa

conddescr: Communication-Transport, VCG, Server Signal Fail

ASAP parameter: sa_vcg_ssf default severity: NR

ASAP parameter: nsa_vcg_ssf default severity: NR

modifier/aidtype: VCG

AID: VCGAID.

condtype: GFPLOF

sa/nsa: sa / nsa

conddescr: Communication-Transport, VCG, GFP Loss of Frame

ASAP parameter: sa_gfp_lof default severity: CR

ASAP parameter: nsa_gfp_lof default severity: MN

modifier/aidtype: VCG

AID: VCGAID.

condtype: LANLOS

sa/nsa: sa / nsa

conddescr: Communication-Transport, 1GE, LAN Loss of Signal

ASAP parameter: sa_lan_los default severity: CR

ASAP parameter: nsa_lan_los default severity: MN

modifier/aidtype: 1GE

AID: EPortAID.

condtype: LANANM

sa/nsa: sa / nsa

conddescr: Communication-Transport, 1GE, LAN Auto Negotiation Mismatch

ASAP parameter: sa_lan_anm, default severity: MN

ASAP parameter: nsa_lan_anm, default severity: NA

modifier/aidtype: 1GE

AID: EPortAID.

condtype: MACVLANOVFW

sa/nsa: nsa

conddescr: Communication-Transport, 1GE, max no of VLAN instances reached

ASAP parameter: nsa_vlan_maxno, default severity: MN

modifier/aidtype: 1GE

AID: EPortAID.

Per Gigabit Ethernet card one virtual switch is available, therefore the alarm is always raised against the first port of the card. Also the alarm configuration is related to the first port.

□

ASAP Type ENV

Properties of all alarms

modifier/aidtype: ENV

AID: Miscellaneous_in_DiscreteAID

Alarm duration: persistent.

Reference ASAP Type ENV

Refer to the *envmsg* parameter in the output parameters section of the "RTRV-ATTR-ENV: Retrieve attribute environment" (p. 4-1624) command for string values as part of *conddescr*.

condtype: MISC_1

sa/nsa: none

conddescr: {envmsg}

ASAP parameter: envron_1

Default severity: NR

Alarm of MDI (Miscellaneous Discrete Input / environmental point). The description can be assigned.

condtype: MISC_2

sa/nsa: none

conddescr: {envmsg}

ASAP parameter: envron_2

Default severity: NA

Alarm of MDI (Miscellaneous Discrete Input / environmental point). The description can be assigned.

condtype: MISC_3

sa/nsa: none

conddescr: {envmsg}

ASAP parameter: envron_3

Default severity: NR

Alarm of MDI (Miscellaneous Discrete Input / environmental point). The description can be assigned.

condtype: MISC_4

sa/nsa: none

conddescr: {envmsg}

ASAP parameter: envron_4

Default severity: NR

Alarm of MDI (Miscellaneous Discrete Input / environmental point). The description can be assigned.

condtype: MISC_5

sa/nsa: none

conddescr: {envmsg}

ASAP parameter: envron_5

Default severity: NR

Alarm of MDI (Miscellaneous Discrete Input / environmental point). The description can be assigned.

condtype: MISC_6

sa/nsa: none

conddescr: {envmsg}

ASAP parameter: envron_6

Default severity: NR

Alarm of MDI (Miscellaneous Discrete Input / environmental point). The description can be assigned.

condtype: MISC_7

sa/nsa: none

conddescr: {envmsg}

ASAP parameter: envron_7

Default severity: NR

Alarm of MDI (Miscellaneous Discrete Input / environmental point). The description can be assigned.

condtype: MISC_8

sa/nsa: none

conddescr: {envmsg}

ASAP parameter: envron_8

Default severity: NR

Alarm of MDI (Miscellaneous Discrete Input / environmental point). The description can be assigned.

□

ASAP Type EQUIP-PROT

Properties of all alarms

modifier/aidtype: EQPT

Alarm duration: persistent

Reference ASAP Type EQUIP-PROT

Refer to the *nvmname* parameter in the output parameters section of the "RTRV-EQPT (slot): Retrieve Equipment (slot)" (p. 4-1708) command for values of *cpname* as part of *conddescr*.

Refer to the *nvmqual* parameter in the output parameters section of the "RTRV-EQPT (slot): Retrieve Equipment (slot)" (p. 4-1708) command for values of *cpqual* as part of *conddescr*.

condtype: EQPT

sa/nsa: sa / nsa

conddescr: Equipment, {cpname}/{cpqual}, Circuit Pack Clock Failure

ASAP parameter: sa_eqpt; default severity: CR

ASAP parameter: nsa_eqpt; default severity: MN

AID: CpAID.

condtype: CPTEMP

sa/nsa: sa / nsa

conddescr: Equipment, {cpname}/{cpqual}, Unit Temperature too High

ASAP parameter: sa_cptemp; default severity: MJ

ASAP parameter: nsa_cptemp; default severity: MN

AID: CpAID.

condtype: PRCDRERR

sa/nsa: sa / nsa

conddescr: Equipment, slot, Circuit Pack Type Mismatch

ASAP parameter: sa_prcdrerr; default severity: MJ

ASAP parameter: nsa_prcdrerr; default severity: MN

AID: SlotAID.

condtype: REPLUNITMISS

sa/nsa: sa / nsa

conddescr: Equipment, slot, Circuit Pack not Present

ASAP parameter: sa_replunitmiss; default severity: CR

ASAP parameter: nsa_replunitmiss; default severity: MN

AID: SlotAID.

condtype: TXInF

sa/nsa: sa / nsa

conddescr: Equipment, {cpname}/{cpqual}, TXI Failure

ASAP parameter: sa_txif; default severity: CR

ASAP parameter: nsa_txif; default severity: MN

AID: CpAID.

Description: The n in the condtype expresses the individual TXI line for which the alarm is reported. The maximum of n depends on the card type. The condtype will be reported as: TXI1F, TXI2F.

condtype: CPFAIL

sa/nsa: sa / nsa

conddescr: Equipment, {cpname}/{cpqual}, Circuit Pack Failure

ASAP parameter: sa_cpfail; default severity: CR

ASAP parameter: nsa_cpfail; default severity: MN

AID: CpAID.

condtype: PIMISS

sa/nsa: sa / nsa

conddescr: Equipment, shelf, Power Interface not Present

ASAP parameter: sa_pimiss; default severity: MJ

ASAP parameter: nsa_pimiss; default severity: MN

AID: PowerAID.

condtype: PIEF

sa/nsa: nsa

conddescr: Equipment, shelf, Power Interface Read Failure

ASAP parameter: pief; default severity: MN

AID: PowerAID.

condtype: POWF

sa/nsa: sa / nsa

conddescr: Equipment, shelf, System Power Failure

ASAP parameter: sa_powf; default severity: MJ

ASAP parameter: nsa_powf; default severity: MN

AID: PowerAID.

condtype: ONIFW

sa/nsa: nsa

conddescr: Equipment, {cpname}/{cpqual}, ONI Failure on working CTL slot

ASAP parameter: sa_onifw; default severity: MN

AID: CpAID.

condtype: ONIFP

sa/nsa: nsa

conddescr: Equipment, {cpname}/{cpqual},ONI Failure on protecting CTL slot

ASAP parameter: nsa_onifp; default severity: MN

AID: CpAID.

condtype: DCTLUNAVAIL

sa/nsa: nsa

conddescr: Equipment, SYSTEM, Duplex Control not Present

ASAP parameter: nsa_dctlunavail; default severity: NR

AID: SystemAID.

condtype: BKUPMEMP

sa/nsa: nsa

conddescr: Equipment, {cpname}/{cpqual}, IDE Flash Card Access Fail

ASAP parameter: nsa_bkupmemp default severity: MJ

AID: CpAID

condtype: OMMISMA

sa/nsa: sa/nsa

conddescr: Equipment, Socket, Optical Module Type Mismatch

ASAP parameter: sa_ommisma default severity: CR

ASAP parameter: nsa_ommisma default severity: MN

AID: SocketAID.

condtype: OMMISS

sa/nsa: sa/nsa

conddescr: Equipment, Socket, Optical Module not Present

ASAP parameter: sa_ommiss default severity: CR

ASAP parameter: nsa_ommiss default severity: MN

AID: SocketAID.

condtype: OMFAIL

sa/nsa: sa/nsa

conddescr: Equipment, Socket, Optical Module Fail

ASAP parameter: sa_omfail default severity: CR

ASAP parameter: nsa_omfail default severity: MN

AID: SocketAID.

condtype: OMUNSUP

sa/nsa: sa/nsa

conddescr: Equipment, Socket, Optical Module not supported

ASAP parameter: sa_omunsup default severity: CR

ASAP parameter: nsa_omunsup default severity: MN

AID: SocketAID.

ASAP Type EQUIP-UNPROT

Properties of all alarms

modifier/aidtype: EQPT

Alarm duration: persistent

Reference ASAP Type EQUIP-UNPROT

Refer to the *nvmname* parameter in the output parameters section of the "RTRV-EQPT (slot): Retrieve Equipment (slot)" (p. 4-1708) command for values of *cpname* as part of *conddescr*.

Refer to the *nvmqual* parameter in the output parameters section of the "RTRV-EQPT (slot): Retrieve Equipment (slot)" (p. 4-1708) command for values of *cpqual* as part of *conddescr*.

condtype: CSDWF

sa/nsa: nsa

conddescr: Equipment, {cpname}/{cpqual}, Worker Clock Input Fail

ASAP parameter: nsa_csdwf; default severity: MN

AID: CpAID.

condtype: CSDPF

sa/nsa: nsa

conddescr: Equipment, {cpname}/{cpqual}, Protection Clock Input Fail

ASAP parameter: nsa_csdpf; default severity: MN

AID: CpAID.

condtype: SYNCCLK

sa/nsa: sa

conddescr: Equipment, system, NE Clock Failure

ASAP parameter: sa_syncclk; default severity: CR

AID: SystemAID.

condtype: CPDEGR

sa/nsa: nsa

conddescr: Equipment, {cpname}/{cpqual}, Unit Cooling Degraded

ASAP parameter: nsa_cpdegr; default severity: MN

AID: CpAID.

condtype: CPCOMF

sa/nsa: nsa

conddescr: Equipment, {cpname}/{cpqual}, Circuit Pack Comm Failure

ASAP parameter: nsa_cpcomf; default severity: MN

AID: CpAID.

condtype: BPEF

sa/nsa: sa

conddescr: Equipment, shelf, Backplane Read Failure

ASAP parameter: sa_bpef; default severity: MJ

AID: ShelfAID.

condtype: SYSCOMF

sa/nsa: sa

conddescr: Equipment, {cpname}/{cpqual}, Comm Channel Failure

ASAP parameter: sa_syscomf default; severity: MJ

AID: CpAID.

condtype: CTLCOMF

sa/nsa: nsa

conddescr: Equipment, {cpname}/{cpqual}, CTL Comm Failure

ASAP parameter: nsa_ctlcomf; default severity: MN

AID: CpAID.

condtype: BKUPMEMO

sa/nsa: nsa

conddescr: Processing Error, {cpname}/{cpqual}, NVM Shortage

ASAP parameter: nsa_bkupmemo; default severity: MN

AID: CpAID.

condtype: CIPWRDWN

sa/nsa: nsa

conddescr: Equipment, {cpname}/{cpqual}, CICTL Powered Down

ASAP parameter: nsa_cipwrdwn; default severity: MN

AID: CpAID.

condtype: TIMM

sa/nsa: nsa

conddescr: Equipment, {cpname}/{cpqual}, TI Mismatch

ASAP parameter: nsa_timm; default severity: MN

AID: CpAID.

condtype: TIMISS

sa/nsa: nsa

conddescr: Equipment, {cpname}/{cpqual}, TI not Present

ASAP parameter: nsa_timiss default severity: MN

AID: TimingInterfaceAID.

condtype: CIMISS

sa/nsa: nsa

conddescr: Equipment, shelf, CICTL not Present

ASAP parameter: nsa_cimiss; default severity: MN

AID: ShelfAID.

condtype: CIF

sa/nsa: nsa

conddescr: Equipment, ci-ctl, CICTL Failure

ASAP parameter: nsa_cif; default severity: MN

AID: CiCtlAID.

condtype: CICOMF

sa/nsa: nsa

conddescr: Equipment, ci-ctl, CICTL Comm Failure

ASAP parameter: nsa_cicomf; default severity: MN

AID: CiCtlAID.

condtype: FANUNITMISS

sa/nsa: sa

conddescr: Equipment, shelf, Fan Unit not Present

ASAP parameter: sa_fanunitmiss; default severity: CR

AID: ShelfAID.

condtype: FANUNITCOMF

sa/nsa: nsa

conddescr: Equipment, fan, Fan Unit Comm Failure

ASAP parameter: nsa_fanunitcomf; default severity: MN

AID: FanAID.

condtype: FANUNITF

sa/nsa: sa

conddescr: Equipment, fan, Fan Unit Failure

ASAP parameter: sa_fanunitf default severity: CR

AID: FanAID.

condtype: FANF

sa/nsa: sa

conddescr: Equipment, fan, Fan Failure

ASAP parameter: sa_fanf; default severity: MJ

AID: FanAID.

condtype: FEEDAF

sa/nsa: nsa

conddescr: Equipment, fan, Fan Voltage Feed A Failure

ASAP parameter: nsa_feedaf; default severity: MN

AID: FanAID.

condtype: FEEDBF

sa/nsa: nsa

conddescr: Equipment, fan, Fan Voltage Feed B Failure

ASAP parameter: nsa_feedbf; default severity: MN

AID: FanAID.

condtype: UPMISS

sa/nsa: nsa

conddescr: Equipment, shelf, User Panel not Present

ASAP parameter: nsa_upmiss; default severity: MN

AID: ShelfAID.

condtype: UPCOMF

sa/nsa: nsa

conddescr: Equipment, user panel, User Panel Comm Failure

ASAP parameter: nsa_upcomf; default severity: MN

AID: UserPanelAID.

condtype: ECIMISMA

sa/nsa: nsa

conddescr: Equipment, ECI, ECI Mismatch Failure

ASAP parameter: sa_ecimisma; default severity: CR

AID: EciAID.

condtype: ECICOMF

sa/nsa: nsa

conddescr: Equipment, ECI, ECI Comm Failure

ASAP parameter: nsa_ecicomf; default severity: MN

AID: EciAID.

condtype: ECIMISS

sa/nsa: sa

conddescr: Equipment, ECI, ECI not Present

ASAP parameter: sa_ecimiss; default severity: CR

AID: EciAID.

□

ASAP Type MSSPRING-BLSR

Properties of all alarms

modifier/aidtype: OC48, OC192, OC768, STM16, STM64, STM256.

Alarm duration: persistent.

condtype: APSC

sa/nsa: nsa

conddescr: Communication-Transport, MSSPRING-BLSR prot group, Inconsistent APS Codes

ASAP parameter: inaps; default severity: MJ

AID: SPortAID (2F: west/east port, 4F: west/east protection port).

condtype: IMAPS

sa/nsa: nsa

conddescr: Communication-Transport, MSSPRING-BLSR prot group, Improper APS Codes

ASAP parameter: imaps; default severity: MJ

AID: SPortAID (2F: west/east port, 4F: west/east protection port).

condtype: NID-CONFL

sa/nsa: nsa

conddescr: Communication-Transport, MSSPRING-BLSR prot group, Node ID Mismatch

ASAP parameter: nid_confl; default severity: MJ

AID: SPortAID (2F: west/east port, 4F: west/east protection port).

condtype: DKB

sa/nsa: nsa

conddescr: Communication-Transport, MSSPRING-BLSR prot group, Default K-bytes

ASAP parameter: dkb; default severity: MJ

AID: SPortAID (2F: west/east port, 4F: west/east protection port).

condtype:RNG-PSS

sa/nsa: nsa

conddescr: Communication-Transport, MSSPRING-BLSR prot group, Ring protection switch Suspended

ASAP parameter: rng_pss; default severity: MJ

AID: TwoFibre_ProtGrpAID, FourFibre_ProtGrpAID.

condtype: TS

sa/nsa: nsa

conddescr: Communication-Transport, MSSPRING-BLSR prot group, Traffic Squelched

ASAP parameter: ts; default severity: MJ

AID: SPortAID (2F: west/east port, 4F: west/east worker port).

condtype: DUPL-RNG

sa/nsa: nsa

conddescr: Communication-Transport, MSSPRING-BLSR prot group, Duplicate Ring Node

ASAP parameter: dupl_rng; default severity: MJ

AID: TwoFibre_ProtGrpAID, FourFibre_ProtGrpAID.

condtype: RNG-OPEN

sa/nsa: nsa

conddescr: Communication-Transport, MSSPRING-BLSR prot group, Open Ring

ASAP parameter: ropn; default severity: MJ

AID: TwoFibre_ProtGrpAID, FourFibre_ProtGrpAID.

condtype: SQMAP-CONFL

sa/nsa: nsa

conddescr: Communication-Transport, MSSPRING-BLSR prot group, Local Squelch Map Conflict

ASAP parameter: sqmap_confl; default severity: MN

AID: TwoFibre_ProtGrpAID, FourFibre_ProtGrpAID.

condtype: RNG-INC

sa/nsa: nsa

conddescr: Communication-Transport, MSSPRING-BLSR prot group, Ring Incomplete

ASAP parameter: rng_inc; default severity: MJ

AID: TwoFibre_ProtGrpAID, FourFibre_ProtGrpAID.

condtype: RNG-URT

sa/nsa: nsa

conddescr: Communication-Transport, MSSPRING-BLSR prot group, Unknown Ring Type

ASAP parameter: rng_urt; default severity: NA

AID: TwoFibre_ProtGrpAID, FourFibre_ProtGrpAID.

condtype: RNG-IRPM

sa/nsa: nsa

conddescr: Communication-Transport, MSSPRING-BLSR prot group, Inconsistent Ring Protection Mode

ASAP parameter: rng_irpm; default severity: MJ

AID: TwoFibre_ProtGrpAID, FourFibre_ProtGrpAID.

condtype: RNG-DSCVY

sa/nsa: nsa

conddescr: Communication-Transport, MSSPRING-BLSR prot group, Ring Discovery in Progress

ASAP parameter: rng_dscvy; default severity: NA

AID: TwoFibre_ProtGrpAID, FourFibre_ProtGrpAID.

condtype: ET-PREEMPT

sa/nsa: nsa

conddescr: Communication-Transport, MSSPRING-BLSR prot group, Extra Traffic Preempted

ASAP parameter: et_preempt; default severity: NA

AID: SPortAID (2F: west/east port, 4F: west/east protection port).

condtype: RINGCKTVALSUSPEND

sa/nsa: nsa

conddescr: Communication-Transport, MSSPRING-BLSR prot group, Ring Ckt Validation Suspended

ASAP parameter: ringcktvalsuspend; default severity: MN

AID: STS1NumAID

condtype: PIF

sa/nsa: nsa

conddescr: Communication-Transport, MSSPRING-BLSR prot group, Path Integrity Failure

ASAP parameter: pif; default severity: MJ

AID: STS1NumAID

condtype: RINGCKTALARMSUPPR

sa/nsa: nsa

conddescr: Communication-Transport, MSSPRING-BLSR prot group, Ring Circuit Alarms Suppressed

ASAP parameter: ringcktalarmsuppr; default severity: NA

AID: TwoFibre_ProtGrpAID, FourFibre_ProtGrpAID

□

ASAP Type MSP-APS

Properties of all alarms

modifier/aidtype: OC3, OC12, OC48, OC192, OC768, STM1, STM4, STM16, STM64, STM256

AID: OnePlusOne_PrtGrpAID

Alarm duration: persistent.

condtype: PAMARCH

sa/nsa: nsa

conddescr: Communication-Transport, MSP-APS prot group, Prot. Arch. Mismatch

ASAP parameter: pamarch; default severity: MJ.

condtype: PAMOPER

sa/nsa: nsa

conddescr: Communication-Transport, 1+1 MSP-APS prot group, Prot. Arch. Operation Mismatch

ASAP parameter: pamoper; default severity: MJ.

condtype: PAMMODE

sa/nsa: nsa

conddescr: Communication-Transport, MSP-APS prot group, Prot. Arch. Mode Mismatch

ASAP parameter: pammode; default severity: MJ.

condtype: PSBUNACC

sa/nsa: nsa

conddescr: Communication-Transport, MSP-APS prot group, Prot. Switch Byte Unacceptable

ASAP parameter: psbunacc; default severity: MJ.

condtype: PSBINAPPR

sa/nsa: nsa

conddescr: Communication-Transport, MSP-APS prot group, Prot. Switch Byte Inappropriate

ASAP parameter: psbinappr; default severity: MJ.

condtype: SCM

sa/nsa: nsa

conddescr: Communication-Transport, MSP-APS prot group, Switch Channel Mismatch

ASAP parameter: scm; default severity: MJ.

condtype: PRIM

sa/nsa: nsa

conddescr: Communication-Transport, 1+1 MSP-APS prot group, primary section Mismatch

ASAP parameter: prim; default severity: MJ.

condtype: FESF

sa/nsa: nsa

conddescr: Communication-Transport, MSP-APS prot group, Far End Signal Fail

ASAP parameter: fesf; default severity: MJ.

□

ASAP Type PATH

Properties of all alarms

modifier/aidtype: VTL, STS3C, STS12C, STS48C, STS192C, VC12, C4, VC44C, VC416C, VC464C.

AID: GenLOTribAID, TS1NumAID

Alarm duration: persistent.

condtype: AIS-P

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} path, Alarm Indication Signal

ASAP parameter: sa_ais; default severity: NR

ASAP parameter: nsa_ais; default severity: NR.

condtype: LOP-P

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} path, Loss of Pointer

ASAP parameter: sa_lop; default severity: CR

ASAP parameter: nsa_lop; default severity: MN.

condtype: SRM-P

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} path, Signal Rate Mismatch

ASAP parameter: sa_srm; default severity: MJ

ASAP parameter: nsa_srm; default severity: MN.

condtype: UNEQ-P

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} path, Unequipped

ASAP parameter: sa_uneq; default severity: CR

ASAP parameter: nsa_uneq; default severity: MN.

condtype: TIM-P

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} path, Trace Identifier Mismatch

ASAP parameter: sa_tim; default severity: CR

ASAP parameter: nsa_tim; default severity: MN.

condtype: EXC-P

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} path, Excessive Bit Error Ratio

ASAP parameter: sa_exc; default severity: CR

ASAP parameter: nsa_exc; default severity: MN.

condtype: DEG-P

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} path, Degraded Signal

ASAP parameter: sa_deg; default severity: MJ

ASAP parameter: nsa_deg; default severity: MN.

condtype: SSF-P

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} path, Server Signal Fail

ASAP parameter: sa_ssf; default severity: NR

ASAP parameter: nsa_ssf; default severity: NR.

condtype: RFI-P

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} path, Remote Defect Indication

ASAP parameter: sa_rfi; default severity: NR

ASAP parameter: nsa_rfi; default severity: NR.

condtype: PDI-P

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} path, Payload Defect Indication

ASAP parameter: sa_pdi; default severity: MJ

ASAP parameter: nsa_pdi; default severity: MN.

□

ASAP Type PATHTERM

Properties of all alarms

modifier/aidtype: STS1, VC4, STS3C, HOSTS1, HOVC4

AID: VCGNumAID, PTNumAID

Alarm duration: persistent.

condtype: THPSSF

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} CS, Server Signal Fail

ASAP parameter: sa_thpssf; default severity: NR

ASAP parameter: nsa_thpssf; default severity: NR.

condtype: THPLOP

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} CS, Loss of Pointer

ASAP parameter: sa_thplop; default severity: CR

ASAP parameter: nsa_thplop; default severity: MN.

condtype: THPUNEQ

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} CS, Unequipped

ASAP parameter: sa_thpuneq; default severity: CR

ASAP parameter: nsa_thpuneq; default severity: MN.

condtype: THPTIM

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} CS, Trace Identifier Mismatch

ASAP parameter: sa_thptim; default severity: CR

ASAP parameter: nsa_thptim; default severity: MN.

condtype: THPEXC

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} CS, Excessive Bit Error Ratio

ASAP parameter: sa_thpexc; default severity: CR

ASAP parameter: nsa_thpexc; default severity: MN.

condtype: THPDEG

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} CS, Degraded Signal

ASAP parameter: sa_thpdeg; default severity: MJ

ASAP parameter: nsa_thpdeg; default severity: MN.

condtype: THPRDI

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} CS, Remote Defect Indication

ASAP parameter: sa_thprdi; default severity: NR

ASAP parameter: nsa_thprdi; default severity: NR.

condtype: THPPLM

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} CS, Payload Mismatch

ASAP parameter: sa_thpplm; default severity: CR

ASAP parameter: nsa_thpplm; default severity: MN.

condtype: VCLOM

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} CS, Loss of Multiframe

ASAP parameter: sa_vclom; default severity: CR

ASAP parameter: nsa_vclom; default severity: MN.

condtype: VCSQM

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} CS, Sequence Number Mismatch

ASAP parameter: sa_vcsqm; default severity: CR

ASAP parameter: nsa_vcsqm; default severity: MN.

condtype: PDI-P

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} path, Payload Defect Indication

ASAP parameter: sa_pdi; default severity: MJ

ASAP parameter: nsa_pdi; default severity: MN.

□

ASAP Type PORT

Properties of all alarms

modifier/aidtype: EC1, OC3, OC12, OC48, OC192, OC768, STM1E, STM1, STM4, STM16, STM64, STM256, OC48T, STM16T (for fully transparent ports).

AID: SPortAID

Alarm duration: persistent.

condtype: WTU3LOF

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} port, WTU3 Loss of Frame

ASAP parameter: sa_wtu3lof; default severity: CR

ASAP parameter: nsa_wtu3lof; default severity: MN.

condtype: OCHLOF

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} port, OCh Loss of Frame

ASAP parameter: sa_ochlof; default severity: CR

ASAP parameter: nsa_ochlof; default severity: MN.

condtype: PREDCMLOS

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} port, Pre DCM Signal Loss

ASAP parameter: sa_predcmlos; default severity: CR

ASAP parameter: nsa_predcmlos; default severity: MN.

condtype: POSTDCMLOS

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} port, Post DCM Signal Loss

ASAP parameter: sa_postdcmlos; default severity: CR

ASAP parameter: nsa_postdcmlos; default severity: MN.

condtype: LOS

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} port, Loss of Signal

ASAP parameter: sa_los; default severity: CR

ASAP parameter: nsa_los; default severity: MN.

condtype: LOF

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} port, Loss of Frame

ASAP parameter: sa_lof; default severity: CR

ASAP parameter: nsa_lof; default severity: MN.

condtype: LOF-T-EGR

sa/nsa: sa

conddescr: Communication-Transport, {aidtype} port, Loss of Frame transp ch egress

ASAP parameter: sa_loftegr; default severity: CR

condtype: RSTIM

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} port, Trace Identifier Mismatch

ASAP parameter: sa_rstim; default severity: CR

ASAP parameter: nsa_rstim; default severity: MN.

condtype: TIM-T-EGR

sa/nsa: sa

conddescr: Communication-Transport, {aidtype} port, Trace Identifier Mismatch egress

ASAP parameter: sa__timtegr; default severity: CR

condtype: MSEXC

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} port, Excessive Bit Error Ratio

ASAP parameter: sa_msexc; default severity: CR

ASAP parameter: nsa_msexc; default severity: MN.

condtype: MSDEG

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} port, Degraded Signal

ASAP parameter: sa_msdeg; default severity: MJ

ASAP parameter: nsa_msdeg; default severity: MN.

condtype: AIS-L

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} port, Alarm Indication Signal

ASAP parameter: sa_aisl; default severity: CR

ASAP parameter: nsa_aisl; default severity: MN.

condtype: MSSSF

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} port, Server Signal Fail

ASAP parameter: sa_msssf; default severity: NR

ASAP parameter: nsa_msssf; default severity: NR.

condtype: MSPSSF

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} port, Prot. Server Signal Fail

ASAP parameter: sa_mspssf; default severity: NR

ASAP parameter: nsa_mspssf; default severity: NR.

condtype: RFI-L

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} port, Remote Defect Indication

ASAP parameter: sa_rfil; default severity: NR

ASAP parameter: nsa_rfil; default severity: NR.

condtype: DCCRSF

sa/nsa: nsa

conddescr: Communication-Transport, {aidtype} port, DCC failure

ASAP parameter: sa_dccrsf; default severity: MJ.

condtype: LIDRSM

sa/nsa: nsa

conddescr: Communication-Transport, {aidtype} port, Protocol Version Mismatch

ASAP parameter: nsa_lidrsm, default severity: MJ.

condtype: DCCMSF

sa/nsa: nsa

conddescr: Communication-Transport, {aidtype} port, DCC failure

ASAP parameter: nsa_dccmsf; default severity: MJ.

condtype: LIDMSM

sa/nsa: nsa

conddescr: Communication-Transport, {aidtype} port, Protocol Version Mismatch

ASAP parameter: nsa_lidmsm; default severity: MJ.

□

ASAP Type SNCP-UPSR

Properties of all alarms

modifier/aidtype: STS1, STS3, STS12, STS48, STS192, VC3, VC4, VC44C, VC416C, VC464C

AID: STS1NumAID

Alarm duration: persistent.

condtype: PSI

sa/nsa: nsa

conddescr: Communication-Transport, Path prot group, Path Switch Inhibit

ASAP parameter: psinh; default severity: NA.

condtype: FAILTOSW

sa/nsa: nsa

conddescr: Communication-Transport, Path prot group, Path Switch Denial

ASAP parameter: psfail; default severity: NA.

□

ASAP Type TIMING

Properties of all alarms

Alarm duration: persistent

condtype: SYNCRF

sa/nsa: none

conddescr: Communication-Synchronisation, timing reference, Timing Reference Failure

ASAP parameter: syncrf; default severity: MJ

modifier/aidtype: SYST

AID: External_timing_ref_AID, Line_timing_ref_AID.

condtype: SYNCLOSS

sa/nsa: none

conddescr: Communication-Synchronisation, system timing, Loss of Synchronisation

ASAP parameter: syncloss; default severity: MJ

modifier/aidtype: SYST

AID: SystemAID.

condtype: SYNCT4OUT

sa/nsa: none

conddescr: Communication-Synchronisation, timing out, T4 quality unsufficient

ASAP parameter: synct4out; default severity: MJ

modifier/aidtype: OUTT

AID: External_Timing_output_port_AID.

□

ASAP Type Transparency

Properties of all alarms

modifier/aidtype: ODU1

AID: VCGAID

Alarm duration: persistent.

condtype: ODULOFT

sa/nsa: sa

conddescr: Communication-Transport, {aidtype} port, LOF Transparent Ch

ASAP parameter: sa_oduloft. default severity: CR.

Description: Besides {aidtype} the entity port is used to distinguish from the ODUkP functionality.

condtype: ODULOMT

sa/nsa: sa

conddescr: Communication-Transport, {aidtype} path, Loss of Multiframe Transparent

ASAP parameter: sa_odulomt. default severity: CR.

condtype: ODUBDIT

sa/nsa: sa

conddescr: Communication-Transport, {aidtype} path, Backw Defect Transparent Ch

ASAP parameter: sa_odubdit. default severity: MJ.

condtype: ODUSSFT

sa/nsa: sa

conddescr: Communication-Transport, {aidtype} path, Server Signal Fail Transparent

ASAP parameter: sa_odussft. default severity: NR.

condtype: ODUPLMT

sa/nsa: sa

conddescr: Communication-Transport, {aidtype} path, Payload Mismatch Transparent Ch

ASAP parameter: sa_oduplmt. default severity: CR.

□

Entity – ASAP relation

Introduction

This section describes which entity is related to which ASAP.

Entities

For description of the entities see in the fragements of the TL1 message description which defines and describes the entities. (Example: The slot entity is described in the configuration fragment.)

The entity of an alarm can be retrieved from the entity in the *condescr* in the ASAP descriptions above so it is not explicitly listed here.

If an entity has a relation to at least one ASAP does it mean that this entity will raise alarms for this entity.

Entity – ASAP relation

For each ASAP type must exist one ASAP pointer for the entity. Each ASAP pointer is related to only one ASAP type. That means that for some entities more than one ASAP pointer exist.

Fragment	Entity	ASAP Type	Entity containing ASAP pointer
Administration & Security	Session	none	none
Administration & Security	NE Security Administration	none	none
Administration & Security	User Administration	none	none
Administration & Security	Security Activity Log	none	none
Configuration Management	System	EQUIP-UNPROT	System
Configuration Management	Bay	none	none
Configuration Management	Shelf	EQUIP-PROT EQUIP-UNPROT	Shelf
Configuration Management	Slot	EQUIP-PROT	Slot
Configuration Management	Circuit Pack	EQUIP-PROT EQUIP-UNPROT	CP
Configuration Management	Port (OC3, OC12, OC48, OC192, OC768, STM1, STM4, STM16, STM64, STM256)	PORT	Port
Configuration Management	Port (OC48T, STM16T)	PORT	Port
Configuration Management	Tributary (STS1, STS3C, STS12C, STS48C, STS192C, VC3, VC4, VC44C, VC416C, VC464C)	PATH	Tributary (Configuration Management)

Fragment	Entity	ASAP Type	Entity containing ASAP pointer
Fault Management	Alarm Assignment Profiles	none	none
Fault Management	Alarms	none	none
Fault Management	Alarm Log	none	none
Fault Management	MDI	ENV	MDI
Fault Management	MDO	none	none
Transmission Cross-Connect Handling	cross-connection	none	none
Transmission Cross-Connect Handling	Tributary	none	none
Transmission Cross-Connect Handling	Port	none	none
Transmission Cross-Connect Handling	User Byte – Port	none	none
Transmission Cross-Connect Handling	Ethernet Port	ENET	Ethernet Port
Transmission Cross-Connect Handling	Virtual Concatenation Group	ENET	Virtual Concatenation Group
Transmission Cross-Connect Handling	Virtual Concatenation Group Tributary (STS1, VC4)	PATHTERM	Virtual Concatenation Group Tributary
Protection	Protection Group 1+1 Equipment Protection	none	none
Protection	Protection Group 1+1 Multiplex Section / Line Protection	MSP-APS	Protection Group 1+1 Multiplex Section / Line Protection
Protection	Protection Group 2-fibre MS-SPRing / BLSR	MSSPRING-BLSR	Protection Group 2-fibre MS-SPRing / BLSR
Protection	Protection Group 4-fibre MS-SPRing / BLSR	MSSPRING-BLSR	Protection Group 4-fibre MS-SPRing / BLSR
Protection	Protection Group Path Protection	SNCP-UPSR	Protection Group Path Protection
Protection	Protection Log	none	none
Protection	Ring Map	none	none
Synchronization	System Timing	TIMING	System Timing
Synchronization	Output Timing	none	none
Synchronization	Assigned Timing Reference	TIMING	Assigned Timing Reference
Synchronization	External Timing Input	none	none

Fragment	Entity	ASAP Type	Entity containing ASAP pointer
Synchronization	External Timing Output	TIMING	External Timing Output
Software & Database Management	n.a	none	none
Data Communications Network	General DCN	DCN	General DCN
Data Communications Network	DCC Termination	none	none
Data Communications Network	LAN	none	none
Data Communications Network	OSI Network Layer	none	none
Data Communications Network	OSI Transport Layer and TARP	none	none
Data Communications Network	TCP / IP	none	none
Data Communications Network	IP Map	none	none
Data Communications Network	IP Tunnel	none	none
Data Communications Network	MAP	none	none
Performance Monitoring	none	none	none
Configuration Management	ci-ctl	EQUIP-UNPROT	System
Configuration Management	fan	EQUIP-UNPROT	System
Configuration Management	user panel	EQUIP-UNPROT	System
Configuration Management	power interface	EQUIP-PROT	CP

8 TL1 messages - transmission and cross-connect handling

Overview

Purpose

This section lists the TL1 interface definition for the

- high-order and low-order transmission domain
- user byte access functionality
- gigabit ethernet virtual switch configuration
- gigabit ethernet port (GEn) configuration
- virtual concatenation (Group and Tributary) configuration for GEn applications
- high-order and low-order remote test access function.

Contents

Cross-connection

Overview

Purpose

The cross-connection (CRS) commands cover all type of

- creating (ENT-CRS),
- removing (DLT-CRS),
- modifying (ED-CRS) and
- retrieving (RTRV-CRS) cross-connections.

Furthermore the commands ENT-ROLL directly affect existing cross-connections by rolling the input of an existing cross-connection towards another input while keeping the output unchanged.

Cross-connections and tributaries

Physically crossconnections are transport channels between tributaries within an NE. These crossconnections are logically modelled by the entity crossconnection and include provisionable parameters which describe the behaviour of these channels.

Tributaries are pathlevel units of bandwidth within ports. With the introduction of the LOXC feature, there has been a second level of tributary added: Low-order tributaries are contained in high-order tributaries within ports.

These tributaries may belong

- either as high-order tributaries to SDH/SONET ports located on I/O packs (e.g OPn), which are to be addressed via the STS1NumAIDs,
- or as high-order tributaries to Virtual Concatenation Group ports (VCG ports) located on referring I/O packs (e.g. GEn) which are to be addressed via the VCGNumAIDs,
- or as low-order tributaries to high-order tributaries of SDH/SONET ports located on I/O packs (e.g. OPn) which are to be addressed via the LONumAIDs.

In the following, the general AID GenTribAID is used to reference high-order tributaries if AIDs STS1NumAID and VCGNumAID need not to be distinguished.

In the following, the general AID GenLOTribAID is used to reference low-order tributaries if AIDs of LONumAID need not to be distinguished.

High-order tributary-rate provisioning versus cross-connection-rate

For fixed-rate provisioned ports the high-order crossconnection-rate (either the SDH-rate or its equivalent SONET-rate) must match with the high-order tributary-rate.

As an example a tributary provisioned to vc44c can be crossconnected only at a rate of vc44c (or STS12, which is equivalent) - requests with other rates will be rejected. This restriction concerning the consistency of tributary-rate and crossconnection-rate does NOT hold in the case the port is provisioned as adaptive (which is only possible in case of a SONET-port).

Low-order tributary-rate provisioning versus crossconnection-rate

Low-order tributaries can only be cross-connected if the related port operates in the fixed mode.

For SONET low-order tributaries, only one type is allowed (VT1.5) which causes to match its rate with the referring cross-connection rate.

For SDH low-order tributaries, two types are allowed (LO-VC3 and VC12). VC12 tributaries are created by default. However, if a cross-connection request allows to adapt the signal structure to the requested rate then this request will be granted.

As an example, a high-order VC4 tributary has been substructured to 63 times VC12 signals (e.g. because a first VC12 cross-connection has been previously established for the first timeslot out of the 63). A cross-connection request to cross-connect the last third of the VC4 as a low-order cross-connection at a LO-VC3 will be granted since an adaptation is possible (no VC12 cross-connection present yet). Thus, the NE does an automatic correction of the substructure (in this case it changes to 42 times VC12 plus 1 times LO-VC3), before the cross-connect request will be successfully executed.

Please note that the following features are not part of the current *LambdaUnite*® MSS release and are thus not specified here:

- provisioning of adjunct path-protected cross-connection (no adjunct related parameter)
- changing working and protection leg for path-protected cross-connections (no TL1 command OPR-WKGLEG)
- no adaptive-mode is allowed for both *in_aids* of a path-protected cross-connection.

Contents

List of commands

Autonomous notification

TID Change

loca, *locz* auto notification for service traffic

If a source TID (*loca*) or destination TID (*locz*) is changed due to a TID change of one NE within a BLSR ring/MS-SPRing, the update is reported by means of corresponding ED-CRS notifications.

No auto notification for *loca* and *locz* change for extra traffic

For extra traffic the *loca/z* info are generated automatically, for this reason they will change after an initialization or a recovery. Too many intermediate, void changes would be detected and notified.

No notification for *sqfa* and *sqfz* change

If a source TID (*loca*) or destination TID (*locz*) is changed due to a TID change of one NE within a MS-SPRing with the *protnmode* = TOPEX, the related parameters *sqfa* and *sqfz* will change to AINVALID respectively to MINVALID for an intermediate time, depending on internal processing speed and fault conditions of the ring. Finally they will again change to other values. Due to this transient behaviour it is only suitable to make it retrievable on demand.

No auto notification for loca and locz change caused by Automatic Squelch Map Calculation

If Automatic Squelch Map Calculation is used in a BLSR/MS-SPRING, then changes of *loca/locz* and the related status information *locastate/loczstate* caused by the Automatic Squelch Map Calculation shall not be notified. *loca/locz* and the related status information *locastate/loczstate* are generated automatically. For this reason they will change after an initialisation or a recovery. Too many intermediate, void changes would be detected and notified.

ONNS triggered changes

The ONNS TL1 command ENT-PATH shall lead to ENT-CRS notifications in the NEs along the route of the new path. In case of a 1+1 protected ONNS path there are also ENT-PROTN-GRP notifications in the source and destination NE of the ONNS path.

The ONNS TL1 command DLT-PATH shall lead to DLT-CRS notifications in the NEs along the route of the deleted path. In case of a 1+1 protected path there are also DLT-PROTN-GRP notifications in the source and destination NE of the ONNS path.

The ONNS TL1 command ED-PATH-ROLL

- shall lead to ENT-CRS and ENT-PROTN-GRP notifications in the two NEs where the bridge/merge function is performed
- shall lead to ENT-CRS notifications in the NEs along the new route of the path

- shall lead to DLT-CRS notifications in the NEs along the old route of the path
- shall lead to DLT-CRS and DLT-PROTN-GRP notifications in the two NEs where the bridge/selector is removed. The ONNS TL1 command ED-PATH-PROT
- shall lead to ENT-CRS notifications along the route of the new protecting path and ENT-PROTN-GRP notifications in the A and Z node when a modification from unprotected to 1+1 protected is performed
- shall lead to DLT-CRS notifications along the route of the new protecting path and DLT-PROTN-GRP notifications in the A and Z node when a modification from 1+1 protected to unprotected is performed
- shall not lead to additional host notifications when a modification from unprotected to auto-reroute or vice versa is performed.

The (non-revertive) restoration of an ONNS path shall lead to ENT-CRS notifications in the NEs along the restored route of the path, and to DLT-CRS notifications in the NEs along the route of the failed path.

The revertive restoration of an ONNS path shall lead to ENT-CRS notifications in the NEs along the restored route of the path, and to ENT-PROTN-GRP notifications in the A and Z node of the path. When the restoration reverts, it shall lead to DLT-CRS notifications in the NEs along the restored route of the path, and to DLT-PROTN-GRP notifications in the A and Z node of the path.

□

Tributary

Overview

Purpose

This section lists messages related to cross-connections on tributary level.

Contents

List of commands

- "RTRV-LPBK: Retrieve loopback (here cross-connection loopback)" (p. 4-1800)
- "OPR-LPBK (here cross-connection loopback)" (p. 4-1458)
- "OPR-LPBK notification (here cross-connection loopback)" (p. 4-1464)
- "RLS-LPBK: Release loopback (here cross-connection loopback)" (p. 4-1566)
- "RLS-LPBK notification (here cross-connection loopback)" (p. 4-1564)

Port

Overview

Purpose

This section contains messages related to cross-connections on port level.

Contents

List of commands

- “RTRV-LPBK: Retrieve loopback (here facility loopback)” (p. 4-1804)
- “OPR-LPBK: Operate loopback (here facility loopback)” (p. 4-1465)
- “OPR-LPBK notification (here facility loopback)” (p. 4-1471)
- “RLS-LPBK: Release loopback (here facility loopback)” (p. 4-1569)
- “RLS-LPBK notification (here facility loopback)” (p. 4-1565)

□

UserByte port

Overview

Purpose

Physically the UserByte-Port is a physical transmission interface, consisting of both an input and an output, which can be used to carry traffic through channels given by the E1- or F1-Byte (located in the RSOH) or the E2-Byte (located in the MSOH). Logically an UserByte-Port is an entity within an NE which models the function of the physical UserByte-Port.

Six UserByte-Ports are available (with AIDs denoted ubio1 .. ubio6) each of which can be associated to an optical port of an OPn either to the E1- or E2- or F1-Byte. The association is always bidirectional. Four of these six UserByte-Ports (AIDs: ubio1 .. ubio4) are provisionable to either the G703- or V11-interface, while the others (AIDs: ubio5,ubio6) are fixed to V11-interface.

The association as well as this mode setting can be done via the SET-OW-command. Furthermore the SET-OW command allows to release the association (dis-association). With the RTRV-OW command the information related to an UserByte-Port can be retrieved from the NE.

Note: Throughout this section the term order-wire (OW) is retained in the command names for ″historical″ reasons although the name user-byte would be more appropriate, because these ports can not only be used for order-wire purposes.

Contents

List of commands

□

Autonomous notification

Start-up with default database

The event *Start-up with default DB* causes the 6 instances of type UserByte port to be created.

□

Virtual switch

Overview

Purpose

Starting with the entity Virtual Switch the TL1 commands for all entities of the GE1 functionality will be described in the following chapters.

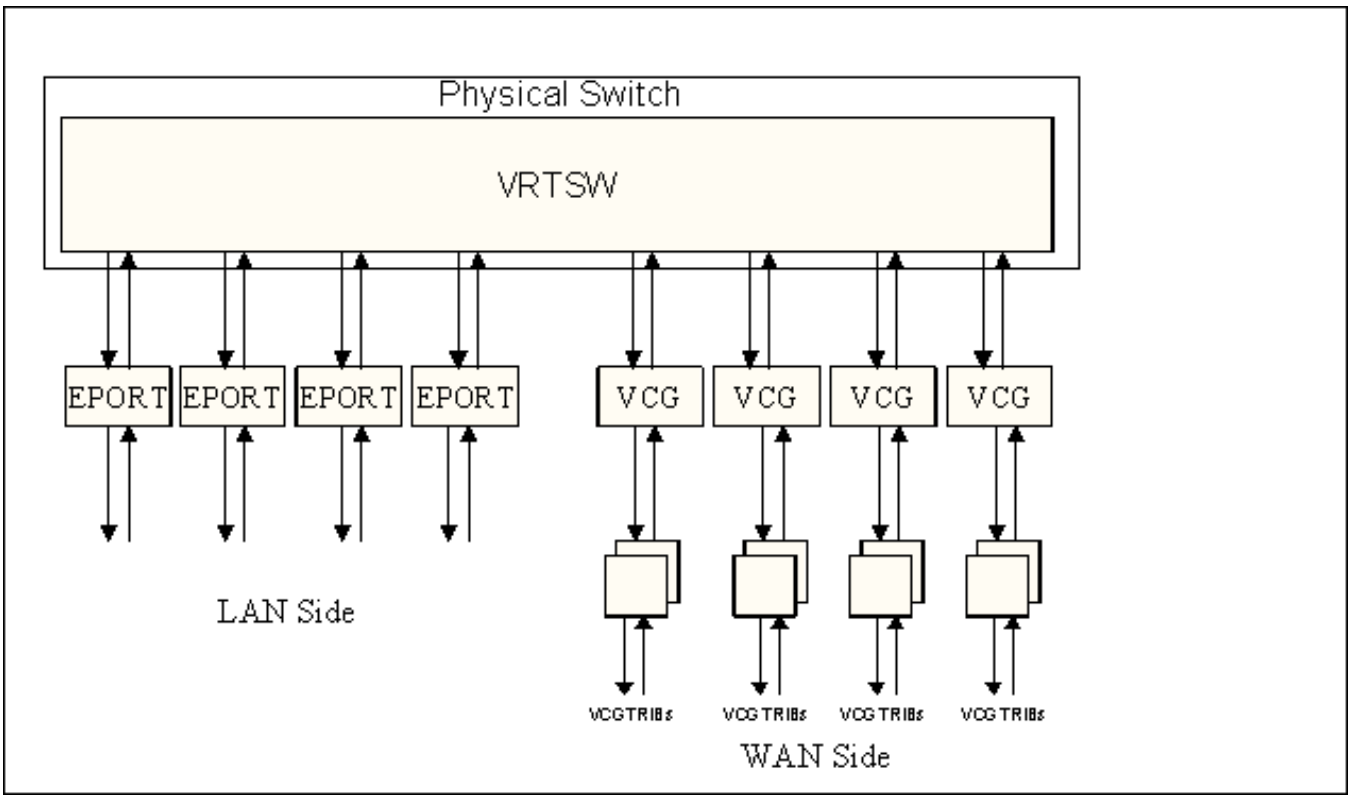
These are in detail:

- Virtual switch (VRTSW)
- Ethernet port (EPORT)
- Virtual concatenation group (VCG)
- Virtual concatenation tributary (VCGTRIB).

Each GE1 circuit pack consists of the following entities as shown in the following figure. The number of EPORT and VCG instances connected to the virtual switch is fixed. The number of VCGTRIBs per VCG depends on whether operating in SDH or SONET mode. In SDH mode there are 7 VCGTRIBs of type VC4 whereas in SONET mode there are 21 VCGTRIBs of type STS1s.

Commands for the entity *Virtual switch* allow to retrieve and modify its parameters. These commands are applicable to the GE1 circuit pack which supports one virtual switch instance.

The virtual switch as part of the physical switch on the GE1 pack is created by software. It serves to group and separate traffic within the physical switch via VLAN tagging.



Contents

List of commands

Ethernet port

Overview

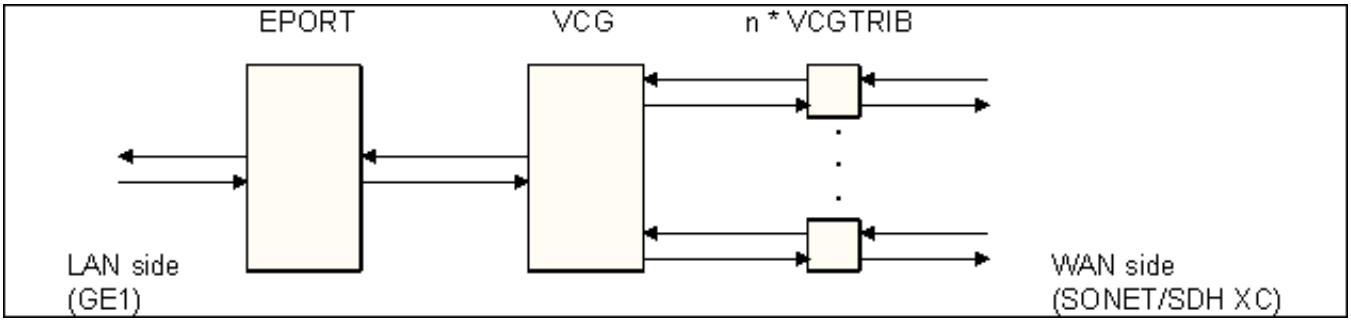
Purpose

Starting with the entity Ethernet port the TL1 commands for all entities of the GE1 functionality will be described in the following chapters. These are in detail:

- Ethernet port (EPORT)
- Virtual concatenation group (VCG)
- Virtual concatenation group tributary (VCGTRIB).

GE1 circuit pack

Each GE1 circuit pack consists of 4 sets of entities, each set composed like in the following figure. The value of *n* has a range of 1 to 21.



Commands for the entity ethernet port cover the parameters for

- physical link layer (layer 1) and
- data link layer (layer 2) of the LAN side of Gigabit Ethernet.

These commands are applicable to the GE1 circuit pack which has 4 LAN ports.

Those ethernet ports are mainly intended to connect several parts of a LAN via standard transmission technique like SDH or SONET.

There is no interworking with the Data Communications Network application (which uses Ethernet-LAN ports, too) used to control the NEs. The latter one is specified in another section.

Contents

List of commands

- “RTRV-EPORT: Retrieve Ethernet port” (p. 4-1685)
- “ENT-EPORT notification” (p. 4-1072)
- “ED-EPORT: Edit Ethernet port” (p. 4-242)
- “ED-EPORT notification” (p. 4-251)
- “DLT-EPORT notification” (p. 4-115)

Autonomous notifications

GE1 circuit pack is auto-provisioned

If a GE1 circuit pack is auto-provisioned a GE1PORT instance will be created with the given default parameter values for all GE1 ports of the circuit pack.

This change is reported via the ENT-EPORT notification.

LOS for Gigabit Ethernet port (LAN port) clears

On a LAN port (Gigabit Ethernet) if a valid signal applied for a certain validation time and the port mode (epmode) is set to AUTO then the port mode shall be changed to MON. This change shall be reported via ED-EPORT notification with parameter epmode.

□

Virtual concatenation group

Overview

Purpose

The Virtual Concatenation Group is an entity which exists for Gigabit Ethernet and Fully Transparent appications. For both applications the parameter set is slightly different, making a distinction of the related commands via a modifier for the Fully Transpartent application necessary (e.g no LCAS is supported for the fully transparent application).

Overview of GE1 Application

Commands for the entity virtual concatenation group (VCG) cover the parameters for both

- the Ethernet side (WAN ports) and
- the EoS (Ethernet over SDH/SONET).

These commands are applicable to the GE1 circuit pack which has 4 WAN ports.

Note: The virtual concatenation group (VCG) and its tributaries (VCGTRIB) have some direction dependent parameters. Following the semantic for optical ports the direction indicators input and output are used.

Input direction

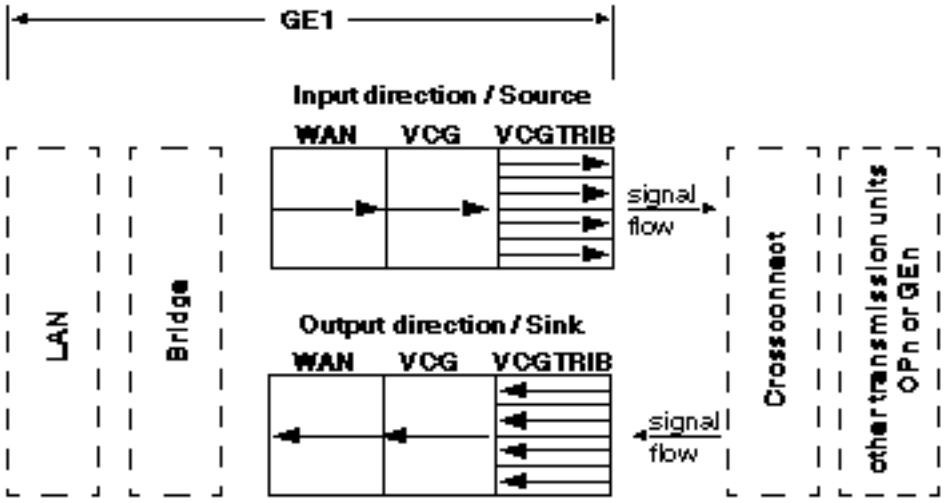
WAN $\rightarrow$ *VCG* $\rightarrow$ *VCGTRIB* $\rightarrow$ *Cross-connec*t

As those tributaries have termination function this is also often called source.

Output direction

Cross-connect $\rightarrow$ *VCGTRIB* $\rightarrow$ *VCG* $\rightarrow$ *WAN*

As those tributaries have termination function this is also often called sink.



Overview of OPTn Application

Commands for the entity virtual concatentation group (VCG) cover the parameters for both

- the ODU layer and
- the Virtual Concatenation functionality.

These commands are applicable to the OPT2G5 circuit pack which has 3 client ports (one-to-one relationship to the VCG ports).

Note: The virtual concatenation group (VCG) and its tributaries (VCGTRIB) have some direction dependent parameters. Following the semantic for optical ports the direction indicators input and output are used. Also the equivalent terms ingress and egress are applicable.

Input direction

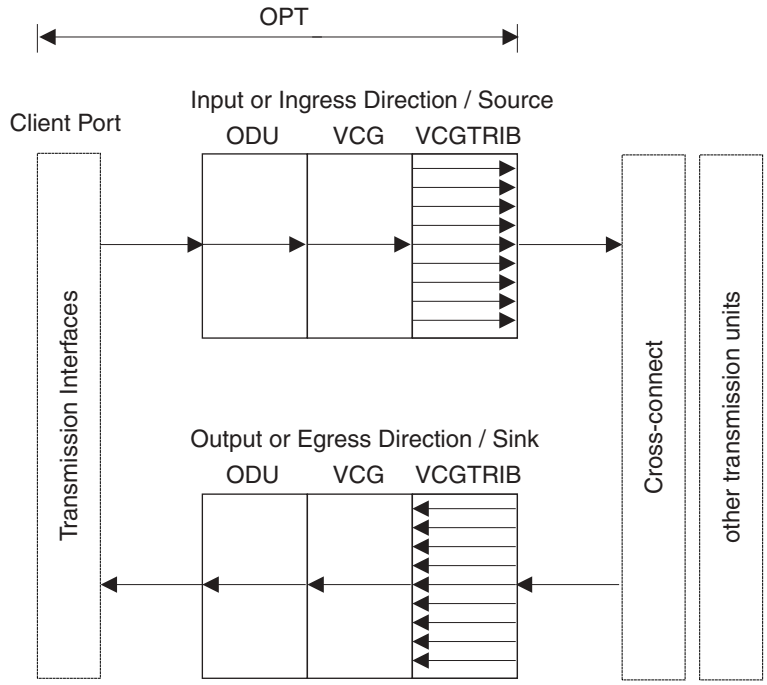
*Client Port → VCG (including ODU) → VCGTRIB → Cross-connec*t

As those tributaries have termination function this is also often called source.

Output direction

Cross-connect → VCGTRIB → VCG (including ODU) → Client Port

As those tributaries have termination function this is also often called sink.



Contents

List of commands

Autonomous notifications

GE1 circuit pack is auto-provisioned

If a GE1 circuit pack is auto-provisioned a VCG instance will be created with the given default parameter values for all VCGs of the circuit pack.

This change is reported via the ENT-VCG notification.

OPTn Circuit Pack is Auto-provisioned

If an OPTn circuit pack is auto-provisioned a VCG instance will be created with the given default parameter values for all Virtual Concatenation Groups of the circuit pack. This change shall be reported via the ENT-VCG-TRANS notification.

□

Virtual concatenation group tributary

Overview

Purpose

For an overview of the GE1 related entities EPORT, VCG and VCGTRIB see "ENT-EQPT (slot): Enter equipment (slot)" (p. 4-1079).

Commands for the entity virtual concatenation group tributary cover the parameters for

- standard termination as for other tributaries
- tributary related parameters of virtual concatenation.

Each virtual concatenation tributary can be configured independently.

Contents

List of commands

- “RTRV-VCGTRIB: Retrieve virtual concatenation group tributary” (p. 4-2274)
- “ENT-VCGTRIB notification” (p. 4-1434)
- “ED-VCGTRIB: Edit virtual concatenation group tributary” (p. 4-995)
- “ED-VCGTRIB notification” (p. 4-1005)
- “DLT-VCGTRIB notification” (p. 4-204)
- “OPR-VCGTRIB: Operate virtual concatenation group tributary” (p. 4-1497)

Autonomous notifications

GE1 Circuit Pack is auto-provisioned

If a GE1 circuit pack is auto-provisioned 7 VC4 or 21 STS1 VCGTRIB instances will be created (dependent on the attribute *istddflt*) with the given default parameter values for all VCGs of the circuit pack.

This change is reported via the ENT-VCGTRIB notification.

OPTn Circuit Pack is Auto-provisioned

If an OPTn circuit pack is auto-provisioned 17 VC4 or STS3c VCGTRIB instances will be created (dependent on the attribute istddflt) with the given default parameter values for all Virtual Concatenation Groups of the circuit pack.

This change shall be reported via the ENT-VCGTRIB notification.

Group notifications for VCG tributaries

For efficiency reasons the notifications for VCG tributaries shall be sent out as a single notification (so-called group notification) using a range over the aid which depends on the used mapping of the associated vcg port, i.e. the Simple_VCGNumAID field in the VCGNumAID is set to

- 1&&-<N> for sequential range
- 1&-4 .. &-<N> for non-sequential range

with N is maximal legal VCG tributary number. Example:

The AID field in a group notification for a VCG tributaries related to VCG port 1 for a GE1 pack in slot 1 looks like:

1-1-#-#-1-v1-1&&-21 (for STS-1/VC-3 mapping) 1-1-#-#-1-v1-1&-4&-7&-10&-13&-16&-19 (for STS-3c/VC-4 mapping).

Incoming VCG tributary is dropped or added

If an incoming (sink direction) VCG tributary is dropped or added due to manual operation or a failure event, the parameter *outmbst* shall be set to the corresponding value considering the current LCAS mode. This change shall be reported via the ED-VCGTRIB notification with the parameter *outmbst*.

For the modifiers VCT or STST tributaries will be added or dropped only via manual operation.

Outgoing VCG tributary is dropped or added

If an outgoing (source direction) VCG tributary is dropped or added due to manual operation or a failure event, the parameter *inmbst* shall be set to the corresponding value considering the current LCAS mode. This change shall be reported via the ED-VCGTRIB notification with the parameter *inmbst*.

For the modifiers VCT or STST tributaries will be added or dropped only via manual operation.

□

Low Order Tributaries

Overview

Purpose

HO tributaries on I/O packs (e.g. OPn, EP155) can be substructured as follows:

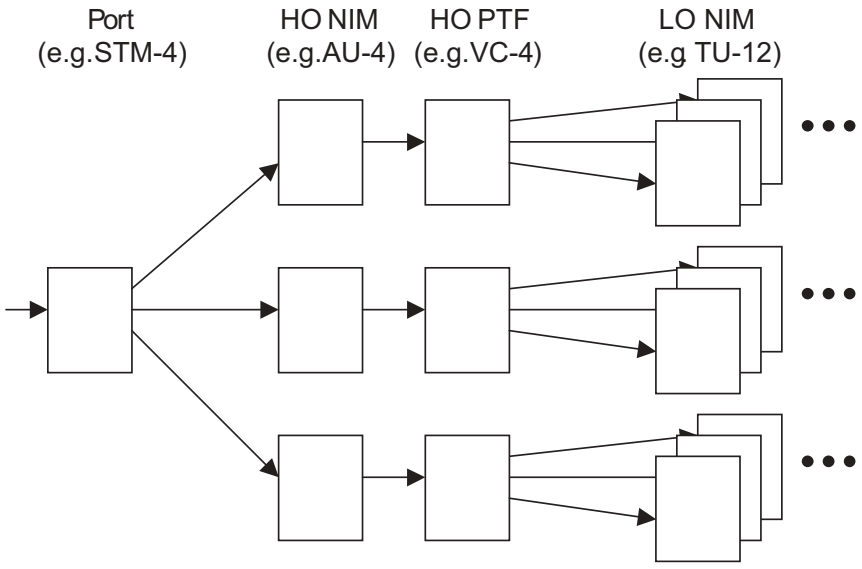
- HO path termination function (PTF, see SRD_TL1_Configuration)
- LO non-intrusive monitoring function (see below).

Following substructures are supported:

- SDH: VC4 PTF entity and 3 VC3 or 63 VC12 LONIM entities - or a mix of it,
- SONET: STS1 PTF entity and 28 VT1.5 LONIM entities.

The following figure shows an example:

Example



Contents

List of commands

- “RTRV-LONIM: Low-Order Non-Intrusive Monitor” (p. 4-1782)
- “ED-LONIM: Edit Low Order Non-Intrusive Monitor” (p. 4-304)

□

Remote Test Access

Overview

Purpose

Test access consists of a set of non-intrusive operations (“monitoring” modes) and intrusive operations (“split modes”) that aid users in turning up facilities and in fault sectionalization of existing service circuits.

Basic user capabilities in test access include:

- assigning available tributary(ies) as ″test access tributary(ies)″, whose line interface(s) will be connected by the user to the external testing system. These test access tributaries are assigned and released as part of establishing or disconnecting test access sessions.
- establishing test access cross-connections from tributaries to be tested to the test access tributary(ies) that either monitor or “split” connections for testing purposes.
- retrieving information about test access connections present on the system.
- releasing test access connections and test tributaries, upon which the system automatically restores any pre-existing cross-connections that were affected.

The architecture and nomenclature depicted below help to explain how test access is defined and used.

The E-Tributary and F-Tributary are the tributaries unter test. The E and F tributaries are the ends of a one-way or two-way cross-connection, with the dashed lines indicating the signal traveling through the system. The signal path from the E-end to the F-end is referred to as the ″A″ direction; the opposite direction as the ″B″ direction. If there is only a one-way cross-connection, the signal travels in the A direction. If an idle (un-cross-connected) tributary is the focus of test access, it is always the E-end.

The following table shows the supported test access modes.

Two groups of test access modes are defined:

- single test access tributary modes
- dual test access tributary modes.

Mode	Description	Group
MONE	Monitor E-end mode of test access. This test access mode monitors the E end of an idle tributary or a leg of a cross-connection.	Single
MONF	Monitor F-end mode of test access. This test access mode monitors the F-end of a two-way cross-connection.	Single
MONEF	Monitor E-end and F-end mode of test access. This test access mode monitors (E end and F end) both directions of a 2WAY cross-connection.	Dual
SPLTE	Split access E-end mode of test access. This test access mode splits the connection between the E end and F end of a 1WAY cross-connection or a leg of 2WAY cross-connection. Can also be used in an idle tributary.	Single
SPLTF	Split access F-end mode of test access. This test access mode splits the E-end and F-end connection of a two-way cross-connection to allow testing at the F-end.	Single
SPLTEF	Split E-end and F-end mode of test access. This test access mode splits both directions of a 2WAY cross-connection to allow testing at both the E end and F end.	Dual
SPLTA	Split access “A” direction mode of test access. This test access mode splits the connection between the E and F tributaries of a one-way or two-way cross-connection to allow testing in the “A” direction.	Single

Mode	Description	Group
SPLTB	Split access “B” direction mode of test access. This test access mode splits the E-end and F-end connection of a two-way cross-connection to allow testing in the “B” direction.	Single
SPLTAB	Split access A and B directions mode of test access. This test access mode splits both directions of a two-way cross-connection to allow testing in both the A and B directions.	Dual
TERME	Terminated test access mode. This test access mode splits the signal, sending the input to the testing system and injecting AU-AIS/AIS-P toward the path selector to allow monitoring the incoming signal of the leg that is not currently carrying service traffic without the risk that the path selector will switch away from the service-carrying leg.	Single

Contents

List of commands

ONNS to UPSR/SNCP Constructs (OUC)

Overview

Purpose

This section lists the TL1 commands related to the UPSR/SNCP constructs.

Contents

List of commands

- “RTRV-OUC: Retrieve ONNS to UPSR/SNCP constructs” (p. 4-1947)
- “ENT-OUC: Enter ONNS to UPSR/SNCP constructs” (p. 4-1182)
- “ENT-OUC notification” (p. 4-1188)
- “DLT-OUC: Delete ONNS to UPSR/SNCP constructs” (p. 4-144)
- “DLT-OUC notification” (p. 4-146)

9 TL1 messages - protection

Overview

Purpose

This chapter contains the TL1 interface definition for the domain “protection”.

Contents

Protection group

Overview

Purpose

The protection group commands covers all types of protections within the system. The following protection group types can be distinguished:

- 1+1 equipment protection group
- 1+1 multiplex section/line protection group
- 2-fibre MS-SPRing/BLSR protection group
- 4-fibre MS-SPRing/BLSR protection group
- Path protection group.

Dedicated subsections corresponding to these protection group types will cover the specific behavior. If such a separation is not made, the description is valid for all protection group types. In addition common properties are also described in a dedicated General section.

Three operation modes can be distinguished for a 4-fibre MS-SPRing/BLSR protection group:

1. 2-sided node: An east side (protection and worker) and a west side (protection and worker) is provisioned for that group. Therefore, four ports are members within that protection group.
2. 1-sided node: Only one side is provisioned for the protection group. That can be either the east or the west side. Therefore, two ports are members within that protection group. This mode is used in context of an open 4-fiber ring w.r.t. end node in that chain.
3. Asymmetric node: Both protection ports are members of the protection group and only one or zero worker ports are assigned externally.

All attributes/parameters specifying east/or west side properties are optional and will be omitted if the corresponding side is not provisioned in case of an 1-sided node.

Note: 1-sided node (open ring) is not supported in R1. As indication if and when this feature is supported use the following criteria (supported if criteria is met): Ports can be added/removed to/from one side of the protection group (conversion from 1-side node to 2-side node and vice versa). Be aware to differenciate that scenario from switching from an asymmetric node to a non-asymmetric and vice versa. The combination of a 1-sided and asymmetric node is not allowed..

Contents

Introduction to protection groups

General information

The following section presents on overview of all attributes of the different protection types and their use within the different commands. The information is derived from the corresponding sections describing the commands and notifications.

Note: The following tables are specifying the superset of operations, notifications and attributes for protection groups. They do not consider any release information. Please check in the corresponding sections, in which release the functionality is supported.

1+1 equipment protection group

Entity table for 1+1 equipment protection group (EQPTSWFBR and EQPTCTL)

Attribute	Opr	Not	Class	Note
aid – protection group AID	RTRV	ENT DLT PROTNSW	input	(1)
protype – Protection Type	RTRV	ENT DLT PROTNSW	input	
wkg – Worker Unit	RTRV	ENT PROTNSW	input	(2)
protn – Protection Unit	RTRV	ENT PROTNSW	input	(2)
actunit – Active Unit State	RTRV	PROTNSW	state	(3)
swreq – Switch Request State	RTRV	PROTNSW	state	(3)
protnsiglvl – Protection Fault Status	RTRV		state	
wkgsiglvl – Worker Fault Status	RTRV		state	

Entity table for EP155 Equipment Protection Group (EQPTEP155)

Attribute	Opr	Not	Class	Note
aid – protection group AID	RTRV, ENT, DLT	ENT, DLT, PROTNSW	input	(1)
protype – Protection Type	RTRV, ENT, DLT	ENT, DLT, PROTNSW	input	
wkg – Worker Unit	RTRV, ENT	ENT, PROTNSW	input	(2)
protn – Protection Unit	RTRV, ENT	ENT, PROTNSW	input	(2)
actunit – Active Unit State	RTRV	PROTNSW	state	(3)
swreq – Switch Request State	RTRV	PROTNSW	state	(3)

Attribute	Opr	Not	Class	Note
protnsiglvl – Protection Fault Status	RTRV		state	
wkgsiglvl – Worker Fault Status	RTRV		state	

Entity table for EP51 Equipment Protection Group (EQPTEP51)

Attribute	Opr	Not	Class	Note
aid – protection group AID	RTRV, ENT, DLT	ENT, DLT, PROTNSW	input	(1)
protype – Protection Type	RTRV, ENT, DLT	ENT, DLT, PROTNSW	input	
wkg – Worker Unit	RTRV, ENT	ENT, PROTNSW	input	(2)
protn – Protection Unit	RTRV, ENT	ENT, PROTNSW	input	(2)
actunit – Active Unit State	RTRV	PROTNSW	state	(3)
swreq – Switch Request State	RTRV	PROTNSW	state	(3)
protnsiglvl – Protection Fault Status	RTRV		state	
wkgsiglvl – Worker Fault Status	RTRV		state	

Entity table for LOXC Equipment Protection Group (EQPTLOXC)

Attribute	Opr	Not	Class	Note
aid – protection group AID	RTRV, ENT, DLT	ENT, DLT, PROTNSW	input	(1)
protype – Protection Type	RTRV, ENT, DLT	ENT, DLT, PROTNSW	input	
wkg – Worker Unit	RTRV, ENT	ENT, PROTNSW	input	(2)
protn – Protection Unit	RTRV, ENT	ENT, PROTNSW	input	(2)
actunit – Active Unit State	RTRV	PROTNSW	state	(3)
swreq – Switch Request State	RTRV	PROTNSW	state	(3)
protnsiglvl – Protection Fault Status	RTRV		state	
wkgsiglvl – Worker Fault Status	RTRV		state	

Note 1: protection switch events reported via REPT EVT message will use protection group aid for identification purpose.

Note 2: protection switch events reported via REPT SW message will use worker/protection unit aid for identification purpose.

Note 3: updated either via protection switch commands (OPR-PROTNSW, RLS-PROTNSW) or autonomous switch events.

Note 4: switching and controller equipment protection group is created/deleted as part of equipment provisioning.

Multiplex section/line protection group

Entity table for 1+1 / 1:1multiplex section/line protection group.

Attribute	Opr	Not	Class	Note
aid – protection group AID	RTRV ENT ED DLT	ENT ED DLT	input user	(1)
protype – Protection Type	RTRV ENT DLT	ENT DLT PROTNSW	input	
wkg – Worker Port	RTRV ENT ED DLT	ENT PROTNSW	input user	(2)
protn – Protection Port	RTRV ENT ED	ENT PROTNSW	input user	(2)
apspn – MSP-APS ASAP Pointer	RTRV ED	ENT ED	user	
rme – Protection Reversion	RTRV ENT	ENT	user	
wtr – Wait To Restore Time	RTRV ED	ENT ED	user	
protocol – APS Protocol	RTRV ENT	ENT	user	
dcclmsprotmd – DCC Line/MS Protection Mode	RTRV ED	ENT ED	user	
dccsrsprotmd – DCC Sect/RS Protection Mode	RTRV ED	ENT ED	user	
pgrate – protection group Rate	RTRV	PROTNSW	user	
actunit – Active Unit State	RTRV	PROTNSW	state	(3)
swreq – Switch Request State	RTRV	PROTNSW	state	(3)
protnsiglvl – Protection Fault Status	RTRV		state	
wkgsiglvl – Worker Fault Status	RTRV		state	
actunitfe – Far-End Incoming Requested Selection	RTRV		state	
actunitne – Near-End Outgoing Requested Selection	RTRV		state	
aps – Far-End Incoming APS	RTRV		state	
apsout – Near-End Outgoing APS	RTRV		state	

Note 1: AID field 'transmission protection group ID' of protection group can be specified as part of ENT-PROTN-GRP command.

Note 2: Member port can be used as alias for identification of protection group entity.

Note 3: Updated either via protection switch commands (OPR-PROTNSW, RLS-PROTNSW) or autonomous switch events.

2-fibre BLSR/MS-SPRing protection group

Entity table for 2-fibre BLSR/MS-SPRing protection group.

Attribute	Opr	Not	Class	Note
aid – protection group AID	RTRV ENT ED DLT	ENT ED DLT	input user	(1)
protype – Protection Type	RTRV ENT ED DLT	ENT ED DLT PROTNSW	input	
rid – Ring Identification	RTRV ENT ED DLT	ENT ED	input user	(4)
east – East Port	RTRV ENT ED DLT	ENT PROTNSW	input user	(2)
west – West Port	RTRV ENT ED DLT	ENT PROTNSW	input user	(2)
blsrpn – MSSPRING-BLSR ASAP Pointer	RTRV ED	ENT ED	user	
wtr – Wait To Restore Time	RTRV ED	ENT ED	user	
pgrate – protection group Rate	RTRV	PROTNSW	user	
eswreq – East Switch Request State	RTRV	PROTNSW	state	(3)
wswreq – West Switch Request State	RTRV	PROTNSW	state	(3)
ringndst – Ring Node APS State	RTRV		state	
eapschst – Incoming East APS Channel Status	RTRV		state	
wapschst – Incoming West APS Channel Status	RTRV		state	
eapsdnid – Incoming East APS Destination Node Id	RTRV		state	
wapsdnid – Incoming West APS Destination Node Id	RTRV		state	
eapsprotn – Incoming East APS Protection Path	RTRV		state	

Attribute	Opr	Not	Class	Note
wapsprotn – Incoming West APS Protection Path	RTRV		state	
eapssnid – Incoming East APS Source Node Id	RTRV		state	
wapssnid – Incoming West APS Source Node Id	RTRV		state	
eapssw – Incoming East APS Switch Priority	RTRV		state	
wapssw – Incoming West APS Switch Priority	RTRV		state	
elprotnsw – East Last protection switch Attempt	RTRV		state	
wlprotnsw – West Last protection switch Attempt	RTRV		state	

Note 1: AID field 'transmission protection group ID' of protection group can be specified as part of ENT-PROTN-GRP command.

Note 2: Member port can be used as alias for identification of protection group entity.

Note 3: Updated either via protection switch commands (OPR-PROTNSW, RLS-PROTNSW) or autonomous switch events.

Note 4: Parameter is called *newrid* in the context of ED-PROTN-GRP command.

4-fibre BLSR/MS-SPRing protection group

Entity table for 4-fibre BLSR/MS-SPRing protection group.

Attribute	Opr	Not	Class	Note
aid – protection group AID	RTRV ENT ED DLT	ENT ED DLT	input user	(1)
protype – Protection Type	RTRV ENT ED DLT	ENT ED DLT PROTNSW	input	
rid – Ring Identification	RTRV ENT ED DLT	ENT ED	input user	(4)
eastwkg – East Worker Port	RTRV ENT ED	ENT ED PROTNSW	input user	(2)(5)
westwkg – West Worker Port	RTRV ENT ED	ENT ED PROTNSW	input user	(2)(5)

Attribute	Opr	Not	Class	Note
eastprotn – East Protection Port	RTRV ENT ED	ENT ED PROTNSW	input user	(2)(5)
westprotn – East Protection Port	RTRV ENT ED	ENT ED PROTNSW	input user	(2)(5)
blsrpn – MSSPRING-BLSR ASAP Pointer	RTRV ED	ENT ED	user	
wtr – Wait To Restore Time	RTRV ED	ENT ED	user	
swtr – Span Wait To Restore Time	RTRV ED	ENT ED	user	
protnmode – protection switch Mode	RTRV ENT ED	ENT ED	user	
pgrate – protection group Rate	RTRV	PROTNSW	user	
eswreq – East Switch Request State	RTRV	PROTNSW	state	(3)
wswreq – West Switch Request State	RTRV	PROTNSW	state	(3)
eactunit – East Active Unit State	RTRV	PROTNSW	state	(3)
wactunit – West Active Unit State	RTRV	PROTNSW	state	(3)
ringndst – Ring Node APS State	RTRV		state	
eapschst – Incoming East APS Channel Status	RTRV		state	
wapschst – Incoming West APS Channel Status	RTRV		state	
eapsdnid – Incoming East APS Destination Node Id	RTRV		state	
wapsdnid – Incoming West APS Destination Node Id	RTRV		state	
eapsprotn – Incoming East APS Protection Path	RTRV		state	
wapsprotn – Incoming West APS Protection Path	RTRV		state	
eapssnid – Incoming East APS Source Node Id	RTRV		state	
wapssnid – Incoming West APS Source Node Id	RTRV		state	
eapssw – Incoming East APS Switch Priority	RTRV		state	

Attribute	Opr	Not	Class	Note
wapssw – Incoming West APS Switch Priority	RTRV		state	
elprotnsw – East Last protection switch Attempt	RTRV		state	
wlprotnsw – West Last protection switch Attempt	RTRV		state	

Note 1: AID field 'transmission protection group ID' of protection group can be specified as part of ENT-PROTN-GRP command.

Note 2: Member port can be used as alias for identification of protection group entity.

Note 3: Updated either via protection switch commands (OPR-PROTNSW, RLS-PROTNSW) or autonomous switch events.

Note 4: Parameter is called *newrid* in the context of ED-PROTN-GRP command.

Note 5: Port can be used as user parameter in ED-PROTN-GRP in case of adding/removing one side to/from the protection group (conversion from 1-side node to 2-side node and vice versa). It can also be used to convert a 2-side node to an asymmetric node and vice versa.

Path protection group

Entity table for path protection group

Attribute	Opr	Not	Class	Note
aid – protection group AID	RTRV ED DLT	ENT ED DLT	input	
protype – Protection Type	RTRV ED DLT	ENT ED DLT	input	
ppgname – Path protection group Name	RTRV ENT ED	ENT ED	input user	(1)(2)(5)
wkg – Worker Tributary	RTRV ENT	ENT ED	user	(1)
protn – Protection Tributary	RTRV ENT	ENT ED	user	(1)
dripathpn – SNCP-UPSR ASAP Pointer	RTRV ED	ENT ED	user	
rme – Protection Reversion	RTRV ENT ED	ENT ED	user	(1)

Attribute	Opr	Not	Class	Note
wtr – Wait To Restore Time	RTRV ENT ED	ENT ED	user	(1)
htmr – Hold-Off Time	RTRV ENT ED	ENT ED	user	(1)
snctype – SNC Protection Type	RTRV ENT ED	ENT ED	user	(1)
outtribaid – Output Tributary AID	RTRV ENT	PROTNSW	user	(1) (4)
cst – Constituent Signal Type	RTRV	PROTNSW	user	(1) (4)
actunit – Active Unit State	RTRV	PROTNSW	state	(3) (4)
swreq – Switch Request State	RTRV	PROTNSW	state	(3) (4)
actunitaid – Active Unit State AID	RTRV		state	(3) (4)
protnsiglvl – Protection Fault Status	RTRV		state	(4)
wkgsiglvl – Worker Fault Status	RTRV		state	(4)

Note 1: Initial value has to be specified as part of ENT-CRS/ENT-ROLL command.

Note 2: Parameter is called *newppgname* in the context of ED-PROTN-GRP command.

Note 3: Updated either via protection switch commands (OPR-PROTNSW, RLS-PROTNSW) or autonomous switch events.

Note 4: Parameter may change dynamically if path-protection uses tributaries of ports in the adaptive mode.

Note 5: Parameter not supported for low order path protection groups.

□

List of commands

□

Autonomous notifications

1+1 equipment protection group

If the second switch circuit pack is auto created, the 1+1 switch equipment protection group entity shall be created. This entity creation shall be reported by means of ENT-PROTN-GRP notification.

Auto creation of the second switch circuit pack

If the second switch circuit pack is auto created, the 1+1 switch equipment protection group entity is created. This shall be reported by means of ENT-PROTN-GRP notification for 1+1 equipment protection group. The initial protection state shall be reported by means of a protection switch notification for the 1+1 equipment protection group.

Protection switch

A protection switch notification (i.e. protection state change) is triggered by means equipment fail condition change as specified for the corresponding protection state machine.

Deletion of the second switch circuit pack

If the second switch circuit pack is deleted, the 1+1 switch equipment protection group entity shall be deleted. This entity deletion shall be reported by means of DLT-PROTN-GRP notification.

Deletion of the second controller circuit pack

If the second switch circuit pack is deleted, the 1+1 switch equipment protection group entity shall be deleted. This entity deletion is reported by means of DLT-PROTN-GRP notification for the 1+1 protection group.

Multiplex section/Line protection group

Protection switch and related events

A protection switch notification (i.e. protection state change) is triggered by means of

- fault condition change
- wait to restore timer expiry
- switch command received via APS message as specified for the corresponding protection state machine.

A protection switch notification shall be triggered upon a change of the Secondary Section Identifier (spec block parameter 'ssi'). This applies to MSP 1+1 optimized only. This requirement gives additionally to other requirements a further trigger for the autonomous notification for a MSP protection group. It does not require necessarily a

separate notification beside other notifications of the same MSP protection group at the same time.

2-/4-fibre MS-SPRing/BLSR protection group

Protection switch

A protection switch notification (i.e. protection state change) is triggered by means of

- fault condition change
- wait to restore timer expiry
- switch command received via APS message as specified for the corresponding protection state machine.

Path protection group

Protection switch

A protection switch notification (i.e. protection state change) is triggered by means of

- fault condition change
- wait to restore timer expiry as specified for the corresponding protection state machine.

□

Protection log

Overview

Purpose

Each NE stores protection switch events in a protection log. The NE administrates the log autonomously. Therefore only a retrieve operation is defined for log the entity.

Contents

List of commands

Autonomous notifications

System start-up with default DB

The system will start-up with an empty protection log as part of the default DB.

System start-up after DB transformation

The system will start-up with an empty protection log after a database transformation has taken place in context of an SW upgrade.

□

Ring map

Overview

Purpose

EEach NE within a 2-/4fibre MS-SPRing/BLSR ring will maintain a ring map entity for each MS-SPRing/BLSR protection group entity. The ring map either will be discovered automatically by the NEs (default) or manually be entered by the user (see also parameter ard in “ENT-PROTN-GRP: Enter protection group” (p. 4-1222)).

The ring map consists of:

- the nodes within the ring
- the links connecting the nodes.

If the automatic ring discovery is disabled and the ring map is entered manually, the links connecting the nodes may not be retrievable. The ring map can be edited manually with ED-MAP-RING and is then stored in volatile memory. With SET-MAP-RING, the new ring map is written to NVM and activated.

Contents

List of commands

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10 TL1 messages - performance monitoring

Overview

Purpose

This section contains the TL1 interface definition for the domain “performance monitoring”.

Contents

PM register/bin

Overview

Purpose

This section contains the TL1 interface definitions listed below.

Contents

PM parameters

PM parameter overview

This section gives an overview of all PM parameters and the associated TCA profiles. Overview tables are given for the entities supporting of PM parameters:

- SONET ports/tribs
- SDH ports/tribs
- Ethernet ports
- DS3 ports.

Note: In Ethernet, DS3 and Transparency application, the tributaries are acting as path terminations.

Each table consists of the following rows:

- PM parameter short name (as defined in the *montype* parameter)
- PM parameter long name
- associated TCA profile type (as defined in the *pftype* parameter).

Note: If thresholding is not applicable for a PM parameter, the value 'None' is specified as associated profile type.

SONET PM parameter table

Short name	Long name	Profile type
CVS	Code Violation Section	SECTION-LINE
ESS	Errored Second Section	SECTION-LINE
SESS	Severely Errored Second Section	SECTION-LINE
SEFS-S	Severely Errored Framing Second Section	SECTION-LINE
LOSS-S	LOS Second Section	None
CVL	Code Violation Line	SECTION-LINE
ESL	Errored Second Line	SECTION-LINE
SESL	Severely Errored Second Line	SECTION-LINE
UASL	Unavailable Second Line	SECTION-LINE
FECC-L	Forward Error Correction Corrected Line	SECTION-LINE
AISS-L	AIS Second Line	None
FC-L	Failure Count Line	None
CV-LFE	Code Violation Line Far End	SECTION-LINE
ES-LFE	Errored Second Line Far End	SECTION-LINE

Short name	Long name	Profile type
SES-LFE	Severely Errored Second Line Far End	SECTION-LINE
UAS-LFE	Unavailable Second Line Far End	SECTION-LINE
FC-LFE	Failure Count Line Far End	None
CVP	Code Violation Path	PATH
ESP	Errored Second Path	PATH
SESP	Severely Errored Second Path	PATH
UASP	Unavailable Second Path	PATH
FC-P	Failure Count Path	None
CV-PFE	Code Violation Path Far End	PATH
ES-PFE	Errored Second Path Far End	PATH
SES-PFE	Severely Errored Path Line Far End	PATH
UAS-PFE	Unavailable Second Path Far End	PATH
FC-PFE	Failure Count Path Far End	None

SDH PM parameter table

Short Name	Long Name	Profile Type
RS-N-ES	RS Near End Errored Second	RS-MS
RS-N-SES	RS Near End Severely Errored Second	RS-MS
RS-N-BBE	RS Near End Background Block Error	RS-MS
RS-N-UAS	RS Near Unavailable Second	RS-MS
MS-N-ES	MS Near End Errored Second	RS-MS
MS-N-SES	MS Near End Severely Errored Second	RS-MS
MS-N-BBE	MS Near End Background Block Error	RS-MS
MS-N-UAS	MS Near Unavailable Second	RS-MS
MS-N-FECC	MS Near End Forward Error Correction Corrected	RS-MS
MS-F-ES	MS Far End Errored Second	RS-MS
MS-F-SES	MS Far End Severely Errored Second	RS-MS
MS-F-BBE	MS Far End Background Block Error	RS-MS
MS-F-UAS	MS Far Unavailable Second	RS-MS
ODU-N-ES	ODU Near End Errored Second	ODU
ODU-N-SES	ODU Near End Severely Errored Second	ODU

Short Name	Long Name	Profile Type
ODU-N-BBE	ODU Near End Background Block Error	ODU
ODU-N-UAS	ODU Near End Unavailable Second	ODU
ODU-E-ES	ODU Far End Errored Second	ODU
ODU-E-SES	ODU Far End SeverelyErrored Second	ODU
ODU-E-BBE	ODU Far End Background Block Error	ODU
ODU-E-UAS	ODU Far End Unavailable Second	ODU
VC-N-ES	VC Near Unavailable Second	HOVC
VC-N-SES	VC Near End Errored Second	HOVC
VC-N-BBE	VC Near End Severely Errored Second	HOVC
VC-N-UAS	VC Near End Background Block Error	HOVC
VC-F-ES	VC Far End Errored Second	HOVC
VC-F-SES	VC Far End Severely Errored Second	HOVC
VC-F-BBE	VC Far End Background Block Error	HOVC
VC-F-UAS	VC Far Unavailable Second	HOVC

Ethernet PM parameter table

Short Name	Long Name	Profile Type
CBR	Count (number) of MegaBytes (10e6 octets) Received	None
CBS	Count (number) of MegaBytes (10e6 octets) Sent	None
PDE	number of Errored Packets Dropped	ENET

DS3 PM parameter table

Short Name	Long Name	Profile Type
CVL	Code Violation Line	None
ESL	Errored Second Line	None
ESA-L	Errored Second Type A, Line	None
ESB-L	Errored Second Type B, Line	None
SESL	Severely Errored Second Line	None
LOSS-L	LOS Second Line	None
CVP	Code Violation Path	None

Short Name	Long Name	Profile Type
ESP	Errored Second Path	None
ESA-P	Errored Second Type A, Paht	None
ESB-P	Errored Second Type B, Paht	None
SESP	Severely Errored Second Path	None
UASP	Unavailable Second Path	None
FC-P	Failure Count Path	None
SEFS-P	Severely Errored Framinf Second Path	None
SAS-P	SEF/AIS Seconds Path	None
AISS-P	AIS Second Path	None
CV-PFE	Code Violation Path Far End	None
ES-PFE	Errored Second Path Far End	None
ESA-PFE	Errored Second Type A, Path Far End	None
ESB-PFE	Errored Second Type A, Path Far End	None
SES-PFE	Severely Errored Second Path Far End	None
UAS-PFE	Unavailable Second Path Far End	None
FC-PFE	Failure Count Path Far End	None
SAS-PFE	SEF/AIS Seconds Path Far End	None

Details for PM parameters with no thresholding

Below those PM parameters are described which do not support thresholding. All other parameters which support thresholding are described in the Output Parameters section of RTRV-TCA-PROF.

SONET PM parameters

1. qhaissl
   Description: 15-minute AISS-L bin for SONET Line.
   The 15-minute AISS-L bin shall be supported for OC-n Line. The 15-minute AISS-L bin shall be supported for EC-1 Line.
   Type: integer
   Range: 0-900
2. dayaissl
   Description: Day AISS-L bin for SONET Line.
   The Day AISS-L bin shall be supported for OC-n Line. The Day AISS-L bin shall be supported for EC-1 Line.
   Type: integer
   Range: 0-86400

3. qhlosss
   Description: 15-minute LOSS-S bin for ONET Section.
   The 15-minute LOSS-S bin shell be supported for OC-n Section. The 15-minute LOSS-S bin shell be supported for EC-1 Section.
   Type: integer
   Range: 0-900
4. daylosss
   Description: Day LOSS-S bin for SONET Section.
   The Day LOSS-S bin shall be supported for OC-n Section. The Day LOSS-S bin shall be supported for EC-1 Section.
   Type: integer
   Range: 0-86400
5. qhfcl
   Description: 15-minute FC-L and FC-LFE bin for OC-n lines.
   The 15-minute FC-L and FC-LFE bin shall be supported for OC-n Line. The 15-minute FC-L and FC-LFE bin shall be supported for EC-1 Line.
   Type: integer
   Range: 0-900
6. dayfcl
   Description: Day FC-L and FC-LFE bin for SONET Line.
   The Day FC-L and FC-LFE bin shall be supported for OC-n lines. The Day FC-L and FC-LFE bin shall be supported for EC-1 lines.
   Type: integer
   Range: 0-86400
7. qhfcp
   Description: 15-minute FC-P and FC-PFE bin for STS1 and STS1-xC (x=3, 12, 48, 192) tributaries
   Type: integer
   Range: 0-900
8. dayfcp
   Description: Day FC-P and FC-PFE bin for STS1 and STS1-xC (x=3, 12, 48, 192) tributaries
   Type: integer
   Range: 0-86400

Ethernet PM parameters

1. qhcbr
   Description: 15-minute CBR for a Ethernet port
   Type: integer
   Range: 0-110000
2. daycbr
   Description: Day CBR for a Ethernet port.
   Type: integer
   Range: 0-10560000

3. qhcbs
   Description: 15-minute CBS for a Ethernet port
   Type: integer
   Range: 0-110000
4. daycbs
   Description: Day CBS for a Ethernet port.
   Type: integer
   Range: 0-10560000

DS3 PM Parameters

1. qhaissp
   Description: 15-minute AISS-P bin for DS3
   Type: integer
   Range: 0-900
2. dayaissp
   Description: Day AISS-P bin for DS3.
   Type: integer
   Range: 0-86400
3. qhfcp
   Description: 15-minute FC-P and FC-PFE bin for DS3
   Type: integer
   Range: 0-900
4. dayfcp
   Description: Day FC-P and FC-PFE bin for DS3
   Type: integer
   Range: 0-86400
5. qhsefsp
   Description: 15-minute SEFS-P bin for DS3.
   Type: integer
6. daysefsp
   Description: Day SEFS-P bin for DS3
   Type: intrger
7. qhlossl
   Description: 15-minute LOSS-L bin for DS3.
   Type: integer
   Range: 0-900
8. daylossl
   Description: Day LOSS-L bin for DS3.
   Type: integer
   Range: 0-86400

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- “RTRV-PM: Retrieve performance monitoring” (p. 4-1970)
- “RTRV-EPM: Ethernet performance monitoring” (p. 4-1679)
- “RTRV-LOXCPM: Retrieve Performance Monitoring Data of LOXC pack” (p. 4-1793)
- “TCA notification” (p. 4-2338)

□

TCA Profile

Overview

Purpose

This section contains the TL1 interfave definitions listed below.

Contents

TCA Profile

General

The threshold settings for the different PM parameters supporting thresholding is provisionable by means of TCA profiles. The profiles of a certain type contains all pm parameters related to a certain entity supporting enabling/disabling of performance monitoring. Therefore the following profiles types are defined:

- SECTION-LINE - used/referenced by SONET port entities
- RS-MS - used/referenced by SDH port entities
- PATH - used/referenced by SONET tributary entities
- HO-VC - used/referenced by SDH tributary entities
- ENET - used/referenced by Ethernet port entities
- ODU - used/referenced by ODU/VCG entities
- DS3 - used/referenced by DS3 port entities
- LOXC-PATH - used/referenced by SONET lower order tributary and higher order path termination entities related to the LOXC
- LOXC-VC - used/refrerenced by SDH lower order tributary and higher order path termination entities related to the LOXC

All threshold data of one certain profile type is sometimes also called a profile image. This term may be used in other TCA profiles commands as parameter name. It is then used as an alias for all PM thresholds parameters of the corresponding profile type.

TCA supression can be provisioned by means of setting the corresponding profile parameter to zero.

The system supports two default sets of profiles for each type of TCA profile. One set of default profiles shall contain zero threshold value for each parameter in the profile. Another set of default profiles contains real non-zero threshold value for each parameter in the profile. The name of the zero threshold value default profile shall be “Default0” and the name of the non-zero threshold value default profile shall be “Default”.

The number of TCA profiles are limited to a specific number per profile type. This number also includes the system default profiles.

The maximum numbers are for:

- PATH SDH and PATH SONET together (higer order) 80
- RSMS SDH and section/line SONET tegether 30
- for ENET and ODU together
- DS3 10
- LOXC PATH SDH and SONET together 20.

The user is able to change the threshold values of the non-zero default profile, but will not be allowed to change its name. The user is not allowed to change the name or the threshold values of the zero default profile.

All the profile pointers are pointed to zero threshold value default profiles when the ports are provisioned. That is, thresholding is not performed as a default. All the profile pointers are pointed to non-zero threshold value default profiles when thresholding is to be performed.

Threshold parameters names are defined using the following pattern:

<bintype>[rtr]<montype>[<port/trib rate|port type|monitoring point> with:

- bintype = day (for 24h) or qh (for 15 Min)
- [rtr] = rtr is inserted if the clear threshold is mentioned
- montype = montype as defined in RTRV-PM command
- portrate = ec1, oc3, oc12, oc48, oc192, oc768, stm1, stm4, stm16, stm64, stm256, odu1
- trib rate = sts1, sts3c, sts12c, sts48c, sts192c or vc3, vc4, vc44c, vc416c, vc464c, hosts1, vt1, hovc4, lovc3, vc12
- porttype = ge, vcg
- monitoring point = l, p.

□

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System Start-up with Default DB

General

The system shall create during start-up with default DB two TCA profiles per supported profile type with profile name ″DEFAULT″ and ″DEFAULT0″. The values for profile ″DEFAULT″ shall be as specified in corresponding default requirements for each profile parameter. The values for profile ″DEFAULT0″ shall be ’0’ for each profile parameter.

□

11 TL1 messages - synchronization

Overview

Purpose

This section contains the TL1 commands related to the synchronization management. The synchronization commands covers types of assigning, modifying or removing and retrieving system timing attributes. Furthermore they are initiating switch requests and releasing requests.

It contains following commands and levels.

- RTRV-SYNCN
  - System Timing
  - Output Timing
  - Assigned Timing Reference
  - External Timing Input
  - External Timing Output
- SET-SYNCN
  - System Timing
  - Assigned Timing Reference
  - External Timing Input
  - External Timing Output
- OPR-SYNCNSW
- RLS-SYNCNSW.

For the system, the choice between SONET and SDH is determined by the system synchronization characteristic. The system synchronization characteristic may only be adjustable in the MCOND state. If the system synchronization characteristic is SONET, all SONET related parameter and settings are valid. All SSM messages, based on the SDH market are handled as being invalid. If the system synchronization characteristic is SDH, all SDH related parameter and settings are valid. All SSM messages, based on the SONET market are handled as being invalid.

The values of a number of parameters will be distinguished from the system synchronization characteristic. The parameter *synccrtc* in RTRV-EQPT and ED-EQPT determines whether the system synchronization characteristic, and therewith the NE, is in SDH or in SONET mode.

Contents

List of commands

Synchronization protection switch notification

Output format

Syntax: The REPT EVT notification has following specific syntax:

`REPT EVT` *modifier aid:condtype,condeff,ocrdat,ocrtm:conddescr*

Output parameters

System timing

1. Clock Mode Protection Type
   a. modifier – message modifier
      This parameter indicates on which entity the report event belongs.
      Type: Alphanumeric value set.
      Range: SYST (means System Timing).
   b. aid – access identifier
      This parameter indicates on which AID the report event belongs.
      Type: Alphanumeric value set.
      Range: SYSTEM
   c. condtype – condition type
      This parameter specifies the type of event being reported.
      Type: alphanumeric value set.
      Range: See Table 11-1, "Range of condtype (clock mode protection type)" (p. 11-5).
      Default: none
   d. conddescr – description of the condition
      This parameter is a textual description of the condition.
      Type: inner string.
      Range: See Table 11-2, "Range of conddescr (clock mode protection type)" (p. 11-5).
2. Timing Reference Protection Type
   a. modifier – message modifier
      See definition above.
   b. aid – access identifier
      This parameter indicates on which AID the report event belongs. The values all or *someprefix* all are not allowed in this context.
      Type: Alphanumeric value set.
      Range: External_timing_ref_AID, Line_timing_ref_AID
   c. condtype – condition type
      This parameter specifies the type of event being reported.
      Type: alphanumeric value set.

Range: See Table 11-3, "Range of condtype (timing reference protection type)" (p. 11-5).

d. conddescr – description of the condition

This parameter is a textual description of the condition.

Type: inner string.

Range: See Table 11-4, "Range of conddescr (timing reference protection type)" (p. 11-6).

Table 11-1 Range of condtype (clock mode protection type)

Selection State	Attribute	Condtype
free running	clkmod = FREE-RUNNING clkmod_stat = NORMAL	FRNGSYNC
forced holdover	clkmod = LOCKED clkmod_stat = FORCED-HOLDOVER	HLDOVRSYNC
autonomous holdover	clkmod = LOCKED clkmod_stat = AUTONOMOUS-HOLDOVER	HLDOVRSYNC
locked	clkmod = LOCKED clkmod_stat = NORMAL	SYNCCLK

Table 11-2 Range of conddescr (clock mode protection type)

Selection State	Conddescr
free running	Protection switch, clock mode, Freerunning
forced holdover	Protection switch, clock mode, Forced Holdover
autonomous holdover	Protection switch, clock mode, Holdover
locked	Protection switch, clock mode, Locked

Table 11-3 Range of condtype (timing reference protection type)

Selection State / Lockout State	Attribute	Condtype
manual	refsw_stat = MANUAL	PS
forced	refsw_stat = FORCED	PS
no request	refsw_stat = NO-REQUEST	PS
lockout	ref_lock = LOCKOUT	INHSWPR
no lockout	ref_lock = NO-LOCKOUT	INHSWPR

Table 11-4 Range of conddescr (timing reference protection type)

Selection State / Lockout State	Conddescr
manual	Protection switch,sync reference,Manual switch
forced	Protection switch,sync reference,Forced switch
no request	Protection switch,sync reference,No Request
lockout	Protection switch,sync reference,Lockout
no lockout	Protection switch,sync reference,No Lockout

Output timing (only for SDH)

1. Output Timing Reference Protection Type
   a. modifier – message modifier
      This parameter indicates on which entity the report event belongs.
      Type: Alphanumeric value set.
      Range: OUTT (means Output Timing).
   b. aid – access identifier
      This parameter indicates on which AID the report event belongs. The values all or *someprefix* all are not allowed in this context.
      Type: Alphanumeric value set.
      Range: Line_timing_ref_AID.
   c. condtype – condition type
      This parameter specifies the type of event being reported.
      Type: alphanumeric value set.
      Range: See Table 11-5, “Range of condtype (Output timing reference protection type)” (p. 11-6).
   d. conddescr – description of the condition
      This parameter is a textual description of the condition.
      Type: inner string
      Range: See Table 11-6, “Range of conddescr (Output timing reference protection type)” (p. 11-7).

Table 11-5 Range of condtype (Output timing reference protection type)

Selection State / Lockout State	Attribute	Condtype
manual	orefswr_stat = MANUAL	PS
forced	orefswr_stat = FORCED	PS
no request	orefswr_stat = NO-REQUEST	PS
lockout	sclkref_lockstat = LOCKOUT	INHSWPR
no lockout	sclkref_lockstat = NO-LOCKOUT	INHSWPR

Table 11-6 Range of conddescr (Output timing reference protection type)

Selection State / Lockout State	Conddescr
manual	Protection switch, output reference, Manual switch
forced	Protection switch, output reference, Forced switch
no request	Protection switch, output reference, No Request
lockout	Protection switch, output reference, Lockout
no lockout	Protection switch, output reference, No Lockout

Example output

The following is an example of a protection switch notification for clock mode protection type:

```
   LT-UNITE 00-11-09 12:00:00
A  000 REPT EVT SYST
   "SYSTEM:HLDOVRSYNC,TC,11-09,12-00-00,,,:\"Protection switch,clock
     mode,Forced Holdover\""
;
```

The following is an example of a protection switch notification for timing reference protection type:

```
   LT-UNITE 00-11-09 12:00:00
A  000 REPT EVT SYST
   "EXTREF1:PS,TC,11-09,12-00-00,,,:\"Protection switch,sync
     reference,Manual switch\""
;
```

The following is an example of a protection switch notification for output timing reference protection type:

```
   LT-UNITE 00-11-09 12:00:00
A  000 REPT EVT OUTT
   "LINE2:INHSWPR,SC,11-09,12-00-00,,,:\"Protection switch,output
     reference,Lockout\""
;
```

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Autonomous notifications

System initialization with default values

After first system initialization for all parameters the described default values are valid and no timing reference is assigned. No database change notification will be returned during database auto creation.

System initialization after system synchronization characteristic change

It is possible to change the system synchronization characteristic later on. For this case, the system will behave as a new created node. All assigned timing references are un-assigned before and after changing in the MCOND state the system will start-up with the default values. No database change notification will be returned after changing the system synchronization characteristic and reset to default values.

Autonomous clock switch

If the provisioned clockmod = LOCKED and a failure of all timing references active, the system switches in autonomous-holdover state and return a report event and a report alarm notification to the management system. If at least one fault-free timing reference is available, the system switches back to the locked state autonomously. The following parameter are affected by the autonomous clock mode switch: clkmod_stat = [AUTONOMOUS-HOLDOVER, NORMAL].

Autonomous reference switch for system timing

The autonomous reference switching is initiated by the failure of a reference. The autonomous reference switching results also after a SSM change of the active reference or of any of the standby references. The choice for the next active timing reference primarily depends on provisioned QL values if QL mode is enabled and subsequent on provisioned priorities for each reference. In consequence of identical QL values and priorities the system supports non-revertive switching. The autonomous reference switch returns a protection switch notification for System Timing. The following parameter are affected by the autonomous timing reference switch: active_ref = [External_timing_ref_AID, Line_timing_ref_AID].

Autonomous reference switch for output timing (only for SDH)

The autonomous reference switching is initiated by the failure of a reference. The autonomous reference switching might also switch after a SSM change. The choice for the next active timing reference is primarily depending on provisioned QL values if QL mode is enabled and subsequent on provisioned priorities for each reference. In consequence of similar QL values and priorities the system supports non-revertive switching. The autonomous reference switch returns a protection switch notification for

Output Timing. The following parameter are affected by the autonomous timing reference switch: active_oref_stat = Line_timing_ref_AID.

Synchronization instances

The following instances are created during system initialization:

- one system timing entity
- one output timing entity (only for SDH)
- two timing reference entities for external timing input
- six timing reference entities for line timing for

SDH only:

- one external timing output port entity

for SONET only:

- two external timing output port entities.

□

12 TL1 messages - software & database management

Overview

Purpose

This section contains the TL1 interface definition for the domain *software and database management*.

Background information:

In the Non Volatile Memory (NVM) of the NE, there are two regions: current and previous. Each region contains a software generic (code and static data) and a database.

The properties of the databases and the software generics can be retrieved by RTRV-PRMTR-DATA and RTRV-PRMTR-SFTWR.

The restore option of CPY-MEM is used to copy a database from a remote file store into previous NVM and then to install it as the working database. The backup option of CPY-MEM is used to copy the database that is in current NVM to a remote file store.

The download option of CPY-MEM is used to download new generics to previous NVM. Installation via APPLY causes the contents of previous NVM to be installed. Following installation, a ″pointer″ is changed so that what is identified as current NVM contains the currently executing generic and previous NVM contains the previous generic.

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List of commands

13 TL1 messages - data communications network

Overview

Purpose

This section lists the TL1 interface definition for the domain *data communications network*.

Contents

General DCN parameters

Overview

Purpose

This section describes TL1 messages for DCN which have effects on system wide DCN configurations.

Contents

List of Commands

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DCC terminations

Overview

Purpose

This section lists TL1 commands for section RS-DCC and Line MS-DCC: provisioning, modification and status retrieval.

Contents

List of commands

- “RTRV-FECOM: Retrieve DCC related parameters” (p. 4-1727)
- “ENT-FECOM: Enter DCC channel related parameters” (p. 4-1093)
- “ED-FECOM notification” (p. 4-296)
- “ENT-FECOM notification” (p. 4-1102)
- “DLT-FECOM notification” (p. 4-133)

Transparent DCC cross-connection

Overview

Purpose

Transparent DCC cross-connections allows to cross-connect DCC channels (either DCC-R or DCC-M) of an OPn/EPn on the XCn without adding/dropping them to/from the OHI bus to/from the CTL/DCF. As such there is no processing on the DCF for those channels a transparent DCC cross-connection allows to transparently pass-through certain DCC channel without any processing by the system. The transparent DCC cross-connections are complete independent from the transmission cross C-connection. The transparent DCC cross-connections are always bidirectional. The system supports up to 25 bidirectional transparent DCC cross-connections.

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List of commands

LAN

Overview

Purpose

This section lists TL1 commands applicable to the LAN for *WaveStar*® CIT respectively *Navis*® Optical EMS access.

Contents

List of commands

Autonomous notification

Start-up with default database

The event ″Start-up with default DB″ causes that the three LAN instances with AIDs lan1, lan2, lan3 are created. No notifications shall be sent.

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OSI network layer

Overview

Purpose

This section lists TL1 commands applicable to layer 3 of the OSI stack.

Contents

List of commands

Autonomous notification

Start-up with default database

The event ″Start-up with default DB″ causes that the OSI node 1 with AID osinode1 is created.

□

OSI transport layer and TARP

Overview

Purpose

This section lists TL1 commands applicable to layer 4 of the OSI stacks.

Contents

List of commands

□

TCP/IP parameters

Overview

Purpose

This section lists TL1 commands applicable to the TCP/IP stack.

Contents

List of commands

- “RTRV-ULS: Retrieve upper layer stack” (p. 4-2223)
- “ENT-ULS: Enter upper layer stack” (p. 4-1386)
- “ENT-ULS Notification” (p. 4-1389)

IP Map

Overview

Purpose

This section describes commands dealing with the IP map:

- the IP map provides T-TD access to the NE via one of the LANs that is assigned to node 1. Only managers registered in the IP map are allowed to access the NE via TCP/IP unless the wildcard (255.255.255.255) is entered into the list. In this case the access restriction is disabled.
- historically, the application context identifier for TL1 over OSI connections has been used to tailor the characteristics of the TL1 session (e.g. which events are reported using TL1 notifications) to the calling manager.
- ADM40G bases the characteristics of a TL1 session on the user name passed in the ACT-USER command rather than the application context identifier.
- still, for backwards compatibility, the feature of having the application context identifier being determined by the address of the calling manager is required on the T-TD.

Contents

List of commands

- “RTRV-IP-MAP: Retrieve TCP/IP map” (p. 4-1750)
- “ENT-IP-MAP: Enter TCP/IP map” (p. 4-1116)
- “ENT-IP-MAP Notification” (p. 4-1119)
- “DLT-IP-MAP: Delete TCP/IP map” (p. 4-134)
- “DLT-IP-MAP notification” (p. 4-136)

MAPs

Overview

Purpose

This section lists TL1 commands applicable to Maps.

Contents

List of commands

14 Error codes

Overview

Purpose

The following table lists the error codes.

Contents

List of error codes

Errorcode	Meaning (validation rule)	Related to command ...
EATN - Status, incorrect equipage, unrecognized CP for this slot	check whether CP is acceptable	"ENT-EQPT (slot): Enter equipment (slot)" (p. 4-1079), "ED-EQPT (slot): Edit equipment (slot)" (p. 4-267)
	check exchangeability rules for XC-packs	"ED-EQPT (slot): Edit equipment (slot)" (p. 4-267)
	check exchangeability rules for optical packs	
EATN - Status, incorrect equipage, unrecognized module for this socket	check whether module is acceptable	"ENT-EQPT (Socket): Enter equipment" (p. 4-1087), "ED-EQPT (Socket): Edit equipment" (p. 4-276)
	check exchangeability rules for optical modules	"ED-EQPT (Socket): Edit equipment" (p. 4-276)
ENEQ - Equipage, Not Equipped, insufficient file space	insufficient file space	"CPY-MEM: Copy memory" (p. 4-76), "COPY-RFILE: Copy remote file" (p. 4-70)
ENEQ - Equipage, Not EQuipped, LOXC destination slot empty	No forced switch to empty LOXC slot (LOXC Protection Group)	"OPR-PROTNSW: Operate protection switch" (p. 4-1472)
ENEQ - Equipage, Not Equiped, osinode	validation rule for parameter osinode	"ENT-FECOM-LAN: Enter LAN related parameters" (p. 4-1105), "ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)
ENRE - Equipage, Not Recognized Equipage, unrecognized CP for this slot	Check whether CP is acceptable	"ED-EQPT (slot): Edit equipment (slot)" (p. 4-267)
	Check exchangeability rules for optical packs	
	Check exchangeability rules for XC Packs	
	Check exchangeability rules for electrical packs	

Errorcode	Meaning (validation rule)	Related to command ...
ENRE - Equipage, Not Recognized Equipage, unrecognized module for this socket	Invalid module plugged in	"ED-EQPT (Socket): Edit equipment" (p. 4-276)
ENSG - Equipage, Not Software Generic, generic not available	generic not available	"APPLY: Apply software generic" (p. 4-25), "CPY-MEM: Copy memory" (p. 4-76)
IANE Error - Input, connAlias Non Existant	Path *ConnectionID* does not exist	"DLT-PATH: Delete ONNS path Connection" (p. 4-148)
ICNV - Input, Command Not Valid, directory/URL must be specified	Directory/URL not specified for restoration	"COPY-RFILE: Copy remote file" (p. 4-70)
	Directory/URL not specified for backup	
ICNV - Input, Command Not Valid, FTTD must be specified	FT-TD device not specified	"COPY-RFILE: Copy remote file" (p. 4-70)
ICNV - Input, Command Not Valid, file must be specified	directory/URL not specified	"CPY-MEM: Copy memory" (p. 4-76), "COPY-RFILE: Copy remote file" (p. 4-70)
ICNV - Input, Command Not Valid, inmbst not NA	correct state of tributary for being added (source)	"ED-VCGTRIB: Edit virtual concatenation group tributary" (p. 4-995)

Errorcode	Meaning (validation rule)	Related to command ...
ICNV - Input, Command Not Valid, Interface Standard does not match	check CCB against *ptype* and *istd*	"RTRV-STM1E: Retrieve STM1E port" (p. 4-2063), "ED-STM1E: Edit STM1E port" (p. 4-604), "RTRV-STM1: Retrieve STM1 port" (p. 4-2074), "RTRV-STM4: Retrieve STM4 port" (p. 4-2086), "RTRV-STM16: Retrieve STM16 port" (p. 4-2099), "RTRV-STM64: Retrieve STM64 port" (p. 4-2122), "RTRV-STM256: Retrieve STM256 port" (p. 4-2137), "RTRV-OC3: Retrieve OC3 port" (p. 4-1868), "RTRV-OC12: Retrieve OC12 port" (p. 4-1881), "RTRV-OC48: Retrieve OC48 port" (p. 4-1894) , "RTRV-OC192: Retrieve OC192 port" (p. 4-1916), "RTRV-OC768: Retrieve OC768 port" (p. 4-1931), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496), "ED-OC48T: Edit OC48 transparent port" (p. 4-443), "ED-PTF: Edit tributary with Path Termination Function (PTF)" (p. 4-578), "RTRV-OC48T: Retrieve OC48T port" (p. 4-1908), "RTRV-STM16T: Retrieve STM16T port" (p. 4-2113)

Errorcode	Meaning (validation rule)	Related to command ...
ICNV - Input, Command Not Valid, Interface Standard does not match	check CCB against *istd*	"RTRV-VC3: Retrieve VC3 tributary" (p. 4-2246)
	check CCB against *istd* of related VCG	"RTRV-VCGTRIB: Retrieve virtual concatenation group tributary" (p. 4-2274)
	check CCB against *ptfstd*	"RTRV-PTF: Retrieve tributary with Path Termination Function (PTF)" (p. 4-2037)
	modifier consistent with given port's interface standard	"OPR-LPBK: Operate loopback (here facility loopback)" (p. 4-1465), "RLS-LPBK: Release loopback (here facility loopback)" (p. 4-1569)
ICNV - Input, Command Not Valid, Interface Type does not match	check CCB against *ptype* and *eif*	"RTRV-T3: Retrieve DS3 port" (p. 4-2170)
ICNV - Input, Command Not Valid, outmbst not NA	correct state of tributary for being added (Sink)	"ED-VCGTRIB: Edit virtual concatenation group tributary" (p. 4-995)
ICNV - Input, Command Not Valid, Protocol Failure in Receive Direction	LCAS failure of protocol present in sink direction	"ED-VCGTRIB: Edit virtual concatenation group tributary" (p. 4-995)
ICNV - Input, Command Not Valid, Protocol Failure in Transmit Direction	LCAS failure of protocol present in source direction	
ICNV - Input, Command Not Valid	login on established session	"ACT-USER: Activate user" (p. 4-14)
IDRG - Input, Data Range Error, osinode	TARP origination only valid for node-	"ENT-ULSDCC-L3: Create a further OSI node" (p. 4-1391)

Errorcode	Meaning (validation rule)	Related to command ...
IDNC - Input, Data Not Consistent	disabling of superusers	"ED-USER-SECU: Edit user security" (p. 4-945)
	l4ajsys must be supplied	"ENT-ULSDCC-L4: Enter layer 4 related parameters of the OSI stacks " (p. 4-1401)
	Can't enable *lanstat* when *ip_lanstat* and *osi_lanstat* are disabled	"ENT-FECOM-LAN: Enter LAN related parameters" (p. 4-1105)
	Can't enable *ip_lanstat* and/or *osi_lanstat* when *lanstat* is disabled	
	Can't assign same IP address to several LANs	
	all or no traffic for SCN node	
	can't enable isis_lanstat without enabling osi_lanstat	
IDNC - Input, Data Not Consistent, 2f-BSLR: rate exeeds half of the port rate	rate must not exceed half of the port rate (2f-BSLR only)	"ENT-CRS: Enter cross-connection" (p. 4-1026)
IDNC - Input, Data Not Consistent, 'ALL' qualifier for port aid not allowed	ALL qualifier used for wrong parameters	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-VCG: Edit virtual concatenation group" (p. 4-969)

Errorcode	Meaning (validation rule)	Related to command ...
IDNC - Input, Data Not Consistent, a new trace value must also be supplied for a trace format change	supply of outgoing J0 trace	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496)
IDNC - Input, Dat, Not Consistent, a new trc must also be supplied for a path trace mode change	supply of transmitted path trace	"ED-VCGTRIB: Edit virtual concatenation group tributary" (p. 4-995), "ED-PTF: Edit tributary with Path Termination Function (PTF)" (p. 4-578)
IDNC - Input, Data Not Consistent, Bridging rate is not compliant with exisisting leg	both legs must have same rate	"ENT-CRS: Enter cross-connection" (p. 4-1026), "CNVT-CCT: Convert cross-connection topology" (p. 4-49)
IDNC - Input, Data Not Consistent, Corresponding loca/locz information is missing	Corresponding loca/locz information is missing	"ENT-CRS: Enter cross-connection" (p. 4-1026)
IDNC - Input, Data Not Consistent, cross-connection-existence not consistent with cmdmde-value	cmdmde matches cross-connection non-/existence	"OPR-LPBK (here cross-connection loopback)" (p. 4-1458)
IDNC - Input, Data Not Consistent, default profile	*pfname* is default	"DLT-ASAP-PROF: Delete alarm severity assignment profile" (p. 4-92)
	deleting the system default profile	"DLT-TCA-PROF: Delete TCA Profile" (p. 4-186)

Errorcode	Meaning (validation rule)	Related to command ...
IDNC - Input, Data Not Consistent, Default VLAN ID is already assigned for this System	default VLAN ID is already assigned for this system	"ED-EPORT: Edit Ethernet port" (p. 4-242)
IDNC - Input, Data Not Consistent, Default VLAN ID is not an allowed member of valid VLAN list	default VLAN ID is no allowed member of valid VLAN list	
IDNC - Input, Data Not Consistent, in_aid or ppgname needed	*in_aid* or ppgname existence	"RTRV-CRS: Retrieve cross-connection" (p. 4-1649)
IDNC - Input, Data Not Consistent, inconsistent ASAP parameter	inconsistent severity level	"ED-ASAP-PROF: Edit alarm severity assignment profile" (p. 4-206)
IDNC - Input, Data Not Consistent, Inconsistent loca/locz information	Consistent *loca*/*locz* for all low-order cross-connections using the same HO PTF at a MS-SPRING port	"ENT-CRS: Enter cross-connection" (p. 4-1026)
IDNC - Input, Data Not Consistent, Inconsistent loopback type w.r.t. aid	valid loopback type	"OPR-LPBK (here cross-connection loopback)" (p. 4-1458)
IDNC - Input, Data Not Consistent, It is not allowed to specify loca/locz for EXTRA TRAFFIC	loca/locz information only retrievable for EXTRA TRAFFIC	"ENT-CRS: Enter cross-connection" (p. 4-1026)
IDNC - Input, Data Not Consistent, level2 not allowed for scnnode	level2 parameter must not be present when *osinode*=scnnode	"RTRV-MAP-NETWORK: Retrieve network map" (p. 4-1813)
IDNC - Input, Data Not Consistent, LO tributary not supported by that pack (e.g. OPT2G5, EP51, GE1)	Pack restrictions for LOXC cross-connection sources	"ENT-CRS: Enter cross-connection" (p. 4-1026)

Errorcode	Meaning (validation rule)	Related to command ...
IDNC - Input, Data Not Consistent, modifier is inconsistent with existing interface standard	modifier consistent with given port's interface standard	"RTRV-LPBK: Retrieve loopback (here facility loopback)" (p. 4-1804)
IDNC - Input, Data Not Consistent, modifier is inconsistent with existing port rate	modifier consistent with given port-rate	
IDNC - Input, Data, Not Consistent, MSP 1+1_Optimized is always non-revertive	MSP type 1+1_optimized is never revertive	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222), "ED-PROTN-GRP: Edit protection group" (p. 4-551)
IDNC - Input, Data, Not Consistent, MSP 1+1_optimized not supported for SONET mode	No MSP 1+1 optimized protection for SONET	
IDNC - Input, Data Not Consistent, MSP Protection Type 1x1 is always revertive	MSP type 1:1 is never non-revertive	
IDNC - Input, Data Not Consistent, MSP 1+1_BIDIR is always non-revertive	MSP type 1:1 bidirectional is never revertive	"ED-PROTN-GRP: Edit protection group" (p. 4-551)
IDNC - Input, Data Not Consistent, new name for default profile	rename of default ASAP	"ED-ASAP-PROF: Edit alarm severity assignment profile" (p. 4-206)
	rename default profile name	"ED-TCA-PROF: Edit TCA profile" (p. 4-852)
IDNC - Input, Data Not Consistent, No BLSR inter-working with low-order traffic	No low-order cross-connection with BLSR ports	"ENT-CRS: Enter cross-connection" (p. 4-1026)
IDNC - Input, Data Not Consistent, no allowed topology conversion	Topology conversion command must be consistent	"CNVT-CCT: Convert cross-connection topology" (p. 4-49)

Errorcode	Meaning (validation rule)	Related to command ...
IDNC - Input, Data Not Consistent, No low-order path protection with input tributaries from BLSR/MS-SPRing ports	No low-order path protection with input tributaries from BLSR/MS-SPRing ports	"ENT-CRS: Enter cross-connection" (p. 4-1026)
IDNC - Input, Data Not Consistent, No MSP protection supported for SONET mode	No MSP 1:1 protection for SONET	"ED-PROTN-GRP: Edit protection group" (p. 4-551)
IDNC - Input, Data Not Consistent, not own uid	not the own uid specified	"CANC-USER: Cancel user" (p. 4-39)
IDNC - Input, Data Not Consistent, only dccstat or scn_dccstat allowed	single occurence of dccstat or scn_dccstat parameter	"ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)
IDNC - Input, Data Not Consistent, Optimized exists only with 1+1 Protection Type	only MSP 1+1 can be optimized	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222)
IDNC - Input, Data Not Consistent, port_aid1 and port_aid2 not different	different Port AIDs	"ENT-CRS-FECOM: Enter transparent DCC cross-connection" (p. 4-1062)
IDNC - Input, Data Not Consistent, protection mode supported for 4F applications only	TOPEX and SHORTENED applicable with protype=4F only	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222)
IDNC - Input, Data Not Consistent, Rate is inconsistent with existing cross-connection	valid rate	"DLT-CRS: Delete cross-connection" (p. 4-97), "OPR-LPBK (here cross-connection loopback)" (p. 4-1458), "RLS-LPBK: Release loopback (here cross-connection loopback)" (p. 4-1566), "CNVT-CCT: Convert cross-connection topology" (p. 4-49)

Errorcode	Meaning (validation rule)	Related to command ...
IDNC - Input, Data Not Consistent, revertive mode not supported for MSP Protection Type 1+1 unidirectional	MSP type 1+1 unidirectional and revertive is not supported	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222), "ED-PROTN-GRP: Edit protection group" (p. 4-551)
IDNC - Input, Data Not Consistent, SNC Type not compliant with existing path-protected cross-connection	SNC type compliance	"ENT-CRS: Enter cross-connection" (p. 4-1026), "CNVT-CCT: Convert cross-connection topology" (p. 4-49)
IDNC - Input, Data Not Consistent, Specified Tributary does not support the indicated rate	rate consistency for VCG tributaries	"ENT-CRS: Enter cross-connection" (p. 4-1026)
	Restrictions for LOXC cross-connection rates	"ENT-CRS: Enter cross-connection" (p. 4-1026)
IDNC - Input, Data Not Consistent, Specified new Tributary does not support the indicated rate	New Tributary rate validity	"CNVT-CCT: Convert cross-connection topology" (p. 4-49)

Errorcode	Meaning (validation rule)	Related to command ...
IDNC - Input, Data Not Consistent, strcout length must match the given outgoing J0 trace mode	transmitted path trace length	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496), "ED-EC1: Edit EC1 port" (p. 4-231)
IDNC - Input, Data Not Consistent, trc length must match the given path trace mode		"ED-PTF: Edit tributary with Path Termination Function (PTF)" (p. 4-578)
IDNC - Input, Data Not Consistent,, Tributaries must not be on ports of portClass INNI	LO Tributaries must not belong to ports of *portClass* INNI	"ENT-CRS: Enter cross-connection" (p. 4-1026)
IDNC - Input, Data Not Consistent, This MSP protection type not supported for a port with the indicated rate	No MSP 1+1 bidirectional and non-revertive on other than STM-64	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222)
IDNC - Input, Data Not Consistent, TOP supported only for 4F applications only	TOP applicable with protype=4F only	"ED-PROTN-GRP: Edit protection group" (p. 4-551)
IDNC - Input, Data Not Consistent, trc length must match the given path trace mode	transmitted path trace length	"ED-VCGTRIB: Edit virtual concatenation group tributary" (p. 4-995)

Errorcode	Meaning (validation rule)	Related to command ...
IDNC - Input, Data Not Consistent, Tributary boundary is inconsistent with the indicated rate	AID boundary and rate consistency	"ENT-CRS: Enter cross-connection" (p. 4-1026), "OPR-LPBK (here cross-connection loopback)" (p. 4-1458), "CONN-TACC: Connect test access" (p. 4-62)
IDNC - Input, Data Not Consistent, tributary occupation not consistent with portcontrol value	portcontrol matches tributary occupied by NN	"OPR-LPBK (here cross-connection loopback)" (p. 4-1458)
IDNC - Input, Data Not Consistent, value change not allowed for profile Default0	Value change of default profile Default0	"ED-TCA-PROF: Edit TCA profile" (p. 4-852)
IDNC - Input, Data Not Consistent, VGC-trib as input-trib in path-protected cross-connection	no VCG-trib as in_aid (for path-protected cross-connection)	"ENT-CRS: Enter cross-connection" (p. 4-1026), "CNVT-CCT: Convert cross-connection topology" (p. 4-49)
IDNV - Input, Data Not Valid	input parameters not specified	"CPY-MEM: Copy memory" (p. 4-76), "COPY-RFILE: Copy remote file" (p. 4-70)
	invalid uid/or pid	"ACT-USER: Activate user" (p. 4-14)
	disabled user ID	
	expired password and unsuccessful change of password	
	presence of spec_block parameter	"ED-CRS: Edit cross-connection" (p. 4-213)
	Check for that either dccstat or scn_dccstat is present	"ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)
IDNV - Input, Data Not Valid, Automatic Squelch Map Calculation only allowed with Automatic Ring Discovery	Automatic squelch map calculation only with automatic ring discovery	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222), "ED-PROTN-GRP: Edit protection group" (p. 4-551)

Errorcode	Meaning (validation rule)	Related to command ...
`IDNV - Input, Data Not Valid, additional parameter required`	additional parameters required when setting *ndetmd* to MAN	"ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755),
`IDNV - Input, Data Not Valid, additional parameters neighborNodeID and neighborPortID required`		"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496)
`IDNV - Input, Data Not Valid, AIS mode not valid`	output type not supported for AIS mode	"SET-SYNCN: Set synchronization" (p. 4-2318)
`IDNV - Input, Data Not Valid, all tributaries must be different`	All tributaries must be different	"CONN-TACC: Connect test access" (p. 4-62)

Errorcode	Meaning (validation rule)	Related to command ...
IDNV - Input, Data Not Valid, ASAP profile does not exist	check for ASAP profile existence	"ED-EQPT (shelf): Edit equipment (shelf)" (p. 4-262), "ED-EQPT (slot): Edit equipment (slot)" (p. 4-267), "ED-EQPT (Socket): Edit equipment" (p. 4-276), "ED-EQPT (system): Edit equipment (system)" (p. 4-285)
	pfname does not exist	"SET-ATTR-ENV: Set attribute environment" (p. 4-2299)
	validate ASAP profile	"ED-EQPT (CP): Edit equipment (circuit pack)" (p. 4-255)

Errorcode	Meaning (validation rule)	Related to command ...
IDNV - Input, Data Not Valid, ASAP profile does not exist	ASAP profile exists	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496), "ED-VC3: Edit VC3 tributary" (p. 4-956), "ED-STS1: Edit STS1 tributary" (p. 4-823), "ED-EPORT: Edit Ethernet port" (p. 4-242), "ED-VCG: Edit virtual concatenation group" (p. 4-969), "ED-VCGTRIB: Edit virtual concatenation group tributary" (p. 4-995), "ED-OC48T: Edit OC48 transparent port" (p. 4-443), "ED-PTF: Edit tributary with Path Termination Function (PTF)" (p. 4-578), "ED-STM16T: Edit STM16T port" (p. 4-740), "ED-T3: Edit DS3 port" (p. 4-840), "ED-VCG-TRANS: Edit virtual concatenation group for fully transparent application" (p. 4-984), "ED-LONIM: Edit Low Order Non-Intrusive Monitor" (p. 4-304), "ED-EC1: Edit EC1 port" (p. 4-231)

Errorcode	Meaning (validation rule)	Related to command ...
IDNV - Input, Data Not Valid, Assigned bandwidth exceeds half port's bandwidth	Enough bandwidth reserved for 2F protection group	"ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496)
IDNV - Input, Data Not Valid. Attempting to delete an administrator login. Two administrator user logins are required at all times	attempt to delete administrator's uid	"DLT-USER-SECU: Delete user security" (p. 4-197)
IDNV - Input, Data Not Vaild, Both input tributaries are identical	path-protected cross-connection has unique input AIDs	"ENT-CRS: Enter cross-connection" (p. 4-1026), "CNVT-CCT: Convert cross-connection topology" (p. 4-49)
IDNV - Input, Data Not Valid, cable equalization not supported	cable equalization not supported	"SET-SYNCN: Set synchronization" (p. 4-2318)
IDNV - Input, Data not Valid, can't change l3domain for osinode1	l3domain can not be changed for osinode1	"ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack." (p. 4-929)
IDNV - Input, Data not Valid, constraint l3radesnode	l3radesnode value and l3isisnl Value	"ENT-ULSDCC-L3: Create a further OSI node" (p. 4-1391), "ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack." (p. 4-929)
IDNV - Input, Data Not Valid, DCC on EC1 Ports not allowed	No DCC on EC1 ports	"ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093), "ENT-CRS-FECOM: Enter transparent DCC cross-connection" (p. 4-1062)

Errorcode	Meaning (validation rule)	Related to command ...
IDNV - Input, Data Not Valid, DCC on DS3 Ports not allowed	No DCC on DS3 ports	"ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093), "ENT-CRS-FECOM: Enter transparent DCC cross-connection" (p. 4-1062)
IDNV - Input, Data Not Valid, DCC on Transparent Ports not allowed	No DCC on transparent ports	
IDNV - Input, Data Not Valid, DCC type SECTION not allowed for SCN	RS-DCC not allowed for DCN	"ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)
IDNC - Input, Data Not Consistent, Default VLAN ID is already assigned for this System	Default VLAN ID is already assigned for this system	"ED-VCG: Edit virtual concatenation group" (p. 4-969)
IDNC-Input, Data Not Consistent, Default VLAN ID is not an allowed member of valid VLAN list	Default VLAN ID is no allowed member of valid VLAN list for this system	"ED-VCG: Edit virtual concatenation group" (p. 4-969)
IDNV - Input, Data Not Valid, DS3 Ports not allowed as line timing reference	No DS3 Port as line timing reference	"SET-SYNCN: Set synchronization" (p. 4-2318)
IDNV - Input, Data Not Valid, duplicate neighbor port information	No setting of duplicate *neighborASTNNodeID* and *neighborPortID* parameter combination	"ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457) "ED-OC768: Edit OC768 port" (p. 4-496)
IDNV - Input, Data Not Valid, EC1 Ports not allowed as line timing reference	No EC1 Port as line timing reference	"SET-SYNCN: Set synchronization" (p. 4-2318)

Errorcode	Meaning (validation rule)	Related to command ...
IDNC - Input, Data Not Consistent, It is not allowed to specify loca/locz for EXTRA TRAFFIC	loca/locz information only retrievable for EXTRA TRAFFIC	"ED-CRS: Edit cross-connection" (p. 4-213)
IDNV - Input, Data Not Valid, default profiles cannot be deleted	deleting the system default profile	"DLT-TCA-PROF: Delete TCA Profile" (p. 4-186)
IDNV - Input, Data Not Valid, discrepancy between entered values and current value of spec-block parameters	ohbyte and intfctype values correct (when dis-associating)	"SET-OW: Set Orderwire and User Bytes" (p. 4-2308)
IDNV - Input, Data Not Valid, duplicate IP Map entry.	Check for duplicate entries	"ENT-IP-MAP: Enter TCP/IP map" (p. 4-1116)
IDNV - Input, Data Not Valid, duplicate UID	entering user's own or existing uid	"ENT-USER-SECU: Enter user security" (p. 4-1410)
	newuid has the same value of an existing uid	"ED-USER-SECU: Edit user security" (p. 4-945)
IDNV - Input, Data Not Valid, E and F tributaries not cross-connected	E tributary and F tributary not cross-connected	"CONN-TACC: Connect test access" (p. 4-62)
IDNV - Input, Data not Valid, equal l3domain	l3domain value must be different for current node and l3radesnodel	"ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack." (p. 4-929)
IDNV - Input, Data not Valid, equal node IDs	l3radesnode value must be different from osinode	"ENT-ULSDCC-L3: Create a further OSI node" (p. 4-1391), "ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack." (p. 4-929)
IDNV - Input, Data Not Valid, forced DUS not supported for this format	format not supported for forced DNU/DUS	"SET-SYNCN: Set synchronization" (p. 4-2318)

Errorcode	Meaning (validation rule)	Related to command ...
IDNV - Input, Data Not Valid, incompatible *screen, uidclass* parameters	compatibility screen, uidclass parameter	"ENT-USER-SECU: Enter user security" (p. 4-1410), "ED-USER-SECU: Edit user security" (p. 4-945)
IDNV - Input, Data Not Valid, incomplete switch command	complete switch command	"OPR-PROTNSW: Operate protection switch" (p. 4-1472)
IDNV - Input, Data Not Valid, inconsistent *aid* and *monlev*	*aid* range and *monlev*	"RTRV-PM: Retrieve performance monitoring" (p. 4-1970), "RTRV-LOXCPM: Retrieve Performance Monitoring Data of LOXC pack" (p. 4-1793)
IDNV - Input, Data Not Valid, inconsistent *aid* and *protype*	consistent aid and protype	"RTRV-PROTN-GRP: Retrieve protection group" (p. 4-1997), "OPR-PROTNSW: Operate protection switch" (p. 4-1472), "RLS-PROTNSW: Release protection switch" (p. 4-1574)
IDNV - Input, Data Not Valid, inconsistent *aid* and *rid*	consistent aid and rid	"RTRV-PROTN-GRP: Retrieve protection group" (p. 4-1997), "OPR-PROTNSW: Operate protection switch" (p. 4-1472), "RLS-PROTNSW: Release protection switch" (p. 4-1574), "ED-PROTN-GRP: Edit protection group" (p. 4-551), "DLT-PROTN-GRP: Delete protection group" (p. 4-164), "ED-MAP-RING: Edit map ring" (p. 4-316)
IDNV - Input, Data not Valid, inconsistency l3domain with l3radesnode	consistency l3domain with l3radesnode for nodes 2 to 8	"ENT-ULSDCC-L3: Create a further OSI node" (p. 4-1391), "ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack." (p. 4-929)
IDNV - Input, Data Not Valid, incorrect date/time format	incorrect date/time format	"ED-DAT: Edit date and time" (p. 4-227)

Errorcode	Meaning (validation rule)	Related to command ...
`IDNV - Input, Data Not Valid, incorrect new_pid`	missing or invalid or syntactically incorrect *new_pid*	"ED-PID: Edit password identifier" (p. 4-546)
`IDNV - Input, Data Not Valid, Interface type not settable for specified UserByte-Port`	interface type compliant with port	"SET-OW: Set Orderwire and User Bytes" (p. 4-2308)
`IDNV - Input, Data Not Valid, invalid atagseg`	valid *atagseq*	"RTRV-AO: Retrieve Autonomous Output" (p. 4-1608)
`IDNV - Input, Data Not Valid, invalid LO switch capacity for LOXC in this slot`	LO switch capacity setting only for LOXC in worker slots	"ED-EQPT (CP): Edit equipment (circuit pack)" (p. 4-255)
`IDNV - Input, Data Not Valid, Invalid loopback for EPort`	for GE (EPort) only far-side loopback allowed	"OPR-LPBK: Operate loopback (here facility loopback)" (p. 4-1465)
`IDNV - Input, Data Not Valid, invalid profile type or name`	invalid profile type or name	"ENT-TCA-PROF: Enter TCA Profile" (p. 4-1345), "ED-TCA-PROF: Edit TCA profile" (p. 4-852), "DLT-TCA-PROF: Delete TCA Profile" (p. 4-186)
`IDNV - Input, Data Not Valid, invalid sc`	invalid switch command	"OPR-SYNCNSW: Operate synchronization switch " (p. 4-1492)
`IDNV - Input, Data Not Valid, invalid switch command`	supported switch command	"OPR-PROTNSW: Operate protection switch" (p. 4-1472)
`IDNV - Input, Data Not Valid, invalid test access mode`	MONF or MONEF test access mode not allowed on a 1WAY cross-connection from E to F tributary	"CONN-TACC: Connect test access" (p. 4-62)
`IDNV - Input, Data Not Valid, invalid UID`	invalid *uid*	"ED-USER-SECU: Edit user security" (p. 4-945), "DLT-USER-SECU: Delete user security" (p. 4-197), "RTRV-USER-SECU: Retrieve user security" (p. 4-2240)

Errorcode	Meaning (validation rule)	Related to command ...
IDNV - Input, Data Not Valid, invalid UPC	invalid *upc*	"ED-USER-SECU: Edit user security" (p. 4-945), "ENT-USER-SECU: Enter user security" (p. 4-1410)
IDNV - Input, Data Not Valid, Invalid Wildcarding for wrk_aid	Invalid wildcarding	"RTRV-OUC: Retrieve ONNS to UPSR/SNCP constructs" (p. 4-1947)
IDNV - Input, Data not Valid, l3prefix and l3radesnode inconsistent	consistency of *l3radesnode* with *l3raprefix*	"ENT-ULSDCC-L3: Create a further OSI node" (p. 4-1391), "ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack." (p. 4-929)
IDNV - Input, Data Not Valid, l4ajsys/osinode not unique	*l4ajsys* per osinode must be different	"ENT-ULSDCC-L4: Enter layer 4 related parameters of the OSI stacks " (p. 4-1401)
IDNV - Input, Data Not Valid, Low-order cross-connections of this interface standard not supported	Entities must fit LOXC interface standard	"ENT-CRS: Enter cross-connection" (p. 4-1026)
IDNV - Input, Data Not Valid, Min. and max. NN XC rates incompatible	No setting of *minNNXCRate* to values larger than value of *maxNNXCRate* and vice versa	"ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755)
IDNV - Input, Data Not Valid, missing F tributary	Missing F tributary	"CONN-TACC: Connect test access" (p. 4-62)
IDNV - Input, Data Not Valid, newuid for non superuser	newuid defined for non superuser uid	"ED-USER-SECU: Edit user security" (p. 4-945)

Errorcode	Meaning (validation rule)	Related to command ...
IDNV - Input, Data Not Valid, No Access via AID located on INNI port	Access via tributary on INNI port	"ED-PROTN-GRP: Edit protection group" (p. 4-551), "OPR-PROTNSW: Operate protection switch" (p. 4-1472), "RLS-PROTNSW: Release protection switch" (p. 4-1574)
IDNV - Input, Data Not Valid, no aid range in combination with rid	*aid* range and *rid*	"RTRV-PROTN-GRP: Retrieve protection group" (p. 4-1997)
IDNV - Input, Data Not Valid, node itself is not a valid neighbor	No setting of *neighborASTNNodeID* and *neighborNodeID* parameter combination	"ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374) ,
	No setting of *neighborASTNNodeID* or *neighborNodeID* to corresponding IDs of local node	"ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755)
IDNV - Input, Data Not Valid, No path protection group parameters allowed for directionality UNIDIR-ADD	No path protection group parameters must be given for Setup of a unidirectional-add OUC	"ENT-OUC: Enter ONNS to UPSR/SNCP constructs" (p. 4-1182)
IDNV - Input, Data Not Valid, no regen loop with SETG as timing output	regenerator loops with SETG as timing output	"SET-SYNCN: Set synchronization" (p. 4-2318)
IDNV - Input, Data Not Valid, not possible for NNI port to assign both channels to MCN.	prevent that both DCCs of a port are assigned to the MCN, when portClass = INNI	"ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)
IDNV - Input, Data Not Valid, not possible to assign both channels to SCN	prevent that both DCCs of a port are assigned to the SCN	"ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)

Errorcode	Meaning (validation rule)	Related to command ...
IDNV - Input, Data Not Valid, No Userbyte access at the specified port	No Userbyte access at EC1 ports on EP51 pack	"SET-OW: Set Orderwire and User Bytes" (p. 4-2308)
IDNV - Input, Data Not Valid, No wildcarding for access via input tribs	No wildcarding on access via *aid* and *aid1*	"RTRV-PROTN-GRP: Retrieve protection group" (p. 4-1997)
IDNV - Input, Data not Valid, NSAP Area Addres matches with RA-Prefix	Address Area Value – RA-Prefix Value	"ENT-ULSDCC-L3: Create a further OSI node" (p. 4-1391), "ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack." (p. 4-929)
IDNV - Input, Data not Valid, only a single node in seperate domain supported	only one single node in a seperate domain supported	"ENT-ULSDCC-L3: Create a further OSI node" (p. 4-1391), "ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack." (p. 4-929)
IDNV - Input, Data not Valid, osinode cannot be changed for LAN1	only osinode1 for LAN 1	"ENT-FECOM-LAN: Enter LAN related parameters" (p. 4-1105)
IDNV - Input, Data Not Valid, parameter not required	parameter not supported for modifier	"OPR-SYNCNSW: Operate synchronization switch " (p. 4-1492)
IDNV - Input, Data Not Valid, Parameter not supported	change of FEC parameters only if supported by the current circuit pack	"ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796) , "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496)
	enabling of optical channel only if supported by the current circuit pack	
IDNV - Input, Data Not Valid, Parameter(s) out of allowed value range	all parameter are specified with allowed values	"ENT-CRS: Enter cross-connection" (p. 4-1026)
IDNV - Input, Data Not Valid, Parameter(s) present which are not allowed	only those parameter present which are needed	

Errorcode	Meaning (validation rule)	Related to command ...
`IDNV - Input, Data Not Valid, ppgname not allowed if aid1 is given`	*ppgname* and *aid1*	"RTRV-PROTN-GRP: Retrieve protection group" (p. 4-1997), "ED-PROTN-GRP: Edit protection group" (p. 4-551), "OPR-PROTNSW: Operate protection switch" (p. 4-1472), "RLS-PROTNSW: Release protection switch" (p. 4-1574)
`IDNV - Input, Data Not Valid, ppgname not supported for this transmission rate`	*ppgname* and low order path protections	"RTRV-PROTN-GRP: Retrieve protection group" (p. 4-1997), "ED-PROTN-GRP: Edit protection group" (p. 4-551), "OPR-PROTNSW: Operate protection switch" (p. 4-1472), "RLS-PROTNSW: Release protection switch" (p. 4-1574)
`IDNV - Input, Data Not Valid, profile name already exists for the type`	profile name already exists	"ED-TCA-PROF: Edit TCA profile" (p. 4-852)
`IDNV - Input, Data Not Valid, profile name already exists for this profile type`	TCA profile already exist	"ENT-TCA-PROF: Enter TCA Profile" (p. 4-1345)
`IDNV - Input, Data Not Valid, profile name does not exist`	profile name does not exist	"DLT-TCA-PROF: Delete TCA Profile" (p. 4-186)
`IDNV - Input, Data Not Valid, profile name does not exist`	profile name does not exist	"RTRV-TCA-PROF: Retrieve TCA Profile" (p. 4-2184)
`IDNV - Input, Data Not Valid, profile type does not exist`	profile type does not exist	"ENT-TCA-PROF: Enter TCA Profile" (p. 4-1345)
`IDNV - Input, Data Not Valid, portClass must be INNI`	consistency of input parameters with portClass INNI	"ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)
`IDNV - Input, Data Not Valid, provisioning of lapdmode and lapdrl not possible`	invalid input parameters	

Errorcode	Meaning (validation rule)	Related to command ...
IDNV - Input, Data not Valid, RA-Prefix matches with the NSAP Area Address	RA-Prefix Value – Address Area Value	"ENT-ULSDCC-L3: Create a further OSI node" (p. 4-1391), "ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack." (p. 4-929)
IDNV - Input, Data Not Valid, related portClass not EDGE or port not in BLSR/MS-SPRING group	loca, locz changes only allowed when portClass=EDGE and part of a BLSR/MS-SPRING group	"ED-VC3: Edit VC3 tributary" (p. 4-956), "ED-STS1: Edit STS1 tributary" (p. 4-823)
IDNV - Input, Data Not Valid, rid is already used by another protection group	unique rid	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222), "ED-PROTN-GRP: Edit protection group" (p. 4-551)
IDNV - Input, Data Not Valid, Sa bit location not supported	input / output format not supported for Sa bit settings	"SET-SYNCN: Set synchronization" (p. 4-2318)
IDNV - Input, Data Not Valid, screen value was not set by security administrator	screen value not allowed for uid	"ED-USER: Edit user" (p. 4-940)
IDNV - Input, Data Not Valid, side information is not complete	complete side information	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222)
IDNV - Input, Data Not Valid, sid is already used by another BLSR/MS-SPRing Node	uniqueness of TID within ringmaps	"SET-SID: Set SID" (p. 4-2314)
IDNV - Input, Data Not Valid, side information is not complete	complete side information	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222)
IDNV - Input, Data Not Valid, Slot still provisioned	slot must not be provisioned	"ENT-EQPT (slot): Enter equipment (slot)" (p. 4-1079)
IDNV - Input, Data Not Valid, Socket still provisioned	socket must not be provisioned	"ENT-EQPT (Socket): Enter equipment" (p. 4-1087)

Errorcode	Meaning (validation rule)	Related to command ...
IDNV - Input, Data Not Valid, SSM not supported for provisioned QL	SSM not supported if timing port provisioned AUTO	"SET-SYNCN: Set synchronization" (p. 4-2318)
IDNV - Input, Data Not Valid, SSM not supported for this format	SSM not supported	
IDNV - Input, Data Not Valid, switch capacity cannot be decreased	No decrease of maximum switch capacity	"ED-EQPT (system): Edit equipment (system)" (p. 4-285)
IDNV - Input, Data Not Valid, TCA profile does not exist	TCA profile exists	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496), "ED-VC3: Edit VC3 tributary" (p. 4-956), "ED-STS1: Edit STS1 tributary" (p. 4-823), "ED-EPORT: Edit Ethernet port" (p. 4-242), "ED-VCG: Edit virtual concatenation group" (p. 4-969), "ED-STM1E: Edit STM1E port" (p. 4-604), "ED-VCGTRIB: Edit virtual concatenation group tributary" (p. 4-995), "ED-LONIM: Edit Low Order Non-Intrusive Monitor" (p. 4-304), "ED-EC1: Edit EC1 port" (p. 4-231)
	profile name does not exist	"RTRV-TCA-ASGNMT: Retrieve TCA assignment" (p. 4-2181)

Errorcode	Meaning (validation rule)	Related to command ...
IDNV - Input, Data Not Valid, Transparent Ports not allowed as line timing reference	No transparent port as line timing reference	"SET-SYNCN: Set synchronization" (p. 4-2318)
IDNV - Input, Data Not Valid, tributary already part of a cross-connection	*loca*, *locz* changes only allowed when tributary already involved in a cross-connection	"ED-VC3: Edit VC3 tributary" (p. 4-956), "ED-STS1: Edit STS1 tributary" (p. 4-823)
IDNV - Input, Data Not Valid, uid must not be the own uid	*uid* must not be the own *uid*	"CANC-USER-SECU: Cancel user security" (p. 4-41)
IDNV - Input, Data Not Valid, uid not in NE data base	*uid* not in NE data base	
IDNV - Input, Data Not Valid, wrong old_pid	invalid *old_pid*	"ED-PID: Edit password identifier" (p. 4-546)
IDNV - Input, Data Not Valid, zero values can only be set for all neighbor information consistently	Setting of neighbor information to UNKNOWN	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457)
IDRG - Input, Data Range Error	Check *aid* and *dyn* consistency	"ENT-LONIM notification" (p. 4-1120)
IDRG - Input, Data Range Error, *osinode*	TARP origination only valid for node-1	"ENT-ULSDCC-L4: Enter layer 4 related parameters of the OSI stacks " (p. 4-1401)
	TARP responder only valid for node-1	
	TARP data cache enabling only valid for node-1	

Errorcode	Meaning (validation rule)	Related to command ...
`IDRG - Input, Data Range Error, threshold value is out of range`	IDRG-range error	"ED-TCA-PROF: Edit TCA profile" (p. 4-852)
`IEAE - Input Entity Already Exists, duplicate profile name`	duplicate *pfname*	"ENT-ASAP-PROF: Enter alarm severity assignment profile" (p. 4-1018)
	duplicate *newname*	"ED-ASAP-PROF: Edit alarm severity assignment profile" (p. 4-206)
	profile name already exists	"ENT-TCA-PROF: Enter TCA Profile" (p. 4-1345), "ED-TCA-PROF: Edit TCA profile" (p. 4-852)
`IEAE - Input Entity Already Exists, cross-connection exists on test tributary`	Cross-connection exists on the test tributary	"CONN-TACC: Connect test access" (p. 4-62)
`IEAE - Input Entity Data Already Exists, osinode`	OSI node is already created	"ENT-ULSDCC-L3: Create a further OSI node" (p. 4-1391)
`IEAE - Input Entity Already Exists, test access connection exists`	Test tributary already connected	"CONN-TACC: Connect test access" (p. 4-62)

Errorcode	Meaning (validation rule)	Related to command ...
IENE - Input Entity Not Exists	reject request for protection CTL slot	"ENT-EQPT (slot): Enter equipment (slot)" (p. 4-1079), "DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116), ,
	directory not accessible	"CPY-MEM: Copy memory" (p. 4-76)
	command only allowed for VCG on Transparent Packs	"ED-VCG-TRANS: Edit virtual concatenation group for fully transparent application" (p. 4-984), "RTRV-VCG-TRANS: Retrieve virtual concatenation group transparent" (p. 4-2266)
	Check *modifier* against Circuit Pack type	"RTRV-VCGTRIB: Retrieve virtual concatenation group tributary" (p. 4-2274), "ED-VCGTRIB: Edit virtual concatenation group tributary" (p. 4-995)
	Check CCB against *ptype* and *eif*	"RTRV-EC1: Retrieve EC1 port" (p. 4-1672), "ED-EC1: Edit EC1 port" (p. 4-231)
	Protection Group must exist	"ED-PROTN-GRP: Edit protection group" (p. 4-551), "OPR-PROTNSW: Operate protection switch" (p. 4-1472), "RLS-PROTNSW: Release protection switch" (p. 4-1574)
	Check LONIM::modifier against PTF::istd	"ENT-LONIM notification" (p. 4-1120)
IENE - Input, Entity Not Exists, aid not part of substructure	Check *aid* against PTF substructure	"ED-LONIM: Edit Low Order Non-Intrusive Monitor" (p. 4-304)
IENE - Input Entity Not Exists, cannot change system default profile	Changing default profile name	"ED-TCA-PROF: Edit TCA profile" (p. 4-852)
IENE - Input, Entity Not Exists, constituent member does not exist	Boundary consistency for constituent members	"OPR-PROTNSW: Operate protection switch" (p. 4-1472)

Errorcode	Meaning (validation rule)	Related to command ...
IENE - Input Entity Not Exist, profile does not exist	no matching profile name	"RTRV-ASAP-ASGNMT: Retrieve ASAP assignment" (p. 4-1612)
IENE - Input, Entity Not Exists, Not for this interface standard	Entities must fit to the interface standard	"ENT-CRS: Enter cross-connection" (p. 4-1026)
IENE - Input Entity Not Exists, Specified association does not exist	association present (when dis-associating)	"SET-OW: Set Orderwire and User Bytes" (p. 4-2308)
IENE - Input Entity Not Exists, Specified cross-connection does not exist	entity (cross-connection) must exist	"ED-NNCRS: Edit NN cross-connection" (p. 4-335), "ED-CRS: Edit cross-connection" (p. 4-213), "DLT-CRS: Delete cross-connection" (p. 4-97), "CNVT-CCT: Convert cross-connection topology" (p. 4-49)
	LO cross connection with specified topolgy must exist	"DLT-CRS: Delete cross-connection" (p. 4-97)
IENE - Input, Entity Not Exists, Specified low-order tributary/tributaries do not exist/cannot be created (possibly connected at high-order level)	Entities must be creatable for LO cross-connections	"ENT-CRS: Enter cross-connection" (p. 4-1026)
IENE - Input, Entity Not Exists, Specified OUC does not exist	Entity (OUC) must exist	"DLT-OUC: Delete ONNS to UPSR/SNCP constructs" (p. 4-144)
IENE - Input Entity Not Exists, Specified port does not exist	Port exists (when associating)	"SET-OW: Set Orderwire and User Bytes" (p. 4-2308)
IENE - Input Entity Not Exists, Specified Transparent DCC Cross Connection does not exist	entity (transparent DCC cross-connection) must exist	"DLT-CRS-FECOM: Delete transparent DCC cross-connection" (p. 4-107)

Errorcode	Meaning (validation rule)	Related to command ...
IENE - Input Entity Not Exists, Specified tributary/tributaries do not exist	entities (tributaries) must exist	"ED-NNCRS: Edit NN cross-connection" (p. 4-335), "ED-CRS: Edit cross-connection" (p. 4-213), "DLT-CRS: Delete cross-connection" (p. 4-97), "CNVT-CCT: Convert cross-connection topology" (p. 4-49), "CONN-TACC: Connect test access" (p. 4-62), "ENT-OUC: Enter ONNS to UPSR/SNCP constructs" (p. 4-1182)
IENE - Input, Entity Not Exists, Substructure cannot be adapted	Entities must be adaptable for LO cross-connections	"ENT-CRS: Enter cross-connection" (p. 4-1026)
IIAC - Input, Invalid ACcess identifier, incorrect syntax	consistent aid and protype	"OPR-PROTNSW: Operate protection switch" (p. 4-1472), "RLS-PROTNSW: Release protection switch" (p. 4-1574)
IIDP - Input, Invalid Destination Port type for M:N group setup	NN PortID parameter value is not valid	"ENT-PATH: Create ONNS path connection" (p. 4-1190)
IIGT - Input, Parameter grpSetupType only allowed if protType is UNPROT	NN PortID parameter value is not valid	"ENT-PATH: Create ONNS path connection" (p. 4-1190)
IISP - Input, Invalid Source Port type for M:N group setup	NN PortID parameter value is not valid	"ENT-PATH: Create ONNS path connection" (p. 4-1190)
Input, Invalid deletion of connection of protection class MBYNWRK or MBYNPRT	Connection is member of an M:N protected connection group	"DLT-PATH: Delete ONNS path Connection" (p. 4-148)
INUP - Input, Non-null Unimplemented Parameter	Less than 2 nodes specified	"ED-MAP-RING: Edit map ring" (p. 4-316)
INUP - Input Non-null Unimplemented Parameter, secondary test tributary not allowed	Secondary test tributary not needed for MONE test modes	"CONN-TACC: Connect test access" (p. 4-62)

Errorcode	Meaning (validation rule)	Related to command ...
IPMS -Input Parameter MiSsing	pathprotected crossconnection: parameters missing	"CNVT-CCT: Convert cross-connection topology" (p. 4-49)
IPMS -Input Parameter MiSsing. <parameter name> is missing	path-protected cross-connection: missing parameters	"ENT-CRS: Enter cross-connection" (p. 4-1026), "CNVT-CCT: Convert cross-connection topology" (p. 4-49)
IPNE - Input, No EXPLICIT routing allowed for M:N group setup	NN PortID parameter value is not valid	"ENT-PATH: Create ONNS path connection" (p. 4-1190)
IPNC - Input, Parameter Not Consistent, 64 byte path trace not allowed	Check *modifier* and *ptrcrfmt* consistency	"ED-LONIM: Edit Low Order Non-Intrusive Monitor" (p. 4-304)
IPNC - Input Parameter Not Consistent, Rate inconsistent with cross-connection rate	specified rate consistent with the cross-connecton rate	"ED-NNCRS: Edit NN cross-connection" (p. 4-335), "ED-CRS: Edit cross-connection" (p. 4-213)
	Inconsistent tributary rate	"CONN-TACC: Connect test access" (p. 4-62), "CHG-ACCMD: Change access mode" (p. 4-44), "DISC-TACC: Disconnect test access" (p. 4-88)
IPNC - Input, Parameter Not Consistent, SES threshold out of range for this modifier	Check *modifier* and *pmlpneses*/*pmlpnefeses* consistency	"ED-LONIM: Edit Low Order Non-Intrusive Monitor" (p. 4-304)
IPNC - Input, Parameter Not Consistent, TCA mode not allowed	Check *modifier* and *tcamd* consistency	"ED-LONIM: Edit Low Order Non-Intrusive Monitor" (p. 4-304)
IPNC - Input Parameter Not Consistent, TID not compliant with cross-connection configuration	TID validation	"ED-CRS: Edit cross-connection" (p. 4-213)
PICC - Privilege, Illegal Command Code, invalid user class	user class	"RTRV-AO: Retrieve Autonomous Output" (p. 4-1608)

Errorcode	Meaning (validation rule)	Related to command ...
SAOP - Status, already operated, loopback already exists	loopback must not already exist	"OPR-LPBK (here cross-connection loopback)" (p. 4-1458)"OPR-LPBK: Operate loopback (here facility loopback)" (p. 4-1465)
SARB - Status, All Resources Busy	maximum logins exceeded	"ACT-USER: Activate user" (p. 4-14)
	temporary exhaustion of resources	"CPY-MEM: Copy memory" (p. 4-76), "COPY-RFILE: Copy remote file" (p. 4-70)
	APPLY already in progress	"APPLY: Apply software generic" (p. 4-25)
SARB - Status, All Resources Busy, LOXC capacity exhausted	Spare capacity for HO cross-connection legs on LOXC	"ENT-CRS: Enter cross-connection" (p. 4-1026)
SARB - Status, All Resources Busy, system limit exceeded	temporary system exhaustion	"APPLY: Apply software generic" (p. 4-25)
SDNC - Status, Data Not Consistent	file inappropriate	"APPLY: Apply software generic" (p. 4-25)
	source product type does not match network product type	"CPY-MEM: Copy memory" (p. 4-76)
	additional directory/URL specified	"APPLY: Apply software generic" (p. 4-25), "COPY-RFILE: Copy remote file" (p. 4-70)
	Additional directory/URL specified for restoration	"COPY-RFILE: Copy remote file" (p. 4-70)
	Additional directory/URL specified for backup	
SDNC - Status, Data Not Consistent, *asgncond* not empty	probable cause assigned to MDO port	"OPR-EXT-CONT: Operate External Control" (p. 4-1455), "RLS-EXT-CONT: Release external control" (p. 4-1561)
SDNC - Status, Data Not Consistent, invalid ASAP parameter	ASAP parameter does not exist	"ED-ASAP-PROF: Edit alarm severity assignment profile" (p. 4-206)

Errorcode	Meaning (validation rule)	Related to command ...
SDNC - Status, Data Not Consistent, invalid combination of osinode parameter with dccstat, scn_dccstat	combination of osinode parameter with scn_dccstat	"ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)
SDNC - Status, Data not consistent, invalid file or directory	invalid file or directory name	"CPY-MEM: Copy memory" (p. 4-76)
SDNC - Status, Data Not Consistent, invalid instance of profile	pfname does not exist	"ED-ASAP-PROF: Edit alarm severity assignment profile" (p. 4-206), "DLT-ASAP-PROF: Delete alarm severity assignment profile" (p. 4-92)
SDNC - Status, Data Not Consistent, other port already assigned	one timing port for a circuit pack	"SET-SYNCN: Set synchronization" (p. 4-2318)
	No timing port on protection pack of an MS protected timing port	
SDNC - Status, Data Not Consistent, pgid is already used by another protection group of the same type	unique pgid	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222)
SDNC - Status, Data Not Consistent, port already assigned	port is already assigned to another timing reference	"SET-SYNCN: Set synchronization" (p. 4-2318)
SDNC - Status, Data Not Consistent, port is out-of-service	no out-of-service state for timing port	
	for service condition	"ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)
SDNC - Status, Data Not Consistent, profile in use	ASAP in use	"DLT-ASAP-PROF: Delete alarm severity assignment profile" (p. 4-92)

Errorcode	Meaning (validation rule)	Related to command ...
SDNC - Status, Data Not Consistent, quality evaluation disabled	command rejection if quality evaluation disabled	"SET-SYNCN: Set synchronization" (p. 4-2318)
SDNC - Status, Data Not Consistent, reference already assigned	timing reference already assigned	
SDNC - Status, Data Not Consistent, reference in protection group	timing reference from a protection port in a protection group only allowed in asymmetric spans of a ring	
SLEM - Status, List Exceeds Maximum UIDs	maximum number of uids reached	"ENT-USER-SECU: Enter user security" (p. 4-1410)
SNVS - Status, Not in Valid State	automatic ring discovery to be disabled	"SET-MAP-RING: Set map ring" (p. 4-2304), "ED-FETID: Edit Far End Target Identifier" (p. 4-299), "ED-MAP-RING: Edit map ring" (p. 4-316)
	deemed source file	"CPY-MEM: Copy memory" (p. 4-76)
	second APPLY on same software	"APPLY: Apply software generic" (p. 4-25)
	validation rule for enabled DCC channels	"ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)
	Restrictions for LO path protection	"ENT-CRS: Enter cross-connection" (p. 4-1026)
SNVS - Status, Not in Valid State, Active Repeater Mode for this Port does not allow dftvlan to be modified	default VLAN ID not allowed in Repeater Mode	"ED-EPORT: Edit Ethernet port" (p. 4-242)
SNVS - Status, Not in Valid State, Active Repeater Mode for this Port does not allow vvidls to be modified	VLAN filtering database not allowed in Repeater Mode	
SNVS - Status, Not in Valid State, Assigned Node not allowed for IP	Assignmet of OsiNode without IP support	"ENT-FECOM-LAN: Enter LAN related parameters" (p. 4-1105)
	only osinode1 supports IP	

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, association already exists	no association present (when associating)	"SET-OW: Set Orderwire and User Bytes" (p. 4-2308)
SNVS - Status, Not in Valid State, a loopback is existing	no loopbacks for istd change	"ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796)
	no loopbacks for interface standard change	"ED-VCG: Edit virtual concatenation group" (p. 4-969), "ED-VCG-TRANS: Edit virtual concatenation group for fully transparent application" (p. 4-984)
	no loopbacks for *istd*, *trbmd* change	"ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496)
	no loopbacks for *ptfstd* change	"ED-PTF: Edit tributary with Path Termination Function (PTF)" (p. 4-578)
SNVS - Status, Not in Valid State, a protection group is existing	no protection for *istd* change	"ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796)
	no protection groups allowed	"DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, a protection group is existing	no protection for *istd*, *trbmd* change	"ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496)
SNVS - Status, Not in Valid State, a path protection group is existing	no path protection for *trbmd* change to ADAPTIVE	
SNVS - Status, Not in Valid State, at least one port used as timing reference	not used as timing reference	"DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116), "DLT-EQPT (Socket): Delete equipment" (p. 4-125)
SNVS - Status, Not in Valid State, at least one port of the protection pack is used as timing reference		"ENT-PROTN-GRP: Enter protection group" (p. 4-1222)
SNVS - Status, Not in Valid State, a test access session exists	no test access session for interface type change	"ED-T3: Edit DS3 port" (p. 4-840), "ED-EC1: Edit EC1 port" (p. 4-231)
SNVS - Status, Not in Valid State, a test access session exists	no test access session for *istd*, *trbmd* change	"ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374) ,"ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457) "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496)
	Setting of *portClass* to INNI only possible, if no test access session active	
	Setting of *portClass* to EDGE only possible, if no test access session active	"ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796)
	Setting of *eportControl* to EDGE only possible, if no test access session active	"ED-VCG: Edit virtual concatenation group" (p. 4-969), "ED-VCG: Edit virtual concatenation group" (p. 4-969)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, automatic ring discovery enabled	asymmetric ring only with manual ring provisioning	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222), "ED-PROTN-GRP: Edit protection group" (p. 4-551)
SNVS - Status, Not in Valid State, can not disable servcond for INNI ports	servcond must enabled when *portClass*=INNI	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796) "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496)
SNVS - Status, Not in Valid State, cannot disable IP on all LAN ports while T-TD or FTTD is enabled	IP disabling while T-TD or FTTD is enabled	"ENT-FECOM-LAN: Enter LAN related parameters" (p. 4-1105)
SNVS - Status, Not in Valid State, circuit pack is in use	check whether LOXC pack is in use	"DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116)
	check whether circuit pack is in use	"ED-EQPT (CP): Edit equipment (circuit pack)" (p. 4-255)
SNVS - Status, Not in Valid State, circuit pack is member of an equipment protection group	check whether circuit pack is member of an equipment protection group	"ED-EQPT (CP): Edit equipment (circuit pack)" (p. 4-255)
SNVS - Status, Not in Valid State, circuit packs not provisioned	Circuit Pack not provisioned	"CONN-TACC: Connect test access" (p. 4-62)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, clear request impossible	clear wait to restore timer not applicable	"OPR-SYNCNSW: Operate synchronization switch " (p. 4-1492)
SNVS - Status, Not in Valid State, clock of destination XC is in warming-up state, please wait some minutes	clock not in warming-up status (Switching Protection Group)	"OPR-PROTNSW: Operate protection switch" (p. 4-1472)
SNVS - Status, Not in Valid State, Command refers to protection tributaries of a BLSR/MS-SPRing protection and no TOPEX application	BLSR/MS-SPRing protection access (Extra Traffic)	"ENT-CRS: Enter cross-connection" (p. 4-1026), "CNVT-CCT: Convert cross-connection topology" (p. 4-49)
SNVS - Status, Not in Valid State, Conflicting OUC already exists	No conflicting OUC must already exist between working and protection tributary	"ENT-OUC: Enter ONNS to UPSR/SNCP constructs" (p. 4-1182)
SNVS - Status, Not in Valid State, connection to OW port exists	not used for OW	"DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116), "DLT-EQPT (Socket): Delete equipment" (p. 4-125) (
SNVS - Status, Not in Valid State, connection to OW port of the protection pack exists		"ENT-PROTN-GRP: Enter protection group" (p. 4-1222)

Errorcode	Meaning (validation rule)	Related to command ...
`SNVS - Status, Not in Valid State, cross-connections are still existing`	no cross-connection allowed	"DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116), "DLT-EQPT (Socket): Delete equipment" (p. 4-125)
	no cross-connections for *istd* change	"ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796)
	no cross-connections for *istd*, *trbmd* change	"ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496)
	cross-connection - interface standard change	"ED-VCG: Edit virtual concatenation group" (p. 4-969), "ED-VCG-TRANS: Edit virtual concatenation group for fully transparent application" (p. 4-984)
	no cross-connections for *ptfstd* change	"ED-PTF: Edit tributary with Path Termination Function (PTF)" (p. 4-578)
	no cross-connections for interface type change	"ED-T3: Edit DS3 port" (p. 4-840), "ED-EC1: Edit EC1 port" (p. 4-231)
	XC are assigned to proposed protection EPn pack	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, Cross connection involved in Test Access Session	Cross-connection not involved in Test Access Session	"ED-NNCRS: Edit NN cross-connection" (p. 4-335)
SNVS - Status, Not in Valid State, Cross connection not of class NN	Cross-connection must have xconcls=NN	
SNVS - Status, Not in Valid State, Cross connection must not be of xconcls NN	Cross connection must not be of xconcls NN	"ED-CRS: Edit cross-connection" (p. 4-213), "DLT-CRS: Delete cross-connection" (p. 4-97), "CNVT-CCT: Convert cross-connection topology" (p. 4-49),
SNVS - Status, Not in Valid State, Cross-connections still existing	setting of *portClass* to INNI only possible, if no cross-connection existing	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496)
SNVS - Status, Not in Valid State, database not compatible	No DB restore with incompatible database	"CPY-MEM: Copy memory" (p. 4-76), "COPY-RFILE: Copy remote file" (p. 4-70)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, DCC channels are active for this port	*servcond* must be enabled when DCC enabled	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496)
SNVS - Status, Not in Valid State, DCC channel already enabled	DCC channels enabled	"ENT-CRS-FECOM: Enter transparent DCC cross-connection" (p. 4-1062)
SNVS - Status, Not in Valid State, DCC channel occupied by MSP/APS DCC protection	DCC protection	
SNVS - Status, Not in Valid State, DCC channel can not be assigned to MCN and SCN at the same time	independent use of DCC channel for MCN or SCN	"ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)
SNVS - Status, Not in Valid State, DCC channel used in transparent DCC cross connection	Transparent DCC for DCC Line/MS Protection Mode	"ED-PROTN-GRP: Edit protection group" (p. 4-551)
	Transparent DCC for DCC Sect/RS Protection Mode	
	Transparent DCC cross-connection	"ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)
SNVS - Status, Not in Valid State, DCC/LAN channels assigned	reject deletion when node is assigned to LAN or DCC	"DLT-ULSDCC-L3: Delete a node ID other than node-1" (p. 4-190)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, DCC on SCN may not be enabled	changing of *portClass* rom INNI to EDGE or TRADITIONAL only possible, if no DCC for SCN in enabled on the port	"ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457)
SNVS - Status, Not in Valid State, dcc protection side carries traffic	dcc protection: protection side is activ	"ED-PROTN-GRP: Edit protection group" (p. 4-551)
SNVS - Status, Not in Valid State, DCC needed for BLSR/MS-SPRING	for 2/4 fiber BLSR/MS-SPRING	"ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)
SNVS - Status, Not in Valid State, DCC protection available	DCC Protection	"ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)
SNVS - Status, Not in Valid State, default router LAN port not configured	check for correct configured Default Router LAN Port	"ENT-ULS: Enter upper layer stack" (p. 4-1386)
SNVS - Status, Not in Valid State, Different interface standards for input tributaries	path-protected cross-connection has inputs from ports with same interface standards	"ENT-CRS: Enter cross-connection" (p. 4-1026), "CNVT-CCT: Convert cross-connection topology" (p. 4-49)
SNVS - Status, Not in Valid State, Different interface standards for working and protection tributaries	Tributaries must belong to ports of equal interface standards	"ENT-OUC: Enter ONNS to UPSR/SNCP constructs" (p. 4-1182)
SNVS - Status, Not in Valid State, DS3AIS or IDLE not allowed with Unframed Clear-Channel	DS3AIS or IDLE not allowed with unframed clear-channel	"ED-T3: Edit DS3 port" (p. 4-840)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, DS3 path PM not allowed with Unframed Clear-Channel	DS3 path PM not allowed with unframed clear-channel	"ED-T3: Edit DS3 port" (p. 4-840)
SNVS - Status, Not in Valid State, EDGE port carrying EDGE-prt must not be in LOCKOUT	Affected EDGE port the EDGE-prt tributary is located on must not be in LOCKOUT state	"ENT-OUC: Enter ONNS to UPSR/SNCP constructs" (p. 4-1182)
SNVS - Status, Not in Valid State, EDGE ports must not be in line or equipment protection schemes	Affected EDGE ports must not be in a line or equipment protection scheme	"ENT-OUC: Enter ONNS to UPSR/SNCP constructs" (p. 4-1182)
SNVS - Status, Not in Valid State, extra traffic cross-connections are still existing	No cross-connections allowed when leaving TOPEX	"ED-PROTN-GRP: Edit protection group" (p. 4-551), "DLT-PROTN-GRP: Delete protection group" (p. 4-164)
SNVS - Status, Not in Valid State, facility loopbacks still exist	No facility loopbacks for interface type change	"ED-T3: Edit DS3 port" (p. 4-840), "ED-EC1: Edit EC1 port" (p. 4-231)
SNVS- Status, Not in Valid State, facility loopbacks still exist	no facility loopbacks allowed	"DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116), "DLT-EQPT (Socket): Delete equipment" (p. 4-125) (
SNVS - Status, Not in Valid State, facility loopbacks still exist at the protection pack		"ENT-PROTN-GRP: Enter protection group" (p. 4-1222)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, Facility Loopback is active for this port	*servcond* must be disabled for facility loopback	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496), "ED-EPORT: Edit Ethernet port" (p. 4-242), "ED-STM16T: Edit STM16T port" (p. 4-740), "ED-T3: Edit DS3 port" (p. 4-840), "ED-EC1: Edit EC1 port" (p. 4-231)
SNVS - Status, Not in Valid State, implicit channel re-assignment	implicit status changes of dccstat, scn_dccstat	"ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)
SNVS - Status, Not in Valid State, incompatibility istddflt and trbmddflt	compatibility istddflt and trbmddflt	"ED-EQPT (system): Edit equipment (system)" (p. 4-285)
SNVS - Status, Not in Valid State, incomplete IP configuration	check for correct IP configuration	"ED-NE: Edit NE" (p. 4-320), "ENT-IP-MAP: Enter TCP/IP map" (p. 4-1116), "ENT-ULS: Enter upper layer stack" (p. 4-1386)
	compatibility xcsetup and IP configuration for SCN	"ED-EQPT (system): Edit equipment (system)" (p. 4-285)
SNVS - Status, Not in Valid State, input port(s) for LOXC cross-connection in adaptive mode	LO cross-connections only in fixed mode	"ENT-CRS: Enter cross-connection" (p. 4-1026)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, input port(s)for pathprot. crossconnecton in adaptive mode	pathprotected cross-connection: both inputs in fixed-mode	"CNVT-CCT: Convert cross-connection topology" (p. 4-49)
SNVS - Status, Not in Valid State, Interfering cross connection existing on protection tributary	No interfering cross connection must exist on protection tributary	"ENT-OUC: Enter ONNS to UPSR/SNCP constructs" (p. 4-1182)
SNVS - Status, Not in Valid State, invalid IP configuration	check IP configuration	"ENT-FECOM-LAN: Enter LAN related parameters" (p. 4-1105)
SNVS - Status, Not in Valid State, invalid test access mode	Invalid test access mode change request	"CHG-ACCMD: Change access mode" (p. 4-44)
SNVS - Status, Not in Valid State, Invalid topology	valid topology	"DLT-CRS: Delete cross-connection" (p. 4-97)
SNVS - Status, Not in Valid State, J0 parameters can not be set for INNI ports	some parameters not setable for ports of *portClass*=INNI	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796) ,"ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496)
SNVS - Status, Not in Valid State, l3radesnode not in created state	l3radesnode must be in the created state	"ENT-ULSDCC-L3: Create a further OSI node" (p. 4-1391), "ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack." (p. 4-929)

Errorcode	Meaning (validation rule)	Related to command ...
`SNVS - Status, Not in Valid State, LAN is in use for Default Router`	IP disabling while used as IP Default Router LAN	"ENT-FECOM-LAN: Enter LAN related parameters" (p. 4-1105)
`SNVS - Status, Not in Valid State, LAN1 can not be disabled`	can't disable LAN1	"ENT-FECOM-LAN: Enter LAN related parameters" (p. 4-1105)
`SNVS - Status, Not in Valid State, loopback does not exist`	loopback must exist	"RLS-LPBK: Release loopback (here cross-connection loopback)" (p. 4-1566) - tributary, "RLS-LPBK: Release loopback (here facility loopback)" (p. 4-1569) - port
`SNVS - Status, Not in Valid State, loopbacks present`	setting of *portControl* to NORMAL only possible if no cross-connection loopbacks existing	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496) "ED-VCG: Edit virtual concatenation group" (p. 4-969)

Errorcode	Meaning (validation rule)	Related to command ...
`SNVS - Status, Not in Valid State, lower order cross-connections are still existing`	No lower order cross-connections allowed	"DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116), "DLT-EQPT (Socket): Delete equipment" (p. 4-125)
	Setting of *portClass* to INNI only possible, if no lower order cross-connections exist	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457)
	No lower order cross-connections for *istd* change	"ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796)
	No lower order cross-connections for *istd*, *trbmd* change	"ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496)
	HO cross-connections not on substructured tributaries	"ENT-CRS: Enter cross-connection" (p. 4-1026), "CNVT-CCT: Convert cross-connection topology" (p. 4-49), "OPR-LPBK (here cross-connection loopback)" (p. 4-1458)
	HO TACC sessions not on substructured tributaries	"CONN-TACC: Connect test access" (p. 4-62)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, LOXC destination not usable	No forced switch to unusable LOXC slot (LOXC Protection Group)	"OPR-PROTNSW: Operate protection switch" (p. 4-1472)
SNVS - Status, Not in Valid State, LOXC switch capacity invalid	LOXC pack with more than 0G switch capacity	"ENT-CRS: Enter cross-connection" (p. 4-1026)
SNVS - Status, Not in Valid State, maintenance condition	check whether system is maintenance condition	"ENT-EQPT (slot): Enter equipment (slot)" (p. 4-1079), "ED-EQPT (slot): Edit equipment (slot)" (p. 4-267), "DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116), "ENT-EQPT (Socket): Enter equipment" (p. 4-1087), "ED-EQPT (Socket): Edit equipment" (p. 4-276), "DLT-EQPT (Socket): Delete equipment" (p. 4-125), "ENT-FECOM-LAN: Enter LAN related parameters" (p. 4-1105), "ENT-ULS: Enter upper layer stack" (p. 4-1386), "ED-T3: Edit DS3 port" (p. 4-840), "ED-EC1: Edit EC1 port" (p. 4-231)
SNVS - Status, Not in Valid State, Manual Switch to Worker for Protection Type 1x1 not allowed	MSP type 1:1 does not allow manual switch requests to worker	"OPR-PROTNSW: Operate protection switch" (p. 4-1472)
SNVS - Status, Not in Valid State, Manual Switch for Protection Type 1+1_Optimized not allowed	MSP type 1+1_optimized does not allow manual switch commands	
SNVS - Status, Not in Valid State, Modification of flow control mode not allowed	No modification of *fcmd* if *vlantagmd* = 802.1TAG	"ED-EPORT: Edit Ethernet port" (p. 4-242)
SNVS - Status, Not in Valid State, Modification not allowed	No Modification of rptmode if vlantagmd = 802.1TAG	"ED-EPORT: Edit Ethernet port" (p. 4-242)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, Modification not allowed in Backward Compatible Mode	Parameter modification not allowed in backward compatible mode	"ED-VCG: Edit virtual concatenation group" (p. 4-969), "ED-EPORT: Edit Ethernet port" (p. 4-242),
SNVS - Status, Not in Valid State, multiple added XCs for MSSPRING TOP	no multiple added XCs for MSSPRING TOP	"ENT-CRS: Enter cross-connection" (p. 4-1026), "CNVT-CCT: Convert cross-connection topology" (p. 4-49), "ED-PROTN-GRP: Edit protection group" (p. 4-551)
	no multiple added XCs for TOP	"ED-PROTN-GRP: Edit protection group" (p. 4-551)
SNVS - Status, Not in Valid State, MS-DCC may not be enabled	changing of *portClass* only possible, if MS-DCC is not enabled on the port	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM256: Edit STM256 port" (p. 4-796), "ED-OC768: Edit OC768 port" (p. 4-496)
SNVS - Status, Not in Valid State, new Tributary has existing loopback	No crossconnection loopback existing	"CNVT-CCT: Convert cross-connection topology" (p. 4-49)
SNVS - Status, Not in Valid State, new tributary used in test access session	Tributary not used in a test access session	

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, ndetmd must not be AUTO	Some parameters not settable for ports of *ndetmd* AUTO	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496)
SNVS - Status, Not in Valid State, no dcc channel enabled	dcc enabled	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222)
	dcc enabled on protection port	
SNVS - Status, Not in Valid State, node in use as RA destination node	reject deletion when node is used as RA destination node by OSI node 1	"DLT-ULSDCC-L3: Delete a node ID other than node-1" (p. 4-190)
SNVS - Status, Not in Valid State, node not in idle state	idle ring node for protocol conversion	"ED-PROTN-GRP: Edit protection group" (p. 4-551)
SNVS Status, Not in Valid State, no matching log entry	no matching log entry	"RTRV-LOG-NTFCN: Retrieve notification Log" (p. 4-1765), "RTRV-LOG-PROTNSW: Retrieve log protection switch" (p. 4-1769)
SNVS - Status, Not in Valid State, No matching NN cross connection existing on working tributary	NN connection of matching directionality must exist on working tributary	"ENT-OUC: Enter ONNS to UPSR/SNCP constructs" (p. 4-1182)
SNVS - Status, Not in Valid State, no other LAN port with IP enabled for T-TD or FTTD available	can't assign LAN to SCN Node when T-TD or FTTD is enabled and no other LAN port with IP configuration is available	"ENT-FECOM-LAN: Enter LAN related parameters" (p. 4-1105)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, no SCN IP address provisioned	for provisioned SCN IP address	"ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)
	can't assign LAN to scnnode when no ASTN IP address is provisioned	"ENT-FECOM-LAN: Enter LAN related parameters" (p. 4-1105)
SNVS - Status, Not in Valid State, no SwiSS capable HW	compatibility xcsetup and HW configuration	"ED-EQPT (system): Edit equipment (system)" (p. 4-285)
SNVS - Status, Not in Valid State, no test access session on the test tributary	No test access session on the test tributary	"CHG-ACCMD: Change access mode" (p. 4-44), "DISC-TACC: Disconnect test access" (p. 4-88)
SNVS - Status, Not in Valid State, not in Maintenance Condition	check of the maintenance condition	"ED-EQPT (system): Edit equipment (system)" (p. 4-285), "SET-SID: Set SID" (p. 4-2314), "ENT-FECOM-LAN: Enter LAN related parameters" (p. 4-1105)
SNVS - Status, Not in Valid State, no XC reservations allowed for change of iNNI parameters	Setting of some INNI properties only possible, if no reservations wrt. M:N protecting connections existing	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, no XCs allowed for change of INNI parameters	setting of some INNI properties only possible, if no cross-connection existing	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457)
SNVS - Status, Not in Valid State, NVM size not sufficient	Compatibility xcsetupand NVM size	"ED-EQPT (system): Edit equipment (system)" (p. 4-285)
	NVM size sufficient for database with NN objects	"CPY-MEM: Copy memory" (p. 4-76)
SNVS - Status, Not in Valid State, one port of protection unit is assigned as timing reference	Working port to be added is assigned as timing reference	"ED-PROTN-GRP: Edit protection group" (p. 4-551)
SNVS - Status, Not in Valid State, ONNS is active	Deletion of XC circuit packs while ONNS is active	"DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116)
	SW installation in trial phase while ONNS is active	"APPLY: Apply software generic" (p. 4-25)
SNVS - Status, Not in Valid State, Optical Channel must be enabled	enabling of outband FEC only if optical channel is enabled	"ED-STM64: Edit STM64 port" (p. 4-755), "ED-OC192: Edit OC192 port" (p. 4-457),
SNVS - Status, Not in Valid State, osinode not in created state	osinode must be in the created state	"ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack." (p. 4-929), "DLT-ULSDCC-L3: Delete a node ID other than node-1" (p. 4-190)
SNVS - Status, Not in Valid State, other port of protection unit is assigned to a line timing reference	no timing reference on other port of protection unit	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, OUC to different protection tributary already exists	No OUC must already exist on working tributary to different protection tributary	"ENT-OUC: Enter ONNS to UPSR/SNCP constructs" (p. 4-1182)
SNVS - Status, Not in Valid State, Output is already crossconnected	output not in use	"ENT-CRS: Enter cross-connection" (p. 4-1026)
SNVS - Status, Not in Valid State, P-bit parity violation monitoring not allowed with Unframed Clear-Channel	P-bit parity violation monitoring not allowed with unframed clear-channel	"ED-T3: Edit DS3 port" (p. 4-840)
SNVS - Status, Not in Valid State, parameter required	parameter sc or dest is missing	"OPR-SYNCNSW: Operate synchronization switch " (p. 4-1492)
SNVS - Status, Not in Valid State, Parameter(s) present which are not allowed	Only those parameter present which are needed	"CNVT-CCT: Convert cross-connection topology" (p. 4-49)
SNVS - Status, Not in Valid State, Parameter value for SNC Type not compliant to interface standard of working and protection tributaries	SNC Type must comply with interface standard of affected EDGE ports	"ENT-OUC: Enter ONNS to UPSR/SNCP constructs" (p. 4-1182)
SNVS - Status, Not in Valid State, part of 1+1 MSP protection	DCC Protection	"ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)
SNVS - Status, Not in Valid State, portClass of protection port must not be EDGE	supported portClass: protection ports must not be of portClass EDGE	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222)

Errorcode	Meaning (validation rule)	Related to command ...
`SNVS - Status, Not in Valid State, portClass must not be EDGE`	Some parameters not settable for ports of *portClass* EDGE	"ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457)
	No port in portClass EDGE	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222)
`SNVS - Status, Not in Valid State, portClass must not be EDGE for TOP`	setting of *portClass* for TOP	"ED-STM64: Edit STM64 port" (p. 4-755), "ENT-PROTN-GRP: Enter protection group" (p. 4-1222), "ED-PROTN-GRP: Edit protection group" (p. 4-551)
`SNVS - Status, Not in Valid State, Port Class must not be EDGE or INNI`	Not allowed to change the *portClass* directly from INNI to EDGE or EDGE to INNI	"ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, portClass must not be INNI	Some parameters not settable for ports of *portClass* INNI	"ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM256: Edit STM256 port" (p. 4-796), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496)
	supported *portClass*	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222)
	hptimmon changes to ENABLE only allowed when corresponding port is not of portClass INNI	"ED-VC3: Edit VC3 tributary" (p. 4-956), "ED-STS1: Edit STS1 tributary" (p. 4-823)
	No port in portClass INNI	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222)
SNVS - Status, Not in Valid State, portClass may not be EDGE	no EDGE protection port for 1+1 MSP	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222)
	no EDGE protection port for 1:1 MSP	

Errorcode	Meaning (validation rule)	Related to command ...
`SNVS - Status, Not in Valid State, Port in out of service state`	setting of *portClass* to INNI only possible, if service condition not OUTOFSERVICE	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796) "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457)
`SNVS - Status, Not in Valid State, Port is not out-of-service`	port is out-of-service	"OPR-LPBK: Operate loopback (here facility loopback)" (p. 4-1465)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, Port is still in use	setting of *portClass* away from INNI only possible, if the port is not in use	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496)
	setting of *portClass* from EDGE to TRADITIONAL only possible, if the tributaries on the port are not in use by SNN	
	setting of *portClass* away from INNI only possible, if the port is not in use by M:N reservation	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457)
SNVS - Status, Not in Valid State, Port is still in use by ONNS	No port on protection pack in *portClass* EDGE	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222)
	check if related port is not in use by ONNS	"DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116), "DLT-EQPT (Socket): Delete equipment" (p. 4-125)
SNVS - Status, Not in Valid State, port mode change not allowed for INNI ports	Port mode not settable for ports of *portClass*=INNI	"ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-STM64: Edit STM64 port" (p. 4-755)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, Port must not be a 1+1 protection port	setting of *portClass* from TRADITIONAL to EDGE	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496)
SNVS - Status, Not in Valid State, Port must not be a 1:1 protection port		"ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, Port must not be member of a protection group	setting of *portClass* to INNI not possible for ports in protection groups	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496)
SNVS - Status, Not in Valid State, Port must not be of portClass INNI	No loopbacks on tributaries below ports of *portClass* INNI	"OPR-LPBK (here cross-connection loopback)" (p. 4-1458), "OPR-LPBK: Operate loopback (here facility loopback)" (p. 4-1465)
SNVS - Status, Not in Valid State, Port must not be of portClass EDGE	No loopbacks on tributaries below ports of *portClass* EDGE	"OPR-LPBK (here cross-connection loopback)" (p. 4-1458)
SNVS - Status, Not in Valid State, port numbers cannot be changed when T-TD is enabled	no TCP port number change with enabled T-TD function	"ENT-ULS: Enter upper layer stack" (p. 4-1386)
SNVS - Status, Not in Valid State, port used for NN application	Port used for NN application	"CONN-TACC: Connect test access" (p. 4-62)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, ports must be on different circuit packs	port on different packs	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222), "ED-PROTN-GRP: Edit protection group" (p. 4-551)
SNVS - Status, Not in Valid State, ports have different interface types	common interface type	
SNVS - Status, Not in Valid State, port is already used in another protection group	port is only in one group	
SNVS - Status, Not in Valid State, port rate not supported for this protection type	supported port rate	
SNVS - Status, Not in Valid State, ports have different port rates	common port rate	
SNVS - Status, Not in Valid State, protection port is assigned to a line timing reference	no timing reference on protection port	
SNVS - Status, Not in Valid State, protection port is out-of-service	no out-of-service state on protection port	
SNVS - Status, Not in Valid State, protection port is assigned as timing reference	Timing Reference Assigned on Protection Unit	"ED-PROTN-GRP: Edit protection group" (p. 4-551)
SNVS - Status, Not in Valid State, port used for Linear MSP	port used for Linear MSP	"CONN-TACC: Connect test access" (p. 4-62)
SNVS - Status, Not in Valid State, port used for MSSPRING/BLSR	port used for MSSPRING/BLSR	
SNVS - Status, Not in Valid State, protection dcc channel is enabled	dcc protection side is enabled	"ED-PROTN-GRP: Edit protection group" (p. 4-551)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, protection group still exist	no protection groups allowed	"DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116), "DLT-EQPT (Socket): Delete equipment" (p. 4-125)
SNVS - Status, Not in Valid State, protection tributary is used in cross-connection	No XC on protection tribs	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222)
SNVS - Status, Not in Valid State, Protection switch with current combination of XC circuit pack types is traffic affecting	No manual protection switch if the switchover leads to traffic impairments	"OPR-PROTNSW: Operate protection switch" (p. 4-1472)
SNVS - Status, Not in Valid State, protection unit is activ	protection unit is active	"DLT-PROTN-GRP: Delete protection group" (p. 4-164)
SNVS - Status, Not in Valid State, reference unavailable	reference switching during lockout or disabled state	"OPR-SYNCNSW: Operate synchronization switch " (p. 4-1492)
SNVS - Status, Not in Valid State, request not practicable	no change of the request state, request not practicable	
	forced or manual switch request while reference is in forced state	
SNVS - Status, Not in Valid State, resoureces in use by SwiSS	setting xcsetup back to TRADITIONAL	"ED-EQPT (system): Edit equipment (system)" (p. 4-285)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, signal structure cannot be changed for connected parts of a fixed port	*inputsig* consistent with existing cross-connections	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796)
	unequiposig consistent with existing cross-connections	
	inputsig consistent with existing cross-connections for fixed tributary mode	"ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496)
	unequiposig consistent with existing cross-connections for fixed tributary mode	
SNVS - Status, Not in Valid State, socket is not provisioned	Socket must already be provisioned	"ED-EQPT (Socket): Edit equipment" (p. 4-276), "DLT-EQPT (Socket): Delete equipment" (p. 4-125)
SNVS - Status, Not in Valid State, SONET port not allowed for TOP	SDH ports for TOP	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222), "ED-PROTN-GRP: Edit protection group" (p. 4-551)
SNVS - Status, Not in Valid State, static VLAN configuration not cleared	check whether VLAN lists are empty	"ED-EQPT (CP): Edit equipment (circuit pack)" (p. 4-255)
SNVS - Status, Not in Valid State, SW generic is in trial phase	No SW download or DB restore during trial phase	"CPY-MEM: Copy memory" (p. 4-76), "COPY-RFILE: Copy remote file" (p. 4-70)
	Compatibility *xcsetup* and software state	"ED-EQPT (system): Edit equipment (system)" (p. 4-285)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, SwiSS access possible	no ONNS for interface standard change	"ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-VCG: Edit virtual concatenation group" (p. 4-969)
SNVS - Status, Not in Valid State, SwiSS not enabled	*portClass* only settable when xcsetup=SWISS	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755)"ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496), "ED-VCG: Edit virtual concatenation group" (p. 4-969)
	do not accept NN TL1 commands when xcsetup=TRADITIONAL	"ED-EQPT (system): Edit equipment (system)" (p. 4-285)
SNVS - Status, Not in Valid State, switch back to previous software only allowed in trial phase	Switch back to previous SW only during trial phase	"APPLY: Apply software generic" (p. 4-25)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, switch capacity below provisioned XC CP switch capacity	Switch capacity according XC CP	"ED-EQPT (system): Edit equipment (system)" (p. 4-285)
SNVS - Status, Not in Valid State, switch command not allowed for actual protection state	allowed switch command in that state	"OPR-PROTNSW: Operate protection switch" (p. 4-1472)
SNVS - Status, Not in Valid State, TARP not enabled	check for correct TARP configuration	"ED-NE: Edit NE" (p. 4-320)
SNVS - Status, Not in Valid State, TARP origination function disabled	TARP data cache change only if TARP origination enabled	"ENT-ULSDCC-L4: Enter layer 4 related parameters of the OSI stacks " (p. 4-1401)
SNVS - Status, Not in Valid State, TARP propagation can not be disabled	Can't disable TARP propagation while LAN TARP Storm Suppression is enabled	"ENT-ULSDCC-L4: Enter layer 4 related parameters of the OSI stacks " (p. 4-1401)
SNVS - Status, Not in Valid State, TCA profile assigned	modifying the name of an active profile	"ED-TCA-PROF: Edit TCA profile" (p. 4-852), "DLT-TCA-PROF: Delete TCA Profile" (p. 4-186)
SNVS - Status, Not in Valid State, Test Access not allowed on bridged cross connections	not allowed for bridged cross connections	"CONN-TACC: Connect test access" (p. 4-62)
SNVS - Status, Not in Valid State, Test Access not allowed with path protected tributaries	Not allowed for path protected tributaries	
SNVS - Status, Not in Valid State, the CP is not plugged out	CP must be plugged out	"DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116)
SNVS - Status, Not in Valid State, the Module is not plugged out	Invalid module plugged in	"ED-EQPT (Socket): Edit equipment" (p. 4-276)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, This Change of Protection Architecture not allowed, deprovision first	no change between MSP type 1+1_optimized and other MSP types	"ED-PROTN-GRP: Edit protection group" (p. 4-551)
SNVS - Status, Not in Valid State, TID inconsistent with existing cross-connection	TIDs consistent with existing cross-connection	"ENT-CRS: Enter cross-connection" (p. 4-1026)
SNVS - Status, Not in Valid State, timing clock mode inconsistent	timing clock mode inconsistent	"SET-SYNCN: Set synchronization" (p. 4-2318)
SNVS - Status, Not in Valid State, Timing reference is assigned to this port	servcond must be enabled when timing source	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496),
SNVS - Status, Not in Valid State, Too many cross-connection originating from same tributary	restrict number of cross-connection using same input tributary	"ENT-CRS: Enter cross-connection" (p. 4-1026), "CNVT-CCT: Convert cross-connection topology" (p. 4-49)
SNVS - Status, Not in Valid State, transparent DCC connections are existing at protection pack	Transparent DCC connections	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, transparent DCC connections are still existing	no transparent DCC connections	"DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116), "DLT-EQPT (Socket): Delete equipment" (p. 4-125) (
SNVS - Status, Not in Valid State, Trial to change loopback type	no change of loopback allowed	"OPR-LPBK: Operate loopback (here facility loopback)" (p. 4-1465)
SNVS - Status, Not in Valid State, Tributary has existing loopback	no cross-connection loopback existing	"ENT-CRS: Enter cross-connection" (p. 4-1026) "DLT-CRS: Delete cross-connection" (p. 4-97), "CONN-TACC: Connect test access" (p. 4-62)
SNVS - Status, Not in Valid State, tributary is not in state wait-to-restore	wait-to-restore is not pending	"OPR-VCGTRIB: Operate virtual concatenation group tributary" (p. 4-1497)
SNVS - Status, Not in Valid State, tributary is used in cross-connection loopback	no XC loopbacks on tribs	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222), "DLT-PROTN-GRP: Delete protection group" (p. 4-164), "ED-PROTN-GRP: Edit protection group" (p. 4-551)
SNVS - Status, Not in Valid State, tributary is used in cross-connection	no XC on tribs	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222), "DLT-PROTN-GRP: Delete protection group" (p. 4-164), "ED-PROTN-GRP: Edit protection group" (p. 4-551)
SNVS - Status, Not in Valid State, tributary not assigned as a test tributary	Tributary is not assigned as a test tributary	"RTRV-TACC: Retrieve test access" (p. 4-2176)
SNVS - Status, Not in Valid State, trib of 1+1/1x1 port as input-trib in pathprotected crossconnection	No trib of 1+1 port protection as newinaid (for path-protected cross-connection)	"CNVT-CCT: Convert cross-connection topology" (p. 4-49)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, trib of MSP 1+1/1x1 port as input-trib in pathprotected crossconnection	No input tributary of path-protected cross-connection on the ports	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222)
SNVS - Status, Not in Valid State, trib of MSP 1+1/1x1 port as input-trib in pathprotected crossconnection	No trib of any MSP port as in_aid (for path-protected cross-connection)	"ENT-CRS: Enter cross-connection" (p. 4-1026)
SNVS - Status, Not in Valid State, Tributaries must not be on ports of portClass INNI	Tributaries must not belong to ports of portClass INNI	
SNVS - Status, Not in Valid State, Tributaries must be on ports of portClass EDGE	Tributaries must belong to ports of *portClass* EDGE	"ENT-OUC: Enter ONNS to UPSR/SNCP constructs" (p. 4-1182)
SNVS - Status, Not in Valid State, tributary rate not supported for protection with this port rate	trib bandwidth is not greater as service bandwidth	"ENT-PROTN-GRP: Enter protection group" (p. 4-1222)
SNVS - Status, Not in Valid State, Tributary used in test access session	No test access session	"ENT-CRS: Enter cross-connection" (p. 4-1026), , "OPR-LPBK (here cross-connection loopback)" (p. 4-1458), "ENT-PROTN-GRP: Enter protection group" (p. 4-1222), "DLT-PROTN-GRP: Delete protection group" (p. 4-164), "DLT-EQPT (Socket): Delete equipment" (p. 4-125)
	Tributaries not used in a test access session when removing a path protection	"CNVT-CCT: Convert cross-connection topology" (p. 4-49)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, T-TD enabled	not allowed to disable TARP when T-TD is enabled	"ENT-ULSDCC-L4: Enter layer 4 related parameters of the OSI stacks " (p. 4-1401)
SNVS - Status, Not in Valid State, Unframed Clear-Channel not allowed with DS3 path PM	unframed clear-channel not allowed with DS3 path PM	"ED-T3: Edit DS3 port" (p. 4-840)
SNVS - Status, Not in Valid State, Unframed Clear-Channel not allowed with P-bit parity violation monitoring	unframed clear-channel format not allowed with P-bit parity violation monitoring	
SNVS - Status, Not in Valid State, unknown IP address within MAP	check for known IP address	"DLT-IP-MAP: Delete TCP/IP map" (p. 4-134)
SNVS - Status, Not in Valid State, unknown module equipage	Equipage status and inventory data of module must be accessible	"ED-EQPT (Socket): Edit equipment" (p. 4-276), "DLT-EQPT (Socket): Delete equipment" (p. 4-125)
SNVS - Status, Not in Valid State, unknown TARP Manual Adjacent NSAP	Check for Existing TARP Manual Adjacent NSAP	"DLT-ULSDCC-L4: Delete TARP manual adjacent NSAP address in layer 4 of the specified OSI stack" (p. 4-194)
SNVS - Status, Not in Valid State, unsupported MS - SPRing/BLSR DNI/DRI	supported MS-SPRing/BLSR DNI/DRI	"ENT-CRS: Enter cross-connection" (p. 4-1026) , "CNVT-CCT: Convert cross-connection topology" (p. 4-49)
SNVS - Status, Not in Valid State, VCG is still in use	Setting of *eportClass* from EDGE to TRADITIONAL only possible, if the VCG tributaries on the port are not in use by ONNS	"ED-VCG: Edit virtual concatenation group" (p. 4-969)
SNVS - Status, Not in Valid State, working dcc channel is disabled	dcc protection: working side is disabled	"ED-PROTN-GRP: Edit protection group" (p. 4-551)

Errorcode	Meaning (validation rule)	Related to command ...
SNVS - Status, Not in Valid State, wrong IP configuration	Check for correct OSI node configuration	"ENT-ULS: Enter upper layer stack" (p. 4-1386)
	Check for IP default router LAN	"ENT-FECOM-LAN: Enter LAN related parameters" (p. 4-1105)
SNVS - Status, Not in Valid State, XC destination not usable	No forced switch to unusable XC slot (Switching Protection Group)	"OPR-PROTNSW: Operate protection switch" (p. 4-1472)
SNVS - Status, Not in Valid State, XC loopbacks still exist	no XC loopbacks for interface type change	"ED-T3: Edit DS3 port" (p. 4-840), "ED-EC1: Edit EC1 port" (p. 4-231)
SNVS - Status, Not in Valid State, XC loopbacks still exist	no XC loopbacks allowed	"DLT-EQPT (slot): Delete equipment (slot)" (p. 4-116), "DLT-EQPT (Socket): Delete equipment" (p. 4-125) (
SNVS - Status, Not in Valid State, XC loopbacks still exist at the protection pack.		"ENT-PROTN-GRP: Enter protection group" (p. 4-1222)
SNVS - Status, Not in Valid State, xcon must not be of class NN	Tributaries occupied by ONNS	"OPR-LPBK: Operate loopback (here facility loopback)" (p. 4-1465)
SNVS - Status, Not in Valid State, XC Pack not provisioned	XC pack is (pre-)provisioned	"ENT-CRS: Enter cross-connection" (p. 4-1026), "ENT-PROTN-GRP: Enter protection group" (p. 4-1222), "CONN-TACC: Connect test access" (p. 4-62)
SNVS - Status, Not in Valid State, xcsetup must be TRADITIONAL	Check of xcsetup for ip_ad_astn change	"ENT-ULS: Enter upper layer stack" (p. 4-1386)
SPFA - Status, Protection unit FAiled	succeeding switch command	"OPR-PROTNSW: Operate protection switch" (p. 4-1472), "RLS-PROTNSW: Release protection switch" (p. 4-1574)
SPFA - Status, Protection unit FAiled, APS did not succeed	APS switch time constraint	"OPR-PROTNSW: Operate protection switch" (p. 4-1472)

Errorcode	Meaning (validation rule)	Related to command ...
SRAC - Status, Requested Access Configuration invalid, retrieved file NE mismatch	product mismatch	"CPY-MEM: Copy memory" (p. 4-76), "COPY-RFILE: Copy remote file" (p. 4-70)
SROF - Status, Requested Operation Failed	non-hardware system difficulties	"APPLY: Apply software generic" (p. 4-25)
	no more than two TARP manual adjacencies per node	"ENT-ULSDCC-L4: Enter layer 4 related parameters of the OSI stacks " (p. 4-1401)
	Provisioning of TARP manual adjacencies only if TARP enabled	
SROF - Status, Requested Operation Failed, other system failure	APPLY applied on corrupted software	"APPLY: Apply software generic" (p. 4-25)
SROF - Status, Requested Operation Failed, external communications failure	external communication failure	"CPY-MEM: Copy memory" (p. 4-76)
SROF - Status, Requested Operation Failed, unsuccessful file transfer	transferred file is deemed invalid	
SRQN - Status, invalid request, uid not logged in	user with uid not logged in	"CANC-USER-SECU: Cancel user security" (p. 4-41)
SSRD - Status, Switch Request Denied, clock mode inconsistent	clock backup switch request when clock mode is free running	"OPR-SYNCNSW: Operate synchronization switch " (p. 4-1492)
SSRE - Status, System Resources Exceeded, allowed limit of DCC channels exceeded	validation rule for max number of DCC channels for MS/RS-DCC reached	"ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)
	validation rule if more than 64 DCC channels are assigned to node-1	
SSRE - Status, System Resources Exceeded, allowed limit of SCN DCC channels exceeded	maximum number of channels assigned to SCN	"ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)

Errorcode	Meaning (validation rule)	Related to command ...
SSRE - Status, System Resources Exceeded, allowed number of active LOXC packs exceeded	Check number of active LOXC packs	"ED-EQPT (CP): Edit equipment (circuit pack)" (p. 4-255)
SSRE - Status, System Resources Exceeded, limit of PM monitors exceeded	maximum number of enabled PM monitors	"ED-STM1E: Edit STM1E port" (p. 4-604), "ED-STM1: Edit STM1 port" (p. 4-634), "ED-STM4: Edit STM4 port" (p. 4-669), "ED-STM16: Edit STM16 port" (p. 4-704), "ED-STM64: Edit STM64 port" (p. 4-755), "ED-STM256: Edit STM256 port" (p. 4-796), "ED-OC3: Edit OC3 port" (p. 4-339), "ED-OC12: Edit OC12 port" (p. 4-374), "ED-OC48: Edit OC48 port" (p. 4-408), "ED-OC192: Edit OC192 port" (p. 4-457), "ED-OC768: Edit OC768 port" (p. 4-496), "ED-VC3: Edit VC3 tributary" (p. 4-956), "ED-STS1: Edit STS1 tributary" (p. 4-823), "ED-EPORT: Edit Ethernet port" (p. 4-242), "ED-VCG: Edit virtual concatenation group" (p. 4-969), "ED-VCGTRIB: Edit virtual concatenation group tributary" (p. 4-995), "ED-OC48T: Edit OC48 transparent port" (p. 4-443), "ED-PTF: Edit tributary with Path Termination Function (PTF)" (p. 4-578), "ED-STM16T: Edit STM16T port" (p. 4-740), "ED-T3: Edit DS3 port" (p. 4-840), "ED-VCG-TRANS: Edit virtual concatenation group for fully transparent application" (p. 4-984), "ED-EC1: Edit EC1 port" (p. 4-231)

Errorcode	Meaning (validation rule)	Related to command ...
SSRE - Status, System Resources Exceeded, limit of ppgnames exceeded	maximum number of *ppgnames* exceeded	"ENT-CRS: Enter cross-connection" (p. 4-1026), "ED-PROTN-GRP: Edit protection group" (p. 4-551), "CNVT-CCT: Convert cross-connection topology" (p. 4-49)
SSRE - Status, System Resources Exceeded, limit of profiles exceeded	maximum number of profiles	"ENT-ASAP-PROF: Enter alarm severity assignment profile" (p. 4-1018)
	maximum number of TCA profiles reached	"ENT-TCA-PROF: Enter TCA Profile" (p. 4-1345)
SSRE - Status, System Resources Exceeded, limit of transparent DCC Cross Connectins exceeded	maximum of DCC CCs exceeded	"ENT-CRS-FECOM: Enter transparent DCC cross-connection" (p. 4-1062)
	Maximum of DCC CCs exceeded with CTL/3	"ENT-CRS-FECOM: Enter transparent DCC cross-connection" (p. 4-1062)
SSRE - Status, System Resources Exceeded, limit of tribs with loca, locz exceeded	maximum number of tributaries with loca, locz entries must not exceed 100	"ED-VC3: Edit VC3 tributary" (p. 4-956), "ED-STS1: Edit STS1 tributary" (p. 4-823)
SSRE - Status, System Resources Exceeded, limit of VLAN Identifiers exceeded	Maximum number of entries in valid VLAN ID list exceeded	"ED-EPORT: Edit Ethernet port" (p. 4-242)
SSRE - Status, System Resources Exceeded, max. no. of profiles reached	Maximum number of TCA profiles reached	"ENT-TCA-PROF: Enter TCA Profile" (p. 4-1345)
SSRE - Status, System Resources Exceeded, overall limit of DCC channels exceeded	Maximum number of channels assigned to MCN and SCN	"ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)
	Maximum nr. of channels assigned to MCN and SCN on CTL/3	"ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)
	Maximum number of channels assigned to MCN and SCN on CTL4	"ENT-FECOM: Enter DCC channel related parameters" (p. 4-1093)

Errorcode	Meaning (validation rule)	Related to command ...
SSRE - Status, System Resources Exceeded (sent by T-TD, TL1_TTD)	Maximum number of user sessions via T-TD on Gateway NE with CTL/4	"ACT-USER: Activate user" (p. 4-14)
	Maximum number of user sessions via T-TD on Gateway NE per TCP connection	
	Maximum number of user sessions via T-TD on Gateway NE	
STSF - Status, Connection torn down due to M:N group setup failure	NN PortID parameter value is not valid	"ENT-PATH: Create ONNS path connection" (p. 4-1190)

15 User privilege codes

Overview

Purpose

The following table lists the user privilege codes

Contents

List of user privilege codes

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ACT-USER: Activate user	Any
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APPLY: Apply software generic	S4
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CANC-USER-SECU: Cancel user security	S5
CPY-MEM: Copy memory	S4
DLT-ASAP-PROF: Delete ASAP profile	M3
DLT-CRS: Delete Cross-connection	P3
DLT-CRS-FECOM: Delete transparent DCC cross-connection	M3
DLT-EQPT (slot): Delete equipment (slot)	P3
DLT-EQPT (Socket): Delete equipment	
DLT-IP-MAP: Delete TCP/IP map	S3
DLT-OUC: Delete ONNS to UPSR/SNCP constructs	P3
DLT-PROTN-GRP: Delete protection group	M4
DLT-TCA-PROF: Delete TCA Profile	PM3
DLT-ULSDCC-L3:Delete a node ID other than node-1	S3
DLT-ULSDCC-L4: Delete TARP manual adjacent NSAP address in layer 4 of the specified OSI stack	
DLT-USER-SECU: Delete user security	S5
ED-ASAP-PROF: Edit alarm severity assignment profile	M3
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ED-EQPT (CP): Edit equipment (circuit pack)	
ED-EQPT (shelf): Edit Equipment (shelf)	
ED-EQPT (slot): Edit Equipment (slot)	
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TL1 command	User privilege code (UCFC/UCAL)
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ED-NE-SECU: Edit NE security	S5
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ED-OC12: Edit OC12 port	
ED-OC48: Edit OC48 port	
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ED-STM16T: Edit STM16T port	
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ED-STS1: Edit STS1 tributary	
ED-T3: Edit DS3 port	
ED-TCA-PROF: Edit TCA Profile	PM3
ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack	S4
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TL1 command	User privilege code (UCFC/UCAL)
ED-VC3: Edit VC3 tributary	P3
ED-VCG: Edit virtual concatenation group	
ED-VCG-TRANS: Edit virtual concatenation group for fully transparent application	
ED-VCGTRIB: Edit virtual concatenation group tributary	
ED-VRTSW: Edit Virtual Switch	
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ENT-OUC: Enter ONNS to UPSR/SNCP constructs	P3
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ENT-USER-SECU: Enter user security	S5
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INIT-REG: Initialize Register	PM3
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OPR-EXT-CONT: Operate External Control	M3
OPR-LPBK: Operate loopback	T4
OPR-PROTNSW: Operate protection switch	M4
OPR-SYNCNSW: Operate synchronization switch	
OPR-VCGTRIB: Operate virtual concatentation group tributary	M3

TL1 command	User privilege code (UCFC/UCAL)
RLS-EXT-CONT: Release external control	M3
RLS-LPBK: Release loopback	T4
RLS-PROTNSW: Release protection switch	M4
RLS-SYNCNSW: Release synchronization switch	
RTRV-ALL: Retrieve all	P1
RTRV-ACTLCP: Retrieve acceptable circuit pack list	
RTRV-ACTL-CONT	M1
RTRV-ALM: Retrieve alarm	
RTRV-ALM-ENV: Retrieve alarm environment	
RTRV-AO: Retrieve Autonomous Output	S1
RTRV-ASAP-ASGNMT: Retrieve ASAP assignment	M1
RTRV-ASAP-PROF: Retrieve ASAP profile	
RTRV-ATTR-CONT: Retrieve attribute control	
RTRV-ATTR-ENV: Retrieve attribute environment	
RTRV-ATTR-MSG: Retrieve attribute message	
RTRV-COND: Retrieve condition	
RTRV-CRS: Retrieve cross-connection	P1
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RTRV-EPORT: Retrieve Ethernet port	P1
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RTRV-EQPT (shelf): Retrieve Equipment (shelf)	
RTRV-EQPT (slot): Retrieve Equipment (slot)	
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RTRV-EXT-CONT: Retrieve external control	M1
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RTRV-HDR: Retieve header	Any

TL1 command	User privilege code (UCFC/UCAL)
RTRV-IP-MAP: Retrieve TCP/IP map	S1
RTRV-LOG-ALM: Retrieve log alarm	
RTRV-LOG-ERROR: Retrieve Error Log	
RTRV-LOG-NNEVT: Retrieve NN Event Log	
RTRV-LOG-NTFCN: Retrieve notification Log	
RTRV-LOG-PROTNSW: Retrieve log protection switch	
RTRV-LONIM: Low-Order Non-Intrusive Monitor	P1
RTRV-LOXCPM: Retrieve Performance Monitoring Data of LOXC pack	PM1
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RTRV-MAP-NETWORK: Retrieve network map	
RTRV-MAP-RING: Retrieve map ring	M1
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RTRV-OC3: Retrieve OC-3 port	P1
RTRV-OC12: Retrieve OC-12 port	
RTRV-OC48: Retrieve OC-48 port	
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RTRV-OC192: Retrieve OC-192 port	
RTRV-OC768: Retrieve OC-768 port	
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RTRV-OW: Retrieve Orderwire and User Bytes	M1
RTRV-PM: Retrieve performance monitoring	PM1
RTRV-PRMTR-DATA: Retrieve parameter data	S1
RTRV-PRMTR-SFTWR: Retrieve parameter software	
RTRV-PROTN-GRP: Retrieve protection group	M1
RTRV-SCN-NEIGHBOR: Retrieve SCN neighbor	S1

TL1 command	User privilege code (UCFC/UCAL)
RTRV-STATE-EQPT (CP): Retrieve equipment state (circuit pack)	M1
RTRV-STATE-EQPT (slot): Retrieve equipment state (slot)	
RTRV-STATE-EQPT (Socket): Retrieve equipment state	
RTRV-STATE-EQPT (system): Retrieve equipment state	
RTRV-STM1: Retrieve STM-1 port	P1
RTRV-STM1E: Retrieve STM1E port	
RTRV-STM4: Retrieve STM-4 port	
RTRV-STM16: Retrieve STM-16 port	
RTRV-STM16T: Retrieve STM-16T port	
RTRV-STM64: Retrieve STM-64 port	
RTRV-STM256: Retrieve STM-256 port	
RTRV-STS1: Retrieve STS1 tributary	
RTRV-T3: Retrieve DS3 port	
RTRV-SYNCN: Retrieve synchronization	M1
RTRV-TCA-PROF: Retrieve TCA profile	PM1
RTRV-ULS: Retrieve upper layer stack	S1
RTRV-ULSDCC-L3: Retrieve layer 3 related parameters	S1
RTRV-ULSDCC-L4: Retrieve OSI layer 4 related parameters	
RTRV-USER: Retrieve user	S2
RTRV-USER-SECU: Retrieve user security	S4
RTRV-VC3: Retrieve VC3 tributary	P1
RTRV-VCG: Retrieve virtual concatenation group	
RTRV-VCG-TRANS: retrieve virtual concatenation group for fully transparent application	
RTRV-VCGTRIB: Retrieve virtual concatenation group tributary	
RTRV-VRTSW: Retrieve Virtual Switch	
SET-ATTR-CONT: Set attribute control	M3
SET-ATTR-ENV: Set attribute environment	
SET-MAP-RING: Set map ring	
SET-OW: Set Orderwire and User Bytes	M3
SET-SID: Set SID	S4

TL1 command	User privilege code (UCFC/UCAL)
SET-SYNCN: Set synchronization	M3

16 Optical network navigation system (ONNS)

Overview

Purpose

This chapter contains detailed information about the TL1 commands related to the so-called Optical Network Navigation System (ONNS) feature.

The ONNS system component name is often shortened to SNN or NN.

Contents

ONNS system parameters

Overview

Purpose

This section lists information about the TL1 commands related to the ONNS system parameters.

Contents

List of commands

ONNS data repositories

Overview

Purpose

This section lists information about the TL1 commands related to the ONNS data repositories.

Contents

List of commands

Path

Overview

Purpose

This section contains information about the TL1 commands related to the Path.

Contents

List of commands

- "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
- "ENT-PATH: Create ONNS path connection" (p. 4-1190)
- "ED-PATH: Modify alias of ONNS connection" (p. 4-522)
- "DLT-PATH: Delete ONNS path Connection" (p. 4-148)
- "REPT-PTHCHG Notification: Report path change" (p. 4-1540)
- "REPT-PTHEVT Notification: Report ONNS Path Events" (p. 4-1554)

□

Connection and path state definitions

Overview

The Connection connStatus and the pathState variables are related, and the connStatus can be derived from the pathState. The two tables below show the possible states.

The column State Type characterizes the codes further:

- ES: connection/path is in a stable and active End State
- FR: Final Report state (indicates that the connection/path is no longer active)
- TS: Transient State
- RQ connection/path on Restoration Queue.

connStatus Codes

TL1 *connStatus* code	Description	State Type
CON&OK	Normal Connection Status	ES
CON&FAILED	Connection failure	ES
CON&NO-IN	No Input, source or destination (Initial setup)	ES
CON&FAILED&RSTTFL	Restoration attempt failed / connection going to the Restoration Queue	TS
CON&TRDOWN	Connection Delete (In Progress)	TS
DLT	Connection Deleted	FR
CON&DLT-FL	Conn Delete Failed, path not deleted	ES
CON&OK&RSTRD	Auto-Reroute Revertive Connection Status (after initial restoration)	ES
NOCON&SETUP	Initial connection setup in progress	TS
NOCOM&PREMPTD	Connection has been disconnected from original path	TS
CON&OK&WTORV	AUTORV Path ready, waiting for WTR (wait-to-revert) timer to revert to original path	TS
NOCON&WTORSTR	Preempted path removed & Connection has been added to the Restoration Queue.	ES / RQ

TL1 *connStatus* code	Description	State Type
CON&FAILED& WTORSTR	Auto Connection failed & has been added to the Restoration Queue.	ES / RQ
CON&SETUP	Initial connection setup completed, waiting for check of signal	TS
NOCON&SETUPFL	Initial connection setup failed	FR
NOCON	Connection has been disconnected from original path by maintenance operation	TS
CON&OK&FL-NVM	Normal Connection Status, but NVM write failed	ES
DLT&FL-NVM	Connection Deleted & NVM write failed	ES
CON&STBY	Protecting connection not being allocated for protecting a working one	ES
CON&USED	Protecting connection not being allocated for protecting a working one	ES

PathState Codes

TL1 *pathState* code	Description	State Type
CON&OK	Normal Path Status	ES
CON&FAILED	Path failure	ES
CON&TRDOWN	Path Delete in progress	TS
DLT	Path Delete complete	FR
CON&NO-IN	No Input, source or destination, during initial setup	ES/TS
CON&OK&RSTRD	Auto-Reroute Revertive Restoration	ES
NOCON&SETUP	Initial connection setup in progress	TS
CON&DLT-FL	Path delete failed	ES
NOCOM&PREMPTD	Path has been disconnected from original EDGE port and will be re-used on another restored connection	TS

TL1 *pathState* code	Description	State Type
CON&OK&WTORV	AUTORV Path ready, waiting for WTR (wait-to-revert) timer to revert to original path	TS
NOCON	Pre-calculated restore path available for use	ES
CON&SETUP	Initial connection setup completed, waiting for signal confirmation from the egress node	TS
CON&FAILED& WTORSTR	Restoration attempt failed and will be restored when a new path is available	ES
NOCON&SETUPFL	Initial connection setup failed	ES
RSVD&OK	Normal Path Status while associatedto a protecting connection	ES
RSVD&FAILED	Path Failure while associated to a protecting connection	ES
RSVD&DLT-FL	Path delete failed for a path associated to a protecting connection	ES
RSVD&SETUPFAIL	Initial connection setup failed for protecting connection	ES
RSVD&TRDOWN	Path Delete in progress for path associated to protecting connection	TS
RSVD&SETUP	Initial connection setup completed, for path associated to protecting connection, waiting for signal confirmation from the egress node	TS

Network optimization

Overview

Purpose

This section contains information about the TL1 commands related to the network optimization.

Contents

List of commands

- "RTRV-PREDEFRAG: Perform an ONNS fragmentation analysis" (p. 4-1977)
- "OPR-DEFRAG: Perform defragmentation " (p. 4-1451)

□

Maintenance

Overview

Purpose

This section contains information about the TL1 commands related to the maintenance.

Contents

List of commands

- "RTRV-AudLog: Retrieve audit result log for ONNS connection data" (p. 4-1630)
- "AUD: Perform audit data" (p. 4-32)
- "ED-SYNCDATA: Synchronization of NN data" (p. 4-836)

□

Error codes

Overview

Purpose

The following table lists the ONNS related error codes.

Contents

List of error codes

Error code	Meaning (validation rule)	Related to command ...
Conflicting Action at Neighbor Node	Collision or communication	"OPR-DEFRAG: Perform defragmentation " (p. 4-1451)
Destination Un-reachable - Connection setup Failed	Destination un-reachable	"ED-PATH: Modify alias of ONNS connection" (p. 4-522), "ENT-PATH: Create ONNS path connection" (p. 4-1190)
Input, ConnectionID Non-Existent	*ConnectionID* does not exist	"ED-PATH: Modify alias of ONNS connection" (p. 4-522)
	Path *ConnectionID* does not exist	"DLT-PATH: Delete ONNS path Connection" (p. 4-148), "RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
Input, Data Invalid, New PathID	Invalid newPathID	"ED-SYNCDATA: Synchronization of NN data" (p. 4-836)
Input, Data Invalid Old PathID	Invalid oldPathID	
Input, DataType Invalid	Invalid *dataType* or *componentID* parameter	"RTRV-NNDR: Retrieve ONNS neighbor nodal data repository" (p. 4-1836), "RTRV-NTDR: Retrieve ONNS network topology data repository" (p. 4-1857)
Input, Invalid ACcess identifier	Invalid Access Identifier	"RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
Input, Invalid CoMmand, Command not found or recognized	Invalid Command	"RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
Input, InValid ComponentID	Invalid *componentID* parameter	"RTRV-NNEVT-TCA" (p. 4-1851)
Input, Invalid Neighbor node ID		
Input, InValid ComponentID	Invalid *PortID* or *componentID* parameter	"RTRV-NNDR: Retrieve ONNS neighbor nodal data repository" (p. 4-1836)
Input, Invalid Neighbor node ID		
Input, Invalid node ID		
Input, Invalid PortID		

Error code	Meaning (validation rule)	Related to command ...
`Input, Invalid ConnPt / PortId`	Port related problems	"ED-PATH: Modify alias of ONNS connection" (p. 4-522),
	NN *PortID* parameter value is not valid	"ENT-PATH: Create ONNS path connection" (p. 4-1190)
`Input, Invalid Correlation Tag`	Invalid correlation tag (CTAG) or RequestID	"RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
`Input, Invalid EDGE portID`	NN PortID parameter value is not valid	"ENT-PATH: Create ONNS path connection" (p. 4-1190),
	Port related problems	"ED-PATH: Modify alias of ONNS connection" (p. 4-522)
`Input, Invalid IP address`	Invalid *componentID* parameter	"RTRV-NTDR: Retrieve ONNS network topology data repository" (p. 4-1857)
`Input, Invalid New ConnAlias`	ED-PATH request denied - Parameter invalid	"ED-PATH: Modify alias of ONNS connection" (p. 4-522)
`Input, Invalid PortID`	Invalid parameters	"OPR-DEFRAG: Perform defragmentation " (p. 4-1451)
	Invalid *PortID* or componentID parameter	"RTRV-NNDR: Retrieve ONNS neighbor nodal data repository" (p. 4-1836)
	Invalid *PortID*	"RTRV-PREDEFRAG: Perform an ONNS fragmentation analysis" (p. 4-1977)
`Input, Invalid TArget Identifier`	Invalid target identifier	"RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
`Input, Missing Access Identifier (AID)`	Invalid access identifier	"RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
`Input, Missing Correlation Tag`	Invalid correlation tag (CTAG) or RequestID	"RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
`Input, Missing Target IDentifier code (TID)`	Invalid Target Identifier	"RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
`Input, Neither ConnID nor ConnAlias Specified`	ED-PATH request denied - Parameter invalid	"ED-PATH: Modify alias of ONNS connection" (p. 4-522)
	Path ConnectionIDdoes not exist	"DLT-PATH: Delete ONNS path Connection" (p. 4-148)

Error code	Meaning (validation rule)	Related to command ...
Input, Node List has Invalid / unknown IP address	Parameter data invalid	, "ENT-PATH: Create ONNS path connection" (p. 4-1190) "ED-PATH: Modify alias of ONNS connection" (p. 4-522)
Input, Parameter MiSsing, missing <parameter>	Missing oldPathID or newPathID	"ED-SYNCDATA: Synchronization of NN data" (p. 4-836)
Input, Parameter out of Range\",invalid_ parameter=TCAThresholdHigh	TCA related error messages	"ED-NNCNFG: Edit ONNS configuration data" (p. 4-329)
Input, ConnectionID Non-Existant	Path ConnectionID does not exist	"DLT-PATH: Delete ONNS path Connection" (p. 4-148),
Input, Source nodeIP address is invalid	Syntax, parameter data invalid	"ENT-PATH: Create ONNS path connection" (p. 4-1190), "ED-PATH: Modify alias of ONNS connection" (p. 4-522)
Input, TCAThresholdLow Greater than TCAThresholdHigh	TCA related error messages	"ED-NNCNFG: Edit ONNS configuration data" (p. 4-329)
InSufficient Network Resources in the Topology DR	Insufficient network resources	"ENT-PATH: Create ONNS path connection" (p. 4-1190), "ED-PATH: Modify alias of ONNS connection" (p. 4-522)
Maximum Transport Delay Exceeded on cslculated path	Maximum transport delay exceeded on calculated path	"ED-PATH: Modify alias of ONNS connection" (p. 4-522), "ENT-PATH: Create ONNS path connection" (p. 4-1190)
Null ConnID and empty or null ConnAlias	Syntax invalid or unimplemented parameter	"RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
Output Response Failed while Sending	Retrieve DR query - RTRV-mod ALL fails to complete	"RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
REPLY_DENIED_NO_CONNALIAS, Input, connAlias Non Existant	Syntax invalid or unimplemented parameter	"RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
Resource Selection or Reservation Failure	Destination un-reachable	"ED-PATH: Modify alias of ONNS connection" (p. 4-522), "ENT-PATH: Create ONNS path connection" (p. 4-1190)

Error code	Meaning (validation rule)	Related to command ...
`Status, All Resources Busy,`	Status, all resources busy	"RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
`Status, Busy, NVM Write in Progress for same connection`		
`Status, Conn State Invalid for this Operation`		
`Status, Connection already has two paths`	ED-PATH-PROT request / operation errors	"ED-PATH: Modify alias of ONNS connection" (p. 4-522)
`Status, Connection Operation Failed`		
`Status, Connection Resource Busy, delete operation in progress`	Status, Connection Resource Busy	"DLT-PATH: Delete ONNS path Connection" (p. 4-148)
`Status, Connection Resource Busy, ONNS Path operation in progress`		"RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950), "ED-PATH: Modify alias of ONNS connection" (p. 4-522)
`Status, Edge Port Used`	Destination un-reachable	"ED-PATH: Modify alias of ONNS connection" (p. 4-522)
`Status, Existing Non-NN XConn`		
`Status, Host interface TimeOut`		"ENT-PATH: Create ONNS path connection" (p. 4-1190)
`Status, Host XConn on ConnPoint`	Port related problems	"ED-PATH: Modify alias of ONNS connection" (p. 4-522)
	SNN PortID parameter value is not valid	"ENT-PATH: Create ONNS path connection" (p. 4-1190)
`Status, Host interface TimeOut + errorData`	Destination un-reachable	"ED-PATH: Modify alias of ONNS connection" (p. 4-522), "ENT-PATH: Create ONNS path connection" (p. 4-1190)
`Status, NN Timeout + errorData`		
`Status, Multiple Paths Failed to deleted on this ConnID`	Connection deletion, one or more paths were not deleted	"DLT-PATH: Delete ONNS path Connection" (p. 4-148)
`Status, Not Available, MAINT mode \",srcNodeIP`	ONNS System Not Available, MAINT mode	"RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)

Error code	Meaning (validation rule)	Related to command ...
`Status, NNI connPoint in Use, XConn or reservation exists`	Port related problems	"ED-PATH: Modify alias of ONNS connection" (p. 4-522)
`Status, NNI connPoint / port Unavailable`	NN PortID parameter value is not valid	"ENT-PATH: Create ONNS path connection" (p. 4-1190), "ED-PATH: Modify alias of ONNS connection" (p. 4-522)
`Status, Path Database Out of sync`	*PathID* parameter data is not valid	"ED-PATH: Modify alias of ONNS connection" (p. 4-522), "ENT-PATH: Create ONNS path connection" (p. 4-1190)
`Status, Path Out of Sync",pathID"`	Path connection *pathID* does not exist	"DLT-PATH: Delete ONNS path Connection" (p. 4-148)
`Status, Path Setup Failure, caused by signal transmission failure at egress node`	Destination un-reachable (DUCF)	"ENT-PATH: Create ONNS path connection" (p. 4-1190), "ED-PATH: Modify alias of ONNS connection" (p. 4-522)
`Status, Pathid Data Out of sync`	*PathID* parameter data is not valid	"ENT-PATH: Create ONNS path connection" (p. 4-1190)
`Status,Path Not Deleted, connection deletion not completed`	Connection deletion, path associated with the specified *connectionID* was not deleted	"DLT-PATH: Delete ONNS path Connection" (p. 4-148)
`Status, Signaling Communication link Failure (or abort) caused path operation failure`		
`Status, Signaling Communication link Failure (or abort) caused path setup failure + errorData`	Destination un-reachable - Connection setup failed	"ENT-PATH: Create ONNS path connection" (p. 4-1190)
`Status, Path Roll Failed`	ED-PATH-ROLL Error Responses	"ED-PATH: Modify alias of ONNS connection" (p. 4-522)
`Status, Path Operation not Allowed on connection in Restoration queue`		
`Status, Path Setup Failure caused by signal transmission failure at egress node`	Destination un-reachable	"ENT-PATH: Create ONNS path connection" (p. 4-1190) "ED-PATH: Modify alias of ONNS connection" (p. 4-522)

Error code	Meaning (validation rule)	Related to command ...
`Status, Requested Operation Failed`	Requested operation failed	"RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
`Status, Signaling Communication link Failure (or abort) caused path operation failure + errorData (NodeID=nodeIP), cC=FAILED`	Destination un-reachable	"ED-PATH: Modify alias of ONNS connection" (p. 4-522)
`Status, Signaling Communication link Failure (or abort) caused path setup failure`	Destination un-reachable	"ED-PATH: Modify alias of ONNS connection" (p. 4-522), "ENT-PATH: Create ONNS path connection" (p. 4-1190)
`Status, Signaling Timeout caused path setup failure`		
`Status, XConn Failure caused path setup failure`		
`Status, XConn Timeout Failure caused path setup failure`		"ED-PATH: Modify alias of ONNS connection" (p. 4-522), "ENT-PATH: Create ONNS path connection" (p. 4-1190)
`Syntax, Data Not Consistent`	Syntax invalid or unimplemented parameter	"RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
`Syntax, Data Not Consistent`	Syntax, Data Not Consistent	"ENT-PATH: Create ONNS path connection" (p. 4-1190)
`Syntax, Invalid Command too Long`	Invalid command	"RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
`Syntax, InValid Punctuation`	Syntax, Invalid punctuation	"RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
`Syntax, Parameter Data Invalid, invalid_parameter\`	Parameter invalid	"ED-PATH: Modify alias of ONNS connection" (p. 4-522)
`Syntax, Parameter Data Invalid, invalid_parameter= Component`	Invalid *dataType* or *componentID* parameter	"RTRV-NTDR: Retrieve ONNS network topology data repository" (p. 4-1857)

Error code	Meaning (validation rule)	Related to command ...
`Syntax, Parameter Data Invalid, invalid_parameter=dataType`	Invalid *dataType* parameter	"RTRV-NNDR: Retrieve ONNS neighbor nodal data repository" (p. 4-1836), "RTRV-NNEVT-TCA" (p. 4-1851)
`Syntax, Parameter Data Invalid, invalid_parameter= fieldName`	Command parameter invalid	"ED-NNCNFG: Edit ONNS configuration data" (p. 4-329), "ED-PATH: Modify alias of ONNS connection" (p. 4-522), "ENT-PATH: Create ONNS path connection" (p. 4-1190)
	Syntax invalid or unimplemented parameter	"RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
`Syntax, Parameter Data Invalid, invalid_parameter=srvID`	Invalid *servID*	"RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
`Syntax, Parameter Name Invalid, invalid_parameter= fieldName`	Syntax invalid or unimplemented parameter	"RTRV-PATH: Retrieve ONNS connection data" (p. 4-1950)
	Command parameter invalid	"ED-NNCNFG: Edit ONNS configuration data" (p. 4-329)
`This connection Alias Already Exists`	Syntax, Parameter Data Invalid (SPDI)	"ENT-PATH: Create ONNS path connection" (p. 4-1190)
`XConn Connect Failure, Cross connect already exists`	Cross-connect connect Failure	"ENT-PATH: Create ONNS path connection" (p. 4-1190)
`XConn Connect Failure, Input tributary standard mismatch`		
`XConn Connect Failure, Port does not exist or is TRADITIONAL`		
`XConn Connect Failure, Unexpected toplogy or related cross connect`		

Error code	Meaning (validation rule)	Related to command ...
`XConn Disconnect Failure, Port does not exist or is TRADITIONAL`	Cross-connect disconnect failure error	"DLT-PATH: Delete ONNS path Connection" (p. 4-148)
`XConn Disconnect Failure, Unexpected toplogy or related cross connect`		

17 Amendments

Overview

Purpose

The following amendments are divided in

- general amendments
- TL1 related amendments.

The syntax of the amendment number (e.g. Amendment 2.0 -nb12345) is as follows:

- first part: the amendment is known since this release
- second part: internal number.

Contents

General amendments

Overview

Purpose

This section lists the general amendments.

Contents

Configuration management

Amendment 3.0.1 -nb19693

Unallowed changes of cross-connection parameters while remote test access sessions are provisioned are not rejected properly

If the operator attempts to change the interface standard or tributary mode while a test access session for this cross-connection is active then a slightly wrong error message will be returned.

Amendment 3.0.1 -nb03284

IDNV TL1 error code without parameter name

A simple parameter problem within a TL1 command (e.g. parameter out of range) will result in an anonymous IDNV error, without mentioning the affected parameter:

```
IDNV /*Input, Data Not Valid */
```

In most cases the TL1 commands are hidden behind the GUI (of e.g. CIT or EMS), which does those checks up-front or does not allow to enter wrong values.

□

Protection (BLSR/S-SPRing, DRI/DNI, APS/MSP, UPSR/SNCP)

Amendment 3.0.1 -nb20146

Improper creation and deletion of BLSR/MS-SPRing while Remote Test Access active is rejected wrongly

In this rainy day scenario the operator is informed to have a cross-connection provisioned instead of the fact that a test session is active which hinders BLSR/MS-SPRing creation/deletion attempts.

Workaround: The operator should check, if this could be the reason for the command rejection.

Amendment 3.0.1 -nb20234

An MSP deletion while a Remote Test Access session is active will be rejected with a wrong error code

The operator gets the hint that a cross connection is still established instead of the hint that a test session is still active.

Workaround: The operator should check, if this could be the reason for the command rejection.

Amendment 6.0 - nb28229

MSP 1+1 optimized: forced switch to failed protection line is not denied

For MSP 1+1 Optimized a Forced Switch to Protection with the protection line being failed and the worker line being primary section is not denied. Instead, the external command seems to suceed. But this is not true and a TL1 switch notification indicates the unchanged and correct state (Worker, No Request).

Thus apart from the pretended acceptance of the command there is no further misbehaviour. The erroneous behaviour depends on the history and has been observed when a Lockout / Clear command sequence has been performed before. Subsequent attempts to perform a Forced Switch to the failed protection line are then correctly denied.

Amendment 6.0 - nb31611

Unspecific error response, when MSP protection group shall be created, while cross-connections exist on the protection port

If an MSP protection group creation is denied with the error response ″tributary is used in cross connection″, the reason for the denial is, that one or more cross connections

exist on the protection port of the group, as existing cross connections on working ports are allowed. Hence, this error response is not specific enough and could be misleading.

Customer Workaround: Check protection port of group to be created, if error response ″tributary is used in cross connection″ is returned

Amendment 7.0 - nb49008

Wrong validation during creation of MSP/Line protection group with existing Test Access session

If a MSP/Line protection group is created, while a Test Access session is active at one of the tributaries of the worker port, then the protection group creation is not denied. The creation of the protection group should be denied to avoid malicious side effects.

If the MSP/Line protection group creation is attempted with a Test Access session at one of the tributaries of the protection port, then the command is denied with the wrong error code:

```
SNVS - Status, Not in Valid State, Tributary is used in cross connection
```

This error code is misleading, the correct error code is:

```
SNVS - Status, Not in Valid State, Tributary is used in test access
session
```

Amendment 7.0 - nb51018

Creation of EPn protection group denied with wrong error code

If an attempt is made to create an EP155 or EP51 protection group, while one of the following conditions is true:

- protection pack has a timing reference
- protection pack is used for OW
- protection pack has facility loopbacks
- protection pack has cross connection loopbacks

then the command is denied with the wrong error code

```
SROF - Status, Requested Operation Failed
```

The correct behaviour would be, to deny the attempt with

- `SNVS - Status, Not in Valid State, at least one port of the protection pack is used as timing reference`
- `SNVS - Status, Not in Valid State, connection to OW port of the protection port exists`

- SNVS - Status, Not in Valid State, facility loopbacks still exist at the protection pack
- SNVS - Status, Not in Valid State, XC loopbacks still exist at the protection pack

□

Area DCN/DCC management

Amendment 3.0.1 -nb17090

No specific error message when 64 DCC channel limit is reached

When the maximum number of available DCC channels is reached, the supplied error message does not distinguish the possible reasons and always replies with:

```
SSRE, System Resources Exceeded, allowed limit of DCC channels exceeded.
```

There is no distinction if the number of

- SCN (Signaling Communication Network) assignments or
- MCN (Management Communication Network) assignments or
- a combination of both.

is exceeded.

□

TL1 amendments

Overview

Purpose

This section lists the amendments related to the TL1 commands.

Contents

Transmission and cross-connection handling

Amendment 6.0 - nb38277

Incomplete CNVT-CCT command is not properly rejected.

When an operator attempts to convert an unprotected cross-connection into a path-protected one using a CNVT-CCT TL1 command with missing *newinaid* parameter then the operator gets a wrong error message:

```
INUP /* Input, Non-null Unimplemented Parameter */
```

The correct error message should be:

```
IPMS /* Input, Parameter MiSsing, newinaid is missing */
```

Amendment 6.1 - nb43978

Wrong error codes when editing or deleting LO cross-connections when LO-rates are differing

When trying to edit or delete non-existing LO cross-connections and the specified LO-rate is different from the current substructure of the related HO-tributary the system actually returns:

```
IDNC - Input, Data Not Consistent, Specified Tributary does not support
the indicated rate
```

The correct error message should be:

```
IENE - Input, Entity Not Exists, Specified crossconnection does not
exist
```

When trying to edit or delete an existing LO cross-connection with the wrong LO rate modifier (i.e. LO-cross-connection is LOVC3 and using DLT-CRS-LOVC12) the system actually returns:

```
IDNC - Input, Data Not Consistent, Specified Tributary does not support
the indicated rate
```

The expected error code is:

```
IDNC - Input, Data Not Consistent, Rate is inconsistent with existing
crossconnection
```

These scenarios can only occur in cut-through mode.

□

Optical network navigation system (ONNS)

Amendment 5.0.1 - nb31503

Grouped NN connection setup via TL1 cut-through accepted with egress EDGE port not being a VCG

When using TL1 cut-through commands it is possible to switch a group of more than one NN connection with ingress EDGE port being a VCG as required, but with the EDGE port being a standard SDH/SONET port.

The connections will be switched according to the ingress and egress tributary number association restrictions as defined for grouped connection setup between VCGs, i.e. there will be a one-to-one mapping of the egress tributary numbers to the ingress tributary numbers selected, egress tributary numbers will not be selectable separately.

Thus, connections out of this grouped setup might not be switched, if e.g. corresponding egress tributaries are occupied already. Connection that are switched, however, will work properly.

Workaround: Be careful in chosing egress EDGE VCG identifier, if using ENT-PATH command in cut-through mode to execute grouped NN connection setup with VCGs.

Connections that might have been setup by accident between a VCG and an SDH/SONET EDGE port can be deleted using the normal connection deletion facility.

Amendment 7.0 - nb42305

Wrong notifications for autorv-connections

Some information in the PTHEVT notifications of a restored autorevertive connection by a signal change from no incoming signal to a valid incoming signal is misleading.

The event text of the PTHEVT notification of the failed path of a restored autorevertive connection is incorrect and shall be ignored. The text should indicate that the failed path of a successful restored connection is still available.

□

Protection (BLSR/S-SPRing, DRI/DNI, APS/MSP, UPSR/SNCP)

Amendment 3.0.1 - nb 18762

MSP 1+1 accept incomplete Operate Protection Switch commands

For MSP 1+1 incomplete Operate Protection Switch commands are accepted:

- Operate Protection Switch command with parameter source *sc=lockout* and without parameter destination *dest* is accepted. This is not a real problem, because the *dest* is redundant information.
- Operate Protection Switch command with parameter destination *dest=wkg* should not be accepted without the source information. The resultant state Manual Switch is not worse because it does not prevent further automatic switching.

Amendment 3.0.1 - nb20624

Unallowed changes of cross-connection parameters while remote test access sessions are provisioned are not properly rejected

If the operator attempts to change the interface standard or tributary mode while a test access session for this cross connection is active then a slightly wrong error message will be returned. The system responds:

```
SNVS /* Status, Not in Valid State, cross-connections are still existing
*/
```

The expected response would be:

```
SNVS - Status, Not in Valid State, a test access session exists
```

Amendment 2.0 - nb09151

RTRV-CRS with ppgname as input parameter does not work

The TL1 command RTRV-CRS does allow to use *ppgname* (path protection group name) as input parameter to retrieve a set of path protected cross-connections. The replied set should contain all path-protected cross-connections where the associated path protection group has the specified *ppgname* value of the RTRV request. The NE will reply all cross-connections provisioned within the NE.

Workaround: None, i.e. do not use *ppgname* in RTRV-CRS request. Just use *in_aid* parameter in RTRV-CRS requests.

Amendment 4.1 - nb27543

Not allowed protection switch command denied with wrong error code

If a OPR-PROTNSW command is executed on a MSP 1+1 optimized while the actual protection state does not allow the specified protection switch, then the command is denied with the wrong error code: `SROF - Status, Requested Operation Failed`. The expected error response is: `SNVS - Status, Not in Valid State, switch command not allowed for actual protection state`.

Amendment 4.1 - nb27617

Clear protection switch denied if it has no effect

If a RLS-PROTNSW command is executed on a MSP 1+1 optimized protection group while the command would have no effect (e.g. already cleared by previous command), then the command is denied with the eror code: `SROF, Status, Requested Operation Failed`. The correct behaviour should be that the command completes without error.

Amendment 5.0 - nb28539

Wrong validation during creation of MSP/Line protection group with existing Test Access session

If a MSP/Line protection group is created, while a Test Access session is active at one of the tributaries of the worker port, then the protection group creation is not denied. The creation of the protection group should be denied to avoid malicious side effects. If the MSP/Line protection group creation is attempted with a Test Access session at one of the tributaries of the protection port, then the command is denied with the wrong error code: `SNVS - Status, Not in Valid State, Tributary is used in cross connection`. This error code is misleading, the correct error code is: `SNVS - Status, Not in Valid State, Tributary is used in test access session`.

Amendment 5.0.1 - nb33822

Wrong error responses for OPR-PROTNSW for MS SPRING / BLSR groups

The error response to the TL1 command OPR-PROTNSW for MS SPRING and BLSR protection groups does not follow the specification. If the user tries to apply an external command which does not have sufficient priority compared to the currently active request in the ring the system responses:

```
SROF - Status, Requested Operation Failed
```

The expected response would be:

```
SNVS - Status, Not in Valid State, switch command not allowed for actual protection state
```

Workaround: Do not use ppgname in RTRV-CRS request. Just use in_aid parameter in RTRV-CRS requests.

Amendment 6.0 - nb28227

Not allowed protection switch command denied with wrong error code

If a OPR-PROTNSW command is executed on a MSP 1xN bidirectional while the actual protection state does not allow the specified protection switch, then the command is denied with the wrong error code: `SROF - Status, Requested Operation Failed`

Amendment 6.0 - nb28228

Not allowed protection switch command denied with wrong error code

If a OPR-PROTNSW command is executed on a MSP 1+1 unidirectional while the actual protection state does not allow the specified protection switch, then the command is denied with the wrong error code: `SROF - Status, Requested Operation Failed`

Amendment 6.0 - nb35308

Erroneous TL1 denials for external MSP/APS commands

For MSP/APS the external switch commands OPR-PROTNSW and RLS-PROTNSW might be rejected with: `SPFA, Status, Protection unit FAiled` although they are executed by the system.

Customer Workaround: Check the switch request state and the active selection to verify that an external command has been executed as expected.

Amendment 6.0 - nb35660

Wrong error code if tributary of OPT2G5 is used as input for path protection

If a path protected cross-connection is created with a tributary of an OPT2G5 as protection leg, then the command is denied with the unspecific error code:

`IDNV - Input, Data Not Valid`

The expected error code is:

`IDNC - Input, Data Not Consistent, no OPT2G5-trib as input-trib in pathprotected crossconnection`

(This correct error code is returned if the working leg is on an OPT2G5.)

Amendment 6.0 - nb40929

Unprecise error message for ED-MAP-RING

When the TL1 command ED-MAP-RING is used to provision the MS SPRING / BLSR ring topology and different numbers of ring node identifiers and ring node target

identifiers are entered, the command is denied. However, the related error message is not precise enough, but it simply states:

```
Input, Data Not Valid
```

The expected error code is:

```
Input, Data Not Valid, different number of values in rnids and rtids
```

□

Fault/Alarm management

Amendment 3.0.1 - nb20283

Changes of tributary output modes for test access sessions are not notified

Changing test modes of a remote test access session does not generate change notification for *eomode* or *fomode*, but the value really changes. However the retrieval of this test access session delivers the correct values.

Amendment 3.0.1 - nb19358

Slightly wrong error codes will be displayed for improper remote test access provisioning

In case of improper remote test access provisioning (system conditions do not fit) the operator is informed by slightly wrong error codes. The following scenarios are affected:

- MONF, MONEF not allowed for unidirectional cross connections
- Test tributary already in use
- Pack with E-tributary not provisioned
- Cross-connection rate incompatible with test access rate
- Non-existing tributaries involved
- AID does not match to cross-connection rate
- XC pack not provisioned
- Test access not allowed for path protected cross-connections.

Amendment 3.0.1 - nb19369

Deletion of a remote test access session with an incorrect tributary rate is improperly rejected

If the operator attempts to delete a remote test access session using a wrong tributary rate then a slightly wrong error message will be returned.

Amendment 3.0.1 - nb19569

Establishment of remote test access for bridged cross-connections is not rejected properly

If an operator attempts to create a remote test access session on a cross-connection which is bridged (broadcast) then the operator gets a wrong error message.

□

Remote test access

Amendment 4.0 - nb20634

Changes of tributary output modes of test access sessions are not notified

Changing test modes of remote test access session does not generate change notification for *eomode* or *fomode* if the value really changes. However the retrieval of this test access session is correct.

Amendment 3.1 - nb23084

Wrong error code for CONN-TACC

In case of improper remote test access provisioning (system conditions do not fit) the operator is informed by slightly wrong error codes. Affected are following scenarios:

- MONF, MONEF not allowed for unidirectional cross-connections
  `/* Input, Data, Not Consistent */`
  instead of
  `/* Status, Not in Valid State, invalid test access mode */`
- test tributary already in use
  `/* Status, Not in Valid State, Too many crossconnection originating from same tributary */`
  instead of
  `/* Input, Entity Already Exists, test access connection exists */`
- pack with E-tributary not provisioned
  `/* Input, Entity Not Exists, Specified tributary/tributaries do not exist`
  instead of
  `/* Status, Not in Valid State, circuit packs not provisioned */`
- cross-connection rate incompatible with test access rate.
  `* Input Data Not Consistent, Specified Tributary does not support the indicated rate */`
  instead of
  `/* Input, Parameter Not Consistent, Rate inconsistent with crossconnection rate */`

□

DCN/DCC management

Amendment 3.0.1 - nb21562

No specific error message when 64 DCC channel limit reached

When the maximum number of available DCC channels is reached, the supplied error message does not distinguish the possible reasons and always replies with: `SSRE, System Resources Exceeded, allowed limit of DCC channels exceeded`

In case the maximum number is exceeded due to SCN assignments, expected message is: `SSRE, System Resources Exceeded, allowed limit of SCN DCC channels exceeded`

In case the maximum number is exceeded due to combined MCN+SCN assignments, expected message is: `SSRE, System Resources Exceeded, overall limit of DCC channels exceeded`

□

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