



***LambdaUnite*[™] MultiService Switch (MSS)**

Release 2.0

Operations System Engineering Guide

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Issue a
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Organization	☐	☐	☐	☐	☐	☐
Completeness	☐	☐	☐	☐	☐	☐
Technical accuracy	☐	☐	☐	☐	☐	☐
Quality of translation	☐	☐	☐	☐	☐	☐
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About this information product

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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 “a” is the first version of this manual.

Safety labels This manual contains no safety labels.

Conventions used See [“Conventions used in message descriptions” \(3-1\)](#) for detailed information.

Overview of the document This manual is structured as follows:

- Part I contains introductory information such as
 - AID definitions, used to address entities with TL1 commands or notifications
 - Datatype definitions, used to define parameters in TL1 commands or notifications
- Part II contains the detailed requirements for the TL1 commands and notifications, it is subdivided into:
 - Administration & security
 - Configuration management
 - Fault management
 - Transmission and cross connect handling
 - Protection
 - Performance monitoring
 - Synchronization
 - Software and database management
 - Data communications network

The command and notification list of an entity group can be appended by an definition of the default database state after node creation (if applicable). This definition describes which entities are (automatically) created after start-up of the system from an empty database.

Within an entity group in a functional area the RTRV command is listed first, followed by any ENT, ED, DLT, OPR, ... command. REPT DBCHG notifications are directly described after the command which causes it. Other notifications are described after the whole command set per entity group. Parameters within an entity group are first described in the RTRV command, including default values, which might only be applicable when used as initial values (ENT commands) or default values (ED commands). Other commands in the entity group typically only reference to the definition in the RTRV command. Exceptions are made when the parameter differs syntactically or semantically between RTRV and other command.

Documented feature set This manual describes *LambdaUnite* MSS release 2.0. 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.



Part I: TL1 message overview

Overview

Purpose This part contains introductory information.

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1 General information

TL1 message index

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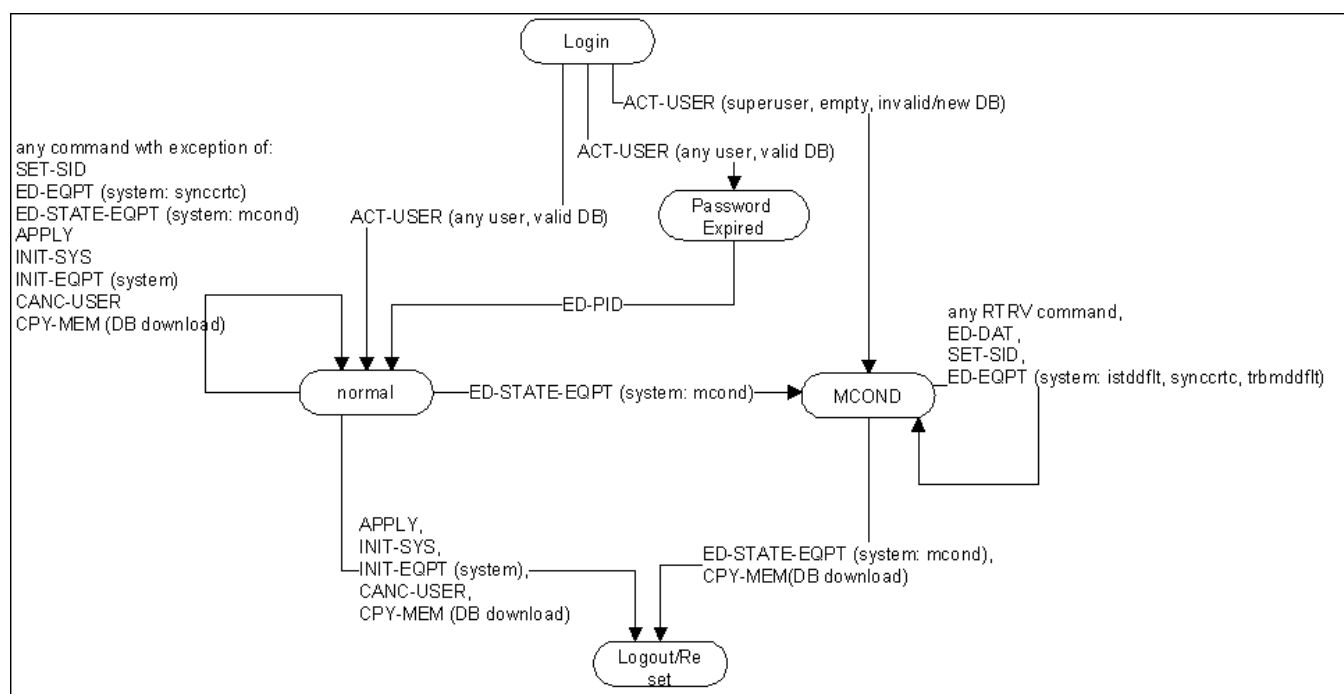
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TL1 command state diagram

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).



Sequence constraints for notifications

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 shall be the dbchange 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 shall be according to the hierarchy of the AID structure. The 'establish' notification for a subordinate entity shall not be 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 trib being a member of this port.

Report object deletion last

The last notification for an entity shall be 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 shall be according to the hierarchy of the AID structure. The 'delete' notification for a superior entity shall not be reported before the 'delete' notification of a subordinate entity.

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





2 AID structure

Overview

Purpose This section contains the requirements for Access IDentifiers (AID) for the TL1 interface of the *LambdaUnite*[™] MSS.



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.



AID syntax

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.
<code>literal</code>	Characters which must appear literally as typed appear in typewriter font.
	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 | 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.

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

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

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



System level AIDs

Overview

Purpose This section contains all system level AIDs.

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System

System AID To identify the entire system the following AID shall be used:

SystemAID ::= system



MDI/MDO

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 shall be 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`



Hierarchically specified AIDs

Overview

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

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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” \(2-38\)](#).

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/ Sub- rack	1	1					
Protec- tion Group	1	1	Simple_ Protection- GroupAID				
Fan Unit	1	1	Simple_ FanAID				
PI	1	1	Simple_ PowerAID				
TI	1	1	Simple_ TimingInter- faceAID				
Back- plane	1	1	Simple_ BackplaneAID				
User Panel	1	1	Simple_ UserPanelAID				
CI-CTL	1	1	Simple_ CiCtlAID				
User Byte Ports	1	1	Simple_ UserBytePor- tAID				
LAN Ports	1	1	Simple_ LanPortAID				
Slot	1	1	#	#	Simple_ SlotAID		
CP	1	1	#	#	Simple_ SlotAID	cp	

Entity	AID Field						
	Bay/ Rack	Shelf/ Subrack	Prot Grp	Side Line	Slot	CP/ SPort/ EPort/ VCG/ NVM	STS-1/ AU-3/ VCG Trib
NVM	1	1	#	#	{ctlw ctlp}	nvm	
SPort	1	1	#	#	Simple_ SlotAID	Simple_ SPortAID	
EPort	1	1	#	#	Simple_ SlotAID	Simple_ EPort- tAID	
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
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

								USRPNL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
01	21	02	22	03	23	04	24	05	25	06	26	07	27	08	28	XC W		XC P		CTL P		31	32	33	34	35	36	37	38	39																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
09		10		11	CTL W	12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50		51		52		53		54		55		56		57		58		59		60		61		62		63		64		65		66		67		68		69		70		71		72		73		74		75		76		77		78		79		80		81		82		83		84		85		86		87		88		89		90		91		92		93		94		95		96		97		98		99		100		101		102		103		104		105		106		107		108		109		110		111		112		113		114		115		116		117		118		119		120		121		122		123		124		125		126		127		128		129		130		131		132		133		134		135		136		137		138		139		140		141		142		143		144		145		146		147		148		149		150		151		152		153		154		155		156		157		158		159		160		161		162		163		164		165		166		167		168		169		170		171		172		173		174		175		176		177		178		179		180		181		182		183		184		185		186		187		188		189		190		191		192		193		194		195		196		197		198		199		200		201		202		203		204		205		206		207		208		209		210		211		212		213		214		215		216		217		218		219		220		221		222		223		224		225		226		227		228		229		230		231		232		233		234		235		236		237		238		239		240		241		242		243		244		245		246		247		248		249		250		251		252		253		254		255		256		257		258		259		260		261		262		263		264		265		266		267		268		269		270		271		272		273		274		275		276		277		278		279		280		281		282		283		284		285		286		287		288		289		290		291		292		293		294		295		296		297		298		299		300		301		302		303		304		305		306		307		308		309		310		311		312		313		314		315		316		317		318		319		320		321		322		323		324		325		326		327		328		329		330		331		332		333		334		335		336		337		338		339		340		341		342		343		344		345		346		347		348		349		350		351		352		353		354		355		356		357		358		359		360		361		362		363		364		365		366		367		368		369		370		371		372		373		374		375		376		377		378		379		380		381		382		383		384		385		386		387		388		389		390		391		392		393		394		395		396		397		398		399		400		401		402		403		404		405		406		407		408		409		410		411		412		413		414		415		416		417		418		419		420		421		422		423		424		425		426		427		428		429		430		431		432		433		434		435		436		437		438		439		440		441		442		443		444		445		446		447		448		449		450		451		452		453		454		455		456		457		458		459		460		461		462		463		464		465		466		467		468		469		470		471		472		473		474		475		476		477		478		479		480		481		482		483		484		485		486		487		488		489		490		491		492		493		494		495		496		497		498		499		500		501		502		503		504		505		506		507		508		509		510		511		512		513		514		515		516		517		518		519		520		521		522		523		524		525		526		527		528		529		530		531		532		533		534		535		536		537		538		539		540		541		542		543		544		545		546		547		548		549		550		551		552		553		554		555		556		557		558		559		560		561		562		563		564		565		566		567		568		569		570		571		572		573		574		575		576		577		578		579		580		581		582		583		584		585		586		587		588		589		590		591		592		593		594		595		596		597		598		599		600		601		602		603		604		605		606		607		608		609		610		611		612		613		614		615		616		617		618		619		620		621		622		623		624		625		626		627		628		629		630		631		632		633		634		635		636		637		638		639		640		641		642		643		644		645		646		647		648		649		650		651		652		653		654		655		656		657		658		659		660		661		662		663		664		665		666		667		668		669		670		671		672		673		674		675		676		677		678		679		680		681		682		683		684		685		686		687		688		689		690		691		692		693		694		695		696		697		698		699		700		701		702		703		704		705		706		707		708		709		710		711		712		713		714		715		716		717		718		719		720		721		722		723		724		725		726		727		728		729		730		731		732		733		734		735		736		737		738		739		740		741		742		743		744		745		746		747		748		749		750		751		752		753		754		755		756		757		758		759		760		761		762		763		764		765		766		767		768		769		770		771		772		773		774		775		776		777		778		779		780		781		782		783		784		785		786		787		788		789		790		791		792		793		794		795		796		797		798		799		800		801		802		803		804		805		806		807		808		809		810		811		812		813		814		815		816		817		818		819		820		821		822		823		824		825		826		827		828		829		830		831		832		833		834		835		836		837		838		839		840		841		842		843		844		845		846		847		848		849		850		851		852		853		854		855		856		857		858		859		860		861		862		863		864		865		866		867		868		869		870		871		872		873		874		875		876		877		878		879		880		881		882		883		884		885		886		887		888		889		890		891		892		893		894		895		896		897		898		899		900		901		902		903		904		905		906		907		908		909		910		911		912		913		914		915		916		917		918		919		920		921		922		923		924		925		926		927		928		929		930		931		932		933		934		935		936		937		938		939		940		941		942		943		944		945		946		947		948		949		950		951		952		953		954		955		956		957		958		959		960		961		962		963		964		965		966		967		968		969		970		971		972		973		974		975		976		977		978		979		980		981		982		983		984		985		986		987		988		989		990		991		992		993		994		995		996		997		998		999		1000		1001		1002		1003		1004		1005		1006		1007		1008		1009		1010		1011		1012		1013		1014		1015		1016		1017		1018		1019		1020		1021		1022		1023		1024		1025	

Rearside

FAN																			
ECI 61		ECI 63		ECI 65		ECI 67		TI A		TI B		ECI 72		ECI 74		ECI 76		ECI 78	
61		63		65		67		69		70		72		74		76		78	
ECI 41		ECI 43		PI A		CIC TL		ECI 52		ECI 54		PI B							
41		43		45				51		52		54		56					
Air Filter Tray																			
Viewed "through the backplane" !																			

ECI slots Only TIs, PIs and CI-CTL are present in the first release. The ECI slots are empty.



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 shall be used to identify the rack (bay) of the system:

BayAID ::= 1 | all

AID for shelf (subrack) The ShelfAID shall be used to identify the subrack type (shelf):

Simple_ShelfAID ::= 1 | all

ShelfAID ::= BayAID–Simple_ShelfAID

Note: The two 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 shall be 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 shall be 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 shall be used to identify the backplane in the subrack:

Simple_BackplaneAID ::= backp1

BackplaneAID ::= BayAID–Simple_ShelfAID–Simple_BackplaneAID



User panel

AID for user panel There is one user panel in the subrack. The UserPanelAID shall be 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 shall be used to identify the CI-CTL in the subrack:

Simple_CiCtlAID ::= c i c t l

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 shall be 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 shall be used to identify a LAN port in the subrack:

Simple_LanPortAID ::= 1an1 | 1an2 | 1an3 | 1ana11

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 shall be used to identify a timing interface in the subrack:

Simple_TimingInterfaceAID ::= tia | tib | tia11

TimingInterfaceAID ::=

BayAID–Simple_ShelfAID–Simple_TimingInterfaceAID



Slot

The *LambdaUnite*[™] MSS in a DUR subrack has in total two rows of circuit packs as shown in figure in [“Frontside” \(2-16\)](#). 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 shall be 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 shall be 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 shall be used to identify a slot useable for a CTL circuit pack in the system:

Simple_CTLSlotAID ::= ct1p | ct1w | ct1all | 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 shall be used to identify a slot in the system:

$\text{Simple\_SlotAID} ::= \text{Simple\_UnivSlotAID} \mid \text{Simple\_XCSlotAID} \mid \text{Simple\_CTLSlotAID} \mid \text{all}$

$\text{SlotAID} ::= \text{BayAID} - \text{Simple\_ShelfAID} - \# - \# - \text{Simple\_SlotAID}$

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:

$\text{Simple\_SlotAIDOP40} ::= \{4, 8, 15, 19, 24, 28, 35, 39\}$

$\text{SlotAIDOP40} ::=$

$\text{BayAID} - \text{Simple\_ShelfAID} - \# - \# - \text{Simple\_SlotAIDOP40}$



Circuit pack

AIDs for circuit packs cp shall be used in the port field to identify a circuit pack:

Simple_CpAID ::= cp

CpAID ::= SlotAID–cp



SDH/SONET port

AIDs for SDH/SONET ports The SPortAID shall be used to identify SDH/SONET ports in the system:

Simple_SPortAID ::= 1 | 2 | 3 | 4 | all

SPortAID ::= UnivSlotAID–Simple_SPortAID

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

Circuit Pack Type	Legal Port AIDs
OP2G5	{1, 2, 3, 4} all
OP10G	1 all
OP40G	1 all



GbE port

AIDs for gigabit Ethernet ports

The EPortAID shall be used to identify gigabit Ethernet ports in the system:

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

EPortAID ::= UnivSlotAID–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 shall be used to identify VCG ports in the system:

Simple_VCGAID ::= v1 | v2 | v3 | v4 | va11

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} va11



AU-3/STS-1 tributary

AIDs for AU-3/STS-1 tributaries

The STS1NumAID shall be used to identify SDH/SONET tributaries in the system:
Simple_STS1NumAID ::= { 1, 2, ..., 768 } | all
STS1NumAID ::= SPortAID–Simple_STS1NumAID

Circuit Pack Type	Legal STS-1/AU-3 Number
OP2G5	{1 ... 48}
OP10	{1 ... 192}
OP40	{1 ... 768}



Virtual concatenation group (VCG) tributary

AIDs for VCG tributaries

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

$\text{Simple\_VCGNumAID} ::= \{ 1, \dots, 21 \} \mid \text{all}$

$\text{VCGNumAID} ::= \text{VCGAID} - \text{Simple\_VCGNumAID}$

VCG tributaries denote a group of X virtually concatenated STSs/VCs:

STS-1-Xv (X in {1, ..., 21} or VC-4-Xv (X in {1, ..., 7}).

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}

The actual value is also dependent on the actual configuration.

□

Generic tributary

AIDs for generic tributaries In some scenarios the specific tributary type is not of interest. The GenTribAID shall be 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



Protection groups

Simple protection group AID

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

Simple_ProtGrpAID ::= eEquipmentProtGrpID | ea11 | {o|n|t|f}
TransProtGrpID | oa11 | na11 | ta11 | fa11 | a11

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 shall be assigned to the group when it is created by the user:

TransProtGrpID ::= { 001, ..., 239 }

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–oa11

NByOne_ProtGrpAID ::=

BayAID–Simple_ShelfAID–nTransProtGrpID | BayAID–Simple_ShelfAID–na11

TwoFibre_ProtGrpAID ::=

BayAID-Simple_ShelfAID-tTransProtGrpID | BayAID-Simple_
ShelfAID-ta11

FourFibre_ProtGrpAID ::=

BayAID-Simple_ShelfAID-fTransProtGrpID | BayAID-Simple_
ShelfAID-fa11

Path protection group AIDs

The output tributary AID of the associated protected cross-connection shall be 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 shall be used to identify the 1+1 equipment protection group for the XC320:

Simple_SwitchAndTmgProtGrpAID ::= estgrp

SwitchAndTmgProtGrpAID ::= BayAID–Simple_ShelfAID–estgrp



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
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
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
SPort	1-1-#-#-1-3
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

Conventions used in message descriptions

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):

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>+ ")"

GR-831-CORE Definition	Name used in TL1 messages	Definition
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 <i>LambdaUnite</i> [™] 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>





Part II: TL1 messages

Overview

Purpose This part contains the detailed requirements for the TL1 commands and notifications.

Contents

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Chapter 6, Fault management	6-1
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Chapter 8, Protection	8-1
Chapter 9, Performance monitoring	9-1
Chapter 10, Synchronization	10-1
Chapter 11, Software & database management	11-1
Chapter 12, Data communications network	12-1





4 Administration & security

Overview

Purpose This section contains the TL1 interface definition for the domain “administration and security”.

Contents

<u>Session</u>	<u>4-3</u>
<u>ACT-USER: Activate user</u>	<u>4-4</u>
<u>CANC-USER: Cancel user</u>	<u>4-11</u>
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<u>ED-USER: Edit user</u>	<u>4-47</u>
<u>ED-USER notification</u>	<u>4-49</u>
<u>ED-PID: Edit password identifier</u>	<u>4-50</u>
<u>ED-PID notification</u>	<u>4-54</u>
<u>DLT-USER-SECU: Delete user security</u>	<u>4-55</u>
<u>DLT-USER-SECU notification</u>	<u>4-58</u>

Session

Overview

Purpose The session entity handles the establishment and removal of sessions between the NE and the Managers.

Contents

ACT-USER: Activate user	4-4
CANC-USER: Cancel user	4-11
CANC-USER-SECU: Cancel user security	4-13



ACT-USER: Activate user

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

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” \(5-6\)](#).
2. uid – User Identifier
Description: 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 network element.
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
3. ctag – Correlation Tag
See definition of [“RTRV-HDR: Retrieve header” \(5-6\)](#).
4. pid – Password Identifier
Description: 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 network element; and are never transmitted from the network element.
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

When a user logs in successfully, the following response is returned:

```
M sid date time
  ctag COMPLD
  "uid:lastdate,lasttime,attempts,systype,release,upc:spec_block"
  /* Lucent Technologies systype 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.
  */
;
```

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

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:

```
M sid date time
  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
Description: This is included in the command by the OS/CIT and repeated by the network element as a confirmation that the given user identifier is successfully logged in.
See definition of [“ACT-USER: Activate user” \(4-4\)](#) section Input parameters
2. lastdate – Last uid Login Date
Description: 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: 00-00-00 for the first login or the first login after the User Id was disabled.
3. lasttime – Last uid Login Time
Description: 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: 00-00-00 for the first login or the first login after the User Id was disabled.
4. attempts – Unsuccessful Login Attempts
Description: This is the number of unsuccessful login attempts since the last successful login session on this network element.

- Type: integer
Range: 0 – 98
5. systype – System Type
Description: This specifies the type of system.
Type: value set
Range: WaveStar_UNITE
Default: WaveStar_UNITE
6. release – Release
Description: 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
See definition of [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#).

Spec block parameters

1. tmleft – Time left before password expires
Description: 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
Default: not applicable

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 network element, there is no communication (autonomous or command responses) outbound from the network element 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 network element receives an ACT-USER command, the given login ID will initiate a login session on the network element provided that a provisioned login ID and correct password are entered.

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

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

Example input/output

The following example shows a successful login session initiation attempt:

```
ACT-USER:LT-UNITE-123:nbguser1:123456::kj5lee+3;

LT-UNITE-123 01-01-01 08:00:00
M 123456 COMPLD
"nbguser1:00-12-31,09-00-00,1,WaveStar_UNITE,1.1.13,P3&M3:tmleft=5"
/* 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.
*/
;
```


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

```
ACT-USER:LT-UNITE-123:nbguser1:123456::kj51ee+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 */  
;
```

Error responses The general error responses defined in RTRV-HDR 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 network element 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 shall respond with the following error response:

Error code: ICNV - Input, Command Not Valid, session already established

Related TL1 messages

- [“CANC-USER: Cancel user” \(4-11\)](#)
- [“CANC-USER-SECU: Cancel user security” \(4-13\)](#)
- [“ED-PID: Edit password identifier” \(4-50\)](#)
- [“DLT-USER-SECU: Delete user security” \(4-55\)](#)
- [“ED-USER-SECU: Edit user security” \(4-40\)](#)
- [“ENT-USER-SECU: Enter user security” \(4-33\)](#)
- [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#)
- [“RTRV-PRMTR-SFTWR: Retrieve parameter software” \(11-12\)](#)

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



CANC-USER: Cancel user

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

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” \(5-6\)](#).
2. *uid* – User Identifier
This is the user identifier *uid* 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.
See definition of Input Parameter of [“ACT-USER: Activate user” \(4-4\)](#).
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” \(5-6\)](#).

Output format Normal completion response of successful session termination
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 for the RTRV-HDR command.

CANC-USER: Cancel user

Detailed behavior description

When the network element receives a CANC-USER command, the login session on the network element will be terminated provided that the user is currently active on the network element. 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 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” \(4-4\)](#)
- [“CANC-USER-SECU: Cancel user security” \(4-13\)](#)
- [“DLT-USER-SECU: Delete user security” \(4-55\)](#)
- [“ED-USER-SECU: Edit user security” \(4-40\)](#)
- [“ENT-USER-SECU: Enter user security” \(4-33\)](#)
- [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#)

Additional notes

none

References

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



CANC-USER-SECU: Cancel user security

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

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” \(5-6\)](#).
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***. A privileged user could log out any other user including superusers 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 superusers or MEMADMIN-users logins. See definition of Input Parameter of [“ACT-USER: Activate user” \(4-4\)](#).
3. *ctag* – Correlation Tag
See definition of [“RTRV-HDR: Retrieve header” \(5-6\)](#).

Output format Normal completion response of successful session termination

CANC-USER-SECU: Cancel user security

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 for the RTRV-HDR command.

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 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

CANC-USER-SECU: Cancel user security

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” \(4-4\)](#)
- [“CANC-USER: Cancel user” \(4-11\)](#)
- [“DLT-USER-SECU: Delete user security” \(4-55\)](#)
- [“ED-NE-SECU: Edit network element security” \(4-20\)](#)
- [“ED-USER-SECU: Edit user security” \(4-40\)](#)
- [“ENT-USER-SECU: Enter user security” \(4-33\)](#)

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



NE security administration

Overview

Purpose This entity refers to the NE security parameters which are defined for the whole Network Element.

Contents

RTRV-NE-SECU: Retrieve network element security	4-17
ED-NE-SECU: Edit network element security	4-20
ED-NE-SECU notification	4-22



RTRV-NE-SECU: Retrieve network element security

The RTRV-NE-SECU command can be initiated by a user to retrieve global security information in the network element. The current login sessions in the network element 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” \(5-6\)](#).
2. ctag – Correlation Tag
See definition of [“RTRV-NE-SECU: Retrieve network element security” \(4-17\)](#).

Output format Normal completion message

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 shall be returned:

```
M sid date time
  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 for the RTRV-HDR command.

Output parameters

Command parameters

1. uid – User ID

Description: User ID of the user that initiated the RTRV-NE-SECU command. Listed below this **uid** are **uid** s 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.

See definition of Input Parameter of [“ACT-USER: Activate user” \(4-4\)](#).

Spec block parameters

1. age – Lockout Aging Period

Description: 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

Description: 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

Description: 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

Description: 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 superusers. superusers 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 network element:

```
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 commands reports no special error responses. Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there apply to the RTRV-NE-SECU command.

Related TL1 messages

- [“ACT-USER: Activate user” \(4-4\)](#)
- [“ED-NE-SECU: Edit network element security” \(4-20\)](#)



ED-NE-SECU: Edit network element security

The ED-NE-SECU command can be initiated by a user to modify global security parameters in the network element.

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” \(5-6\)](#).
2. ctag – Correlation Tag
See definition of [“RTRV-HDR: Retrieve header” \(5-6\)](#).

Spec block parameters

1. age – Lockout Aging Period
See definition of [“RTRV-NE-SECU: Retrieve network element security” \(4-17\)](#).
2. intrvl – Lockout Period
See definition of [“RTRV-NE-SECU: Retrieve network element security” \(4-17\)](#).
3. thrshld – Lockout Threshold
See definition of [“RTRV-NE-SECU: Retrieve network element security” \(4-17\)](#).
4. usrage – User ID Aging Period
See definition of [“RTRV-NE-SECU: Retrieve network element security” \(4-17\)](#).

Output format Normal completion message

After receiving the ED-NE-SECU command, the following normal completion response shall be returned:

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

The network element 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 shall update 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” \(4-22\)](#).

Example input/output

The following example shows the successful completion of the ED-NE-SECU command by the network element:

```
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

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there apply to the ED-NE-SECU command.

Related TL1 messages

- [“ACT-USER: Activate user” \(4-4\)](#)
- [“RTRV-NE-SECU: Retrieve network element security” \(4-17\)](#)



ED-NE-SECU notification

Output format See definition of [“REPT DBCHG: Report data base change” \(5-54\)](#).

The ED-NE-SECU notification will have following specific syntax:
ED-NE-SECU:::*spec_block*

Output parameters

Command parameters

none

Spec block parameters

1. age – Lockout Aging Period
See definition [“RTRV-NE-SECU: Retrieve network element security” \(4-17\)](#).
2. intrvl – Lockout Period
See definition [“RTRV-NE-SECU: Retrieve network element security” \(4-17\)](#).
3. thrshld – Lockout Threshold
See definition [“RTRV-NE-SECU: Retrieve network element security” \(4-17\)](#).
4. usrage – User ID Aging Period
See definition [“RTRV-NE-SECU: Retrieve network element security” \(4-17\)](#).

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,usage=200"
;
```



User administration

Overview

Purpose This entity refers to the User Security Data.

Contents

<u>RTRV-USER-SECU: Retrieve user security</u>	<u>4-24</u>
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<u>ENT-USER-SECU: Enter user security</u>	<u>4-33</u>
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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 network element.

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” \(5-6\)](#).
2. *uid* – User ID
 Description: If this parameter is omitted, all *uid* s will be retrieved.
 See definition of Input Parameter of [“ACT-USER: Activate user” \(4-4\)](#).
3. *ctag* – Correlation Tag
 See definition of [“RTRV-HDR: Retrieve header” \(5-6\)](#).

Output format Normal completion message

If the network element has logins to report, the following normal completion response is returned:

```

M  sid date time
   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 for the RTRV-HDR command.

Output parameters

Command parameters

1. uid – User ID
Description: User ID whose security parameters are to be retrieved.
See definition of Input Parameter of [“ACT-USER: Activate user” \(4-4\)](#).

Spec block parameters

1. alw_login – Allow Login
Description: 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 network element security” \(4-17\)](#)) 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 disabledDefault: YES
2. initobs – Initialization Observability
Description: 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
Description: 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

Description: 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.
- 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

RTRV-USER-SECU: Retrieve user security

Description: 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

Description: The User Community Priority Level (UPCL) specifies with which priority the commands of a user will be operated by the network element. 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 settable.

7. uidclass – UID Class

Description: 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

Description: 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.

Detailed behavior description

none

Example input/output

Example for specified user:

The following example shows the successful completion of RTRV-USER-SECU command by the network element. 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&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 network element. The example below retrieves the security information associated with all the users from the network element:

```
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&ALARMS,page=999,tmout=3,alw_login=YES,uidclass=OTHER"
"egon::upc=P3&M3&T3&PM3,screen=PSCHG&STCHG,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 commands reports no special error responses. Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there apply to the RTRV-USER command.

Related TL1 messages

- [“ED-USER: Edit user” \(4-47\)](#)
- [“ENT-USER-SECU: Enter user security” \(4-33\)](#)
- [“ED-USER-SECU: Edit user security” \(4-40\)](#)
- [“DLT-USER-SECU: Delete user security” \(4-55\)](#)
- [“RTRV-USER: Retrieve user” \(4-30\)](#)

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



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” \(5-6\)](#).
2. *ctag* – Correlation Tag
See definition of [“RTRV-HDR: Retrieve header” \(5-6\)](#).

Output format Normal completion message

After receiving the RTRV-USER command, the following normal completion response shall be 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 for the RTRV-HDR command.

Output parameters

Command parameters

1. *uid* – User ID
Description: User ID whose security parameters are to be retrieved.
See definition of Input Parameter of [“ACT-USER: Activate user” \(4-4\)](#).

Spec block parameters

1. page – Password Aging Interval
See definition [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#).
2. screen – Message Screening
See definition [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#).
3. tmout – Inactivity Timeout Period
See definition [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#).
4. uidclass – UID Class
See definition of output parameter **uidclass** in [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#).
5. upc – User Privilege Code List
See definition [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#).

Example input/output

The following example shows the successful completion of RTRV-USER command by the network element:

```
RTRV-USER:LT-UNITE-123::123456;

      LT-UNITE-123 00-01-01 08:00:00
M 123456 COMPLD

"nbguser1::upc=P3&M3,screen=DBCHG&ALARMS,page=999,uidclass=OTHE
R,tmout=3"
;
```

Error responses

The RTRV-USER commands reports no special error responses. Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there apply to the RTRV-USER command.

Related TL1 messages

- [“ED-USER: Edit user” \(4-47\)](#)
- [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#)

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



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 SNMS-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” \(5-6\)](#).
2. uid – User ID
Description: Specifies the new user ID (***uid***) name.
See definition of Input Parameter of [“ACT-USER: Activate user” \(4-4\)](#).
3. ctag – Correlation Tag
See definition of [“RTRV-HDR: Retrieve header” \(5-6\)](#).
4. pid – Password ID
Description: Specifies the password ID for the ***uid***.
See definition of Input Parameter of [“ACT-USER: Activate user” \(4-4\)](#).
5. upc – User Privilege Code List
See definition of [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#).

Spec block parameters

1. page – Password Aging Interval

See definition of [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#).

2. screen – Message Screening

Description: 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.
- ALL
All notifications.
This value can be used in input direction as a short-hand notation for DBCHG&STCHG&PSCHG&ALARMS.
- OWN
Responses to own commands. The user will receive no other notifications.
If OWN is specified, no other values should be specified. If OWN is specified together with other values, the value OWN will be disregarded.
- 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

Restriction: When ***uidclass*** is set to MEMADMIN, ***screen*** must be set to NA.

3. `tmout` – Inactivity Timeout Period

Description: 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

See definition of output parameter ***uidclass*** in [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#).

Restriction

When ***uidclass*** is set to MEMADMIN, ***screen*** must be set to NA.

Output format Normal completion message

After receiving the ENT-USER-SECU command, 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

This command shall create 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” \(4-38\)](#) section.

The updated **screen** attribute shall either have both values STCHG and DBCHG or none. If only one value is added then the other shall be implicitly added by the NE. If only one is removed then the other shall be implicitly removed by the NE.

The network element will always have two preinstalled users with full privileges in all functional categories. These two users will be referred to as superusers. The two superusers are also Security Administrators because they have the S5 privilege code. The network element will not allow adding additional superuser type users. It will not be possible to remove either of the original superuser login IDs. An existing login ID (**uid**) except the superuser 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 network element:

```
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

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there apply to the ENT-USER-SECU command.

Validation rule: Entering user's own or existing uid.

If the network element 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 network element 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

ENT-USER-SECU: Enter user security

Validation rule: Invalid upc.

If the network element 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 network element receives an ENT-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” \(4-55\)](#)
- [“ED-USER-SECU: Edit user security” \(4-40\)](#)
- [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#)

References

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



ENT-USER-SECU notification

Output format See definition of [“REPT DBCHG: Report data base change” \(5-54\)](#).

The ENT-USER-SECU notification will have following specific syntax: ENT-USER-SECU:**uid**::,[**upc**]:**spec_block**

Output parameters

Command parameters

1. uid – User ID
See input parameter definition of [“ACT-USER: Activate user” \(4-4\)](#).
2. upc – User Privilege Code List
See definition of [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#) command.

Spec block parameters

1. alw_login – Allow Login
See definition of [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#) command.
2. page – Password Aging Interval
See definition of [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#) command.
3. screen – Message Screening
See definition of [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#) command.
4. tmout – Inactivity Timeout Period
See definition of [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#) command.
5. uidclass – UID Class
See definition of output parameter **uidclass** in [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#).

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,tmou
t=360,uidclass=OTHER,alw_login=YES
;
```



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 SNMS-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” \(5-6\)](#).
2. *uid* – User ID
Description ED-USER-SECU input
Specifies the user ID (*uid*) name which should be edited.
See input parameter definition of [“ACT-USER: Activate user” \(4-4\)](#).
3. *ctag* – Correlation Tag
See definition of [“RTRV-HDR: Retrieve header” \(5-6\)](#).
4. *new_pid* – New Password ID
Description: Specifies the new password ID for the addressed *uid*. This is an optional parameter and in the absence of a value default is the current value.
See definition of *pid* in [“ACT-USER: Activate user” \(4-4\)](#).
5. *upc* – User Privilege Code List
See definition of [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#).

Spec block parameters

1. *alw_login* – Allow Login

- See definition of [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#).
2. page – Password Aging Interval
See definition of [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#).
 3. screen – Message Screening
See definition of [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#).
 4. tmout – Inactivity Timeout Period
Description: 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
See definition of output parameter **uidclass** in [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#).
Restriction
When **uidclass** is set to MEMADMIN, **screen** must be set to NA.

Output format Normal completion message

After receiving the ED-USER-SECU command, the following normal completion response shall be returned:

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

If the ED-USER-SECU command does not alter existing user security parameters, the network element 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 for the RTRV-HDR command.

**Detailed behavior
description**

This command shall update 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) .

It will be reported via the corresponding ED-USER-SECU notification – see [“ED-USER-SECU notification” \(4-45\)](#) section.

The updated **screen** attribute shall either have both values STCHG and DBCHG or none. If only one value is added then the other shall be implicitly added by the NE. If only one is removed then the other shall be implicitly removed by the NE.

The network element shall always have two preinstalled users with full privileges in all functional categories. These two users will be referred to as superuser. The network element will not allow adding additional superuser type users. It will not be possible to remove either of the original superuser login IDs. An superusers’s **upc** cannot be modified using the ED-USER-SECU command.

An existing non-superuser login ID (**uid**) cannot be renamed. It must be deleted and re-entered.

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 superusers (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 network element:

```
ED-USER-SECU:LT-UNITE-  
123:nbguser1:123456::,pass13+, ,P3&M3&PM2:screen=DBCHG,page=7  
0,tmout=0, alw_login=YES;  
  
LT-UNITE-123 00-01-01 08:00:00  
M 123456 COMPLD  
;
```

This example shows how the superusers *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 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there apply to the ED-USER-SECU command.

Validation rule: Invalid uid.

If the network element 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 network element 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 superuser tries to make the other superuser a non-superuser.

Error code: IDNV - Input, Data Not Valid, invalid UPC

Validation rule: newuid has the same value of an existing uid.

If the network element 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 network element receives an ED-USER-SECU command from a user trying to change the **uid** of a non superuser.

Error code: IDNV - Input, Data Not Valid, newuid for non superuser

Validation rule: disabling of superusers.

If the network element receives an ED-USER-SECU command from a user trying to disabling **uid** of a superuser.

Error code: IDNC - Input, Data Not Consistent

Related TL1 messages

- [“DLT-USER-SECU: Delete user security” \(4-55\)](#)
- [“ED-USER-SECU: Edit user security” \(4-40\)](#)
- [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#)

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



ED-USER-SECU notification

Output format See definition of [“REPT DBCHG: Report data base change” \(5-54\)](#).

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
See input parameter definition of [“ACT-USER: Activate user” \(4-4\)](#).
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
See definition of [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#).

Spec block parameters

1. alw_login – Allow Login
See definition of [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#).
2. newuid – New UID
see definition **uid** in Input Parameter section of [“ACT-USER: Activate user” \(4-4\)](#).
3. page – Password Aging Interval
See definition of [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#).
4. screen – Message Screening
See definition of [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#).
5. tmout – Inactivity Timeout Period
See definition of [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#).
6. uidclass – UID Class
See definition of output parameter **uidclass** in [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#).

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,page=70,tmout=0,newuid=nbguser1,al
w_login=YES
;
```

This is an example notification in case of the user id was changed for a superuser:

```
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
;
```



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” \(5-6\)](#).
2. *ctag* – Correlation Tag
 See definition of [“RTRV-HDR: Retrieve header” \(5-6\)](#).

Spec block parameters

1. *screen* – Message Screening
 See definition of [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#).

Output format Normal completion message

After receiving the ED-USER command, the following normal completion response shall be returned:

```

sid date time
M ctag COMPLD
;
```

If the ED-USER command does not alter existing user security parameters, the network element 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 for the RTRV-HDR command.

Output parameters n/a

Detailed behavior description

Description: This command shall update 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” \(4-49\)](#) section.

The updated *screen* attribute shall either have both values STCHG and DBCHG or none. If only one value is added then the other shall be implicitly added by the NE. If only one is removed then the other shall be implicitly removed by the NE.

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 network element:

```
ED-USER: LT-UNITE-123::123456:::screen=DBCHG;

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

Error responses

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there apply to the ED-USER command.

Validation rule: screen value not allowed for uid

A user shall not be 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” \(4-30\)](#)



ED-USER notification

Output format See definition of [“REPT DBCHG: Report data base change” \(5-54\)](#).

The ED-USER notification will have following specific syntax:

ED-USER:*uid::spec_block*

Output parameters

Command parameters

1. uid – User ID

See input parameter definition of [“ACT-USER: Activate user” \(4-4\)](#).

Spec block parameters

1. screen – Message Screening

See definition of [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#).

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
;
```



ED-PID: Edit password identifier

The ED-PID command can be initiated by a user to change the user's own password on the network element.

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” \(5-6\)](#).
2. *ctag* – Correlation Tag
 See definition of [“RTRV-HDR: Retrieve header” \(5-6\)](#).
3. *old_pid* – Old Password ID
 Description: This is the current *pid* of the user.
 See definition of *pid* in [“ACT-USER: Activate user” \(4-4\)](#).
4. *new_pid* – New Password ID
 Description: Specifies the new password ID. The *new_pid* value must differ from the *old_pid* value by at least one character.
 See definition of *pid* in [“ACT-USER: Activate user” \(4-4\)](#).

Output format Normal completion message

After receiving the ED-PID command, the following normal completion response shall be 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:

```

M  sid date time
   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" \(4-4\)](#).

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

n/a

Detailed behavior description

Description: When the network element receives an ED-PID command, the *pid*(password ID) associated with the user's login identifier will be changed on the network element provided that: The user is currently logged in on the network element. The *old_pid* provided matches the current password for that login identifier. The *new_pid* provided satisfies the password requirements of the network element.

It will be reported via the corresponding ED-PID notification – see ["ED-PID notification" \(4-54\)](#) section – if a session is already established; i.e. there will be no notification in the password expiry scenario during a login procedure.

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 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there apply to the ED-PID command.

Validation rule: Invalid old_pid.

If the network element 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 network element 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

Additional notes none

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



ED-PID notification

Output format See definition of [“REPT DBCHG: Report data base change” \(5-54\)](#).

The ED-PID notification will have following specific syntax:

ED-PID:*uid*

Output parameters

Command parameters

1. uid – User ID

See input parameter definition of [“ACT-USER: Activate user” \(4-4\)](#).

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
;
```



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 network element.

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” \(5-6\)](#).
2. *uid* – User ID
Description: Specifies the *uid* which should be deleted. Only a single uid is supported in the command.
See input parameter definition of [“ACT-USER: Activate user” \(4-4\)](#).
3. *ctag* – Correlation Tag
See definition of [“RTRV-HDR: Retrieve header” \(5-6\)](#).

Output format Normal completion message

After receiving the DLT-USER-SECU command, 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.

Output parameters n/a

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 network element. The DLT-USER-SECU command is applicable where a user account has to be deleted from the network element. The user data stored in the network element will be updated.

It will be reported via the corresponding DLT-USER-SECU notification – see [“DLT-USER-SECU notification” \(4-58\)](#) section.

It is not possible to delete the user id of one of the predefined superusers.

If the user with the specified **uid** is currently logged into the network element when this command is successfully executed, the user session identified by this **uid** is terminated, and the network element 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 network element:

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

Error responses

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there apply to the DLT-USER-SECU command.

Validation rule: Invalid uid.

If the network element receives a DLT-USER-SECU command with a invalid (unkown) **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” \(4-33\)](#)
- [“ED-USER-SECU: Edit user security” \(4-40\)](#)
- [“RTRV-USER-SECU: Retrieve user security” \(4-24\)](#)

Additional notes none

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



DLT-USER-SECU notification

Output format See definition of [“REPT DBCHG: Report data base change” \(5-54\)](#).

The DLT-USER-SECU notification will have following specific syntax: DLT-USER-SECU:*uid*

Output parameters

Command parameters

1. uid – User ID

See input parameter definition of [“ACT-USER: Activate user” \(4-4\)](#).

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
;
```





5 Configuration management

Overview

Purpose This section contains the TL1 interface definition for the domain “configuration management”.

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<u>DLT-VC3 notification</u>	<u>5-321</u>
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System

Overview

Purpose This entity includes the system level configuration messages.

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RTRV-HDR: Retrieve header

Description The RTRV-HDR command can be initiated by a user to request that the network element 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 of RTRV-HDR
RTRV-HDR:*tid::ctag*;

Input parameters

Command parameters

1. tid – Target Identifier
Description: 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
Description: 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.
Default: None

Spec block parameters

None.

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>
^^^sid^date^time<cr><lf>
M^^ctag^COMPLD<cr><lf>
.
```

RL Acknowledgment

If a command cannot be executed at the present time, the following RL (Repeat Later) Acknowledgment shall be 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

sid – Source Identifier

This is the currently active name of the network element to which responses to the command.

See definition of *tid* input parameter in [“RTRV-HDR: Retrieve header” \(5-6\)](#).

date – Date

Description: 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

time – Time

Description: 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

M – Message

Description: M indicates that the output message is generated in response to a manual command.

Type: value set

Range: M

Default: M

ctag – Correlation Tag

See definition of *ctag* input parameter in [“RTRV-HDR: Retrieve header” \(5-6\)](#).

IP – In Progress

Description: IP is sent in response to all commands with the exception of commands that result in error code output.

Type: value set

Range: IP

Default: IP

RL – Repeat Later

Description: The requested command cannot be executed due to unavailable system resources. The command may be entered again later.

Type: value set

Range: RL

Default: RL

COMPLD – Completion Code

Description: It 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

Default: COMPLD

Detailed behavior description

The RTRV-HDR command shall just return 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.

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 network element. 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 network element and a communication failure occurs before the remote network element 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:

```
  sid date time
M  ctag DENY
  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:

```
  sid date time
M  ctag DENY
  ICNV
  /* Input, Command Not Valid, missing TID */
.
```

Command not recognized (SCNF)

If the command is not recognized, the following error response is returned:

```
sid date time
M ctag DENY
  SCNF
/* Status, Command Not Found, command not recognized */
;
```

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:

```
sid date time
M ctag DENY
  IISP
/* Input, Invalid Syntax or Punctuation */
;
```

Command too long

If the command is longer than 512 characters, the following error response is returned:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  INUP
/* Input, Non-null Unimplemented Parameter */
;
```

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:

```
sid date time
M ctag DENY
  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.

```
sid date time
M ctag DENY
  IDNV
/* Input, Data Not Valid, invalid <parameter name> */
.
```

Input Parameter appears more than once (IBEX)

If a name-defined input parameter appears more than once within a command the following error response is returned.

```
sid date time
M ctag DENY
  IBEX
/* Input, Block, Extra, more than one appearances of a parameter */
.
```

Invalid Entity (IENE)

If there is an input failure due to an invalid entity, the following error response is returned:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  IITA
/* Input, Invalid TID, Unknown TID */
.
```

Not reachable TID (IITA)

If a command has a valid ***tid*** value but the addressed remote network element is temporarily unable to communicate with the TL1-GNE, the

following error response is returned, using the *sid* of the addressed system:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  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:

```
sid date time
M 0 DENY
  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:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  IDNC
/* Input, Data, Not Consistent */
.
```

Missing Equipage (ENEQ)

If the command failed due to equipage that is missing, the following error response is returned:

```
sid date time
M ctag DENY
  ENEQ
/* Equipage, Not EQuipped */
.
```

Insufficient File Space (ENEQ)

If the command failed due to insufficient file space, the following error response is returned:

```
sid date time
M ctag DENY
  ENEQ
/* Equipage, Not EQuipped, insufficient file space */
.
```

Incorrect Equipage (EATN)

If the command failed due to incorrect equipage, the following error response is returned:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  SNVS
/* Status, Not in Valid State, maintenance condition */
.
```

Entity already exists (IEAE)

If an entity already exists, the following error response is returned:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  SARB
  /* Status, All Resources Busy, system limit exceeded */
.
```

Internal Limit exceeded (SSRE)

If a command attempts to exceed an internal limit, the following error response is returned:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  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:

```
sid date time
M ctag DENY
  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 nonempty 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 nonempty 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.

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 shall not terminate the output response with the ";" character.

This behavior will lead to a timeout of the manager and cause him to abort the command.

Related TL1 messages

All other TL1 commands refer to the ["RTRV-HDR: Retrieve header" \(5-6\)](#) 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 shall be grouped together.

spec_blocks continued on another line

For commands that have spec_blocks in the output, like this:

```
M  sid date time  
   ctag COMPLD  
   "aid:spec_block"  
   ...  
;
```

If the output line becomes too long, the keywords may be continued on another line, but the AID shall be 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:syncrtc=SDH"  
;
```

References GR-833-CORE



RTRV-ATTR-MSG: Retrieve attribute message

The RTRV-ATTR-MSG shall be 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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 shall be returned:

```

      sid date time
M   ctag COMPLD
      "sessions:msgstate"
      . . .
;
```

For each value of parameter *sessions* one line shall be reported.

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

sessions – Affected sessions

Description: 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

msgstate – Message status

Description: 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 shall retrieve 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” \(5-6\)](#) command Error responses section. The error responses listed there also apply to the INH-MSG command.

RTRV-ATTR-MSG: Retrieve attribute
message

Related TL1 messages

- [“ALW-MSG: Allow message” \(5-31\)](#)
- [“INH-MSG: Inhibit message” \(5-29\)](#)

References GR-833-CORE



INH-MSG: Inhibit message

The INH-MSG command shall instruct the NE to inhibit the forwarding of autonomous messages on the user session or per system (depending on parameter **session**). 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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” \(5-26\)](#).

Output format If the INH-MSG request completes successfully, 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.

Output parameters

Detailed behavior description

The command shall disable autonomous message reporting as specified by *sessions*.

If the user is logged in more than once, and *sessions*=CURRENT, only the current login session shall be 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 shall be reset to 000 when autonomous message are resumed.

The *atag* for a memory administration user shall not be affected by this command, see also [“RTRV-AO: Retrieve Autonomous Output” \(5-46\)](#).

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” \(5-6\)](#) command Error responses section. The error responses listed there also apply to the INH-MSG command.

Related TL1 messages

- [“ALW-MSG: Allow message” \(5-31\)](#)
- [“RTRV-ATTR-MSG: Retrieve attribute message” \(5-26\)](#)

References

GR-833-CORE



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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. **ctag** – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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” \(5-26\)](#).

Output format If the ALW-MSG request completes successfully, the following normal completion response shall be returned:

```

M  sid date time
   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.

Output parameters

Detailed behavior description

The command shall enable autonomous message reporting for *sessions*.

If this command is executed when autonomous messages are already being transmitted, it shall 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” \(5-6\)](#) command Error responses section. The error responses listed there also apply to the ALW-MSG command.

Related TL1 messages

- [“INH-MSG: Inhibit message” \(5-29\)](#)
- [“RTRV-ATTR-MSG: Retrieve attribute message” \(5-26\)](#)

References

GR-833-CORE



RTRV-STATE-EQPT (system): Retrieve equipment state

The RTRV-STATE-EQPT command shall retrieve 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
 Description: The aid of the system itself.
 Type: AID
 Range: system; the usage of the keyword all on system level shall not be allowed.
 Default: system
3. ctag – Correlation Tag
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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:

```

M  sid date time
   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 for the RTRV-HDR command.

RTRV-STATE-EQPT (system): Retrieve equipment state

Output parameters

aid – Access Identifier

See definition of **aid** input parameter in [“RTRV-STATE-EQPT \(system\): Retrieve equipment state” \(5-33\)](#).

Spec block parameters

1. dbstate – Data Base Change State

Description: The system shall provide 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

2. mcond – Maintenance Condition

Description: This parameter denotes whether the system condition is in maintenance condition or not.

Type: alphanumeric value set

Range:

- Y = maintenance mode
- N = normal mode

Default: none

Detailed behavior description

The RTRV-STATE-EQPT command on system level (AID = system) shall retrieve the current mode of the system.

The system shall provide 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)

RTRV-STATE-EQPT (system): Retrieve equipment state

- database download to restore empty/corrupt DB: CPY-MEM
- set time: ED-DAT
- set date: ED-DAT
- commands ONLY allowed in maintenance mode:
 - set TID
 - SET-SID
 - set SONET/SDH synchronisation default mode: ED-EQPT (system)
 - leave maintenance mode (accept data base): ED-STATE-EQPT (system)

Accepting the database will be a direct result of leaving the maintenance mode.

The system shall autonomously leave 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” \(5-6\)](#) command Error responses section.

Related TL1 messages

- [“ED-STATE-EQPT \(system\): Edit equipment state” \(5-36\)](#)
- [“ED-EQPT \(system\): Edit Equipment \(system\)” \(5-42\)](#)
- [“ENT-EQPT \(slot\): Enter Equipment \(slot\)” \(5-88\)](#)

References

none



ED-STATE-EQPT (system): Edit equipment state

The ED-STATE-EQPT command shall modify 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. *aid* – Access Identifier
See definition of *aid* input parameter in [“RTRV-STATE-EQPT \(system\): Retrieve equipment state” \(5-33\)](#).
3. *ctag* – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. *mcond* – Maintenance Condition
See definition of *mcond* in [“RTRV-STATE-EQPT \(system\): Retrieve equipment state” \(5-33\)](#).

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.

ED-STATE-EQPT (system): Edit equipment
state

**Detailed behavior
description**

The command shall switch the system to the maintenance condition or back to normal condition. There shall be an autonomous system reset when the maintenance condition is left. The following attribute of the system entity shall be updated due to that operation:

mcond as specified in the command input

The modification shall be reported by means of an ED-STATE-EQPT notification for the system

Updated affected entities

Setting **mcond**=Y shall cause that **opstate**=OS_DISABLED for all non-CTL circuit packs in the system. The change shall be 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” \(5-6\)](#) 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 \(system\)” \(5-39\)](#)



ED-STATE-EQPT (system) 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*
See definition of *aid* input parameter in [“RTRV-STATE-EQPT \(system\): Retrieve equipment state” \(5-33\)](#).

Spec block parameters

1. *dbstate* – Data Base Change State
See definition of parameter *dbstate* in [“RTRV-STATE-EQPT \(system\): Retrieve equipment state” \(5-33\)](#).
2. *mcond* – Maintenance Condition
See definition of parameter *mcond* in [“RTRV-STATE-EQPT \(system\): Retrieve equipment state” \(5-33\)](#).

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"
;
```



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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
Description: The aid of the system itself.
Type: AID
Range: system. The usage of the keyword all on system level shall not be allowed.
Default: system
3. ctag – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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:

```

M  sid date time
   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 for the RTRV-HDR command.

Output parameters

aid – Access Identifier

See definition of the input parameters *aid* in [“RTRV-EQPT \(system\): Retrieve Equipment \(system\)” \(5-39\)](#) .

Spec block parameters

1. eqptpn – Equipment ASAP Profile Name
Description: 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
Description: Defining the predominantly used interface standard for a port.
Type: alphanumeric value set
Range:
 - SONET
 - SDHDefault: SDH
3. trbmddflt – Tributary Mode Default
Description: Defining the predominantly used tributary mode for a port.
Type: alphanumeric value set
Range:
 - FIXED
 - ADAPTIVEDefault: FIXED
4. syncrtc – System Synchronization Characteristic
Description: This parameter specifies whether the NE uses the SDH or SONET timing function for synchronization.
Type: alphanumeric value set
Range:
 - SONET
 - SDHDefault: SDH
5. systype – System Type

RTRV-EQPT (system): Retrieve Equipment
(system)

Description: This specifies the type of NE.

Type: alphanumeric value set

Range: WaveStar_UNITE

Default: WaveStar_UNITE

Detailed behavior description

The command shall retrieve 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:trbmdflt=FIXED "
"system:syncrtc=SDH"
"system:eqtpn=DEFAULT "
;
```

Error responses

Refer to [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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 \(slot\)” \(5-88\)](#)
- [“ED-EQPT \(system\): Edit Equipment \(system\)” \(5-42\)](#)
- [“DLT-EQPT \(slot\): Delete equipment \(slot\)” \(5-101\)](#)
- [“RTRV-STATE-EQPT \(system\): Retrieve equipment state” \(5-33\)](#)

References

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ED-EQPT (system): Edit Equipment (system)

The ED-EQPT command shall modify 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
See definition of the input parameters *aid* in RTRV-EQPT (system).
3. ctag – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. eqtpn – Equipment ASAP Profile Name
See definition of *eqtpn* output parameter in [“RTRV-EQPT \(system\): Retrieve Equipment \(system\)” \(5-39\)](#).
2. istddflt – Interface Standard Default
See definition of *istddflt* output parameter in [“RTRV-EQPT \(system\): Retrieve Equipment \(system\)” \(5-39\)](#).
3. syncrtc – System Synchronization Characteristic
See definition of *syncrtc* output parameter in [“RTRV-EQPT \(system\): Retrieve Equipment \(system\)” \(5-39\)](#).
4. trbmddflt – Tributary Mode Default
See definition of *trbmddflt* output parameter in [“RTRV-EQPT \(system\): Retrieve Equipment \(system\)” \(5-39\)](#).

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**

Behavior

The command shall modify the current values for the system. The following attributes of the system entity shall be updated due to that operation.

1. *istddflt* as specified in the command input
2. *trbmddflt* as specified in the command input
3. *syncrtc* as specified in the command input
4. *eqtpn* 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 shall be reported by means of an ED-EQPT notification for the system.

Dependencies *istddflt* and *trbmddflt*

If *istddflt* is changed to SDH the *trbmddflt* parameter shall be set to FIXED by the system.

Updated affected entities

See discussion in [Chapter 10, “Synchronization”](#) after change of *syncrtc* and leave of MCOND.

Example input/output

```
ED-EQPT:UNITE-NE:system:123456::istddflt=SONET;
UNITE-NE 98-01-01 08:00:00
M 123456 COMPLD
;
```

Error responses

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there also apply to the ENT-EQPT command.

Validation rule: check of the maintenance condition

System must be in MCOND for change of *syncrtc*.

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 shall not be allowed.

Error code: SNVS - Status, Not in Valid State, incompatibility istddflt and trbmddflt

Related TL1 messages

- [“RTRV-EQPT \(system\): Retrieve Equipment \(system\)” \(5-39\)](#)
- [“DLT-EQPT \(slot\): Delete equipment \(slot\)” \(5-101\)](#)
- [“RTRV-STATE-EQPT \(system\): Retrieve equipment state” \(5-33\)](#)

References GR-199-CORE



ED-EQPT (system) notification

Output format The ED-EQPT notification shall use 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
See definition of the input parameters *aid* in [“RTRV-EQPT \(system\): Retrieve Equipment \(system\)” \(5-39\)](#).

Spec block parameters

1. eqtpn – Equipment ASAP Profile Name
See definition of *eqtpn* output parameter in [“RTRV-EQPT \(system\): Retrieve Equipment \(system\)” \(5-39\)](#).
2. istddflt – Interface Standard Default
See definition of *istddflt* output parameter in [“RTRV-EQPT \(system\): Retrieve Equipment \(system\)” \(5-39\)](#).
3. syncrtc – System Synchronization Characteristic
See definition of *syncrtc* output parameter in [“RTRV-EQPT \(system\): Retrieve Equipment \(system\)” \(5-39\)](#).
4. trbmddflt – Tributary Mode Default
See definition of *trbmddflt* output parameter in [“RTRV-EQPT \(system\): Retrieve Equipment \(system\)” \(5-39\)](#).

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"
;
```

□

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 shall be unaffected.

The system shall save a copy of each REPT DBCHG message for users in the Memory Administration user class (*uidclass*=MEMADMIN). Those copies shall share one *atag* counter for all users of the Memory Administration user class. Message shall be 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” \(4-30\)](#)).

Priority: 1

Abortable: Yes

Input format Command Syntax: RTRV-A0:*tid*::*ctag*[::*spec_block*];

Input parameters

Command parameters

1. *tid* – Target Identifier
See definition of *tid* in [“RTRV-HDR: Retrieve header” \(5-6\)](#).
2. *ctag* – Correlation Tag

See definition of **ctag** in [“RTRV-HDR: Retrieve header” \(5-6\)](#).

Spec block parameters

1. atagseq – ATAG Sequence

Description: The Automatic Tag Sequence or ISN (Internal Sequence Number) specifies one or more **atags** for which the REPT DBCHG messages shall be 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

Description: 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” (5-50) , in the format of a REPT DBCHG message.
Detailed behavior description	Behavior The system shall return all REPT DBCHG messages matching the <i>atag</i> range of the input parameter <i>atagseq</i> to the user. Update affected entities Execution of this command shall not affect other entities in the system.
Example input/output	The following is an example of the successful execution of a RTRV-AO command: <pre>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" */ ;</pre>

Error responses Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error Response section. The error responses listed there also apply to the RTRV-AO command.

Validation rule: Valid atagseq

If the network element receives a RTRV-AO command with an invalid *atagseq* value the command shall be rejected with

Error code: IDNV - Input Data Not Valid, invalid *atagseq*

Validation rule: User class

If the network element receives a RTRV-AO command from a user that is not in the Memory Administration user class, i.e.

uidclass=MEMADMIN, the command shall be rejected with

Error code: PICC - Privilege, Illegal Command Code, invalid user class.

Related TL1 messages

- [“RTRV-LOG-NTFCN: Retrieve notification Log” \(5-50\)](#)
- [“REPT DBCHG: Report data base change” \(5-54\)](#)

References GR-199-CORE



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 resynchronize 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. startdate – Date for the Starting point
 Description: The format shall be YY-MM-DD. If both **startdate** and **starttime** are omitted, the entire log shall be 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

Default: none

2. starttime – Time for the Starting point

Description: The format shall be HH-MM-SS. If both **startdate** and **starttime** are omitted, the entire log shall be 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

Default: none

3. replytype – Type of Reply

Description: BROWSE shall be 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 shall be returned without further error messages.

DBSYNC shall be 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 shall be returned:

```
M sid date time
  ctag COMPLD
  "date,time:[ccb]:[aid]:[com_block]:[spec_block]"
  "date,time:[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 for the RTRV-HDR command.

Output parameters

date – Date

See definition of *chgdat* parameter in [“REPT DBCHG: Report data base change” \(5-54\)](#).

time – Time

See definition of *chgtm* parameter in [“REPT DBCHG: Report data base change” \(5-54\)](#).

ccb – Command Block Code

See definition of *ccb* parameter in [“REPT DBCHG: Report data base change” \(5-54\)](#).

aid – Access Identifier

See definition of *aid* parameter in [“REPT DBCHG: Report data base change” \(5-54\)](#).

com_block – Common Block

See definition of *com_block* in [“REPT DBCHG: Report data base change” \(5-54\)](#).

spec_block – Specific Block

See definition of *spec_block* in [“REPT DBCHG: Report data base change” \(5-54\)](#).

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  
"DATE=00-11-15,TIME=07-59-59:ENT-EQPT:1-1::shlftp=DUR"  
...  
;
```

Error responses

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there also apply to the RTRV-LOG-NTFCN command.

Validation rule: matching log entry

There shall be 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 DBCHG: Report data base change” \(5-54\)](#)

References GR-833



REPT DBCHG: Report data base change

The REPT DBCHG message reports any change in the system database.

Properties	not applicable
Input format	not applicable
Input parameters	not applicable
Output format	The REPT DBCHG message shall use the following format:

```

A  sid date time
   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 for the RTRV-HDR command.

Output parameters

atag – Automatic Tag

Description: The *atag* shall be 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

chgtm – Change Time

Description: Time when the change is occurred.

Type: value set

Range: HH-MM-SS

Default: none

chgdat – Change Date

Description: Date when the change occurred

Type: value set

Range: YY-MM-DD

Default: none

ccb – Command Code Block

Description: the **ccb** field will be set to the TL 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] (see [“TL1 message index” \(1-1\)](#))

Range: not applicable

Default: none

aid – Access Identifier

Description: 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**.

Default: none

com_block – Common Block

Description: 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.

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**.

spec_block – Specific Block

Description: 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 shall report 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 shall be 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 shall be 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 shall be 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 shall output separate REPT DBCHG messages for each affected AID.

Messages caused by own changes

REPT DBCHG: Report data base change

If the database change occurs as a result of a TL1 command, a REPT DBCHG message shall be 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::nvname=OP2G5,nvqual=13SR4"
:
```

Error responses not applicable

Related TL1 messages none

References GR-199-CORE



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 network element.

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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. *ctag* – Correlation Tag
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
3. *date* – Date
 Description: 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
 Description: 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

Spec block parameters

none

Output format If the ED-DAT request completes successfully, 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 following attributes of the system entity shall be 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 shall be left unchanged.

The update shall be 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” \(9-6\)](#)).

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” \(5-6\)](#) command Error responses section. The error responses listed there also apply to the ED-DAT command.

Validation rule: Incorrect date/time format

If the network element receives an ED-DAT command with an incorrectly formatted date and/or time, the following error response is

returned. This check shall include 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” \(5-6\)](#)

References GR-199-CORE



ED-DAT notification

Output format The ED-DAT notification shall use the general format of a REPT DBCHG Report Database Change notification.

Syntax: ED-DAT::*[date]**[,time]*

Output parameters

Command parameters

1. date – Date
See definition of input parameter *date* in [“ED-DAT: Edit date and time” \(5-58\)](#).
2. time – Time
See definition of input parameter *time* in [“ED-DAT: Edit date and time” \(5-58\)](#).

Spec block parameters

none

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"
;
```



SET-SID: Set SID

SET-SID shall be used to change the Target/Source identification of the network element. The SET-SID command shall be 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
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command.
2. *ctag* – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command.
3. *newsid* – New Target/Source Identification
This is the new name of the network element. Future commands must use this name instead of the current name.
See definition of input parameter *tid* in [“RTRV-HDR: Retrieve header” \(5-6\)](#).

Output format If the network element 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 for the RTRV-HDR command.

Detailed behavior description

This command provides a new name to the NE.
The update shall be reported by means of an SET-SID notification.

The SET-SID command shall be 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 shall take 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 shall be 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 network element 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” \(5-6\)](#) 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 shall be 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 shall be 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” \(5-6\)](#)

Additional notes none

References GR-833-CORE, “Surveillance Messages”



SET-SID notification

Output format The SET-SID notification shall use 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” \(5-6\)](#).

Spec block parameters

none

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"  
;
```



INIT-SYS: Intialize System

The INIT-SYS command shall result 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. *ctag* – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

Output format If the network element 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 for the RTRV-HDR command.

Detailed behavior description

Behavior

The INIT-SYS command shall 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.

Updated affected entities

There shall be no further entities affected.

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” \(5-6\)](#) command Error responses section. The error responses listed there also apply to INIT-SYS command.

Related TL1 messages

[“INIT-EQPT \(slot\): Initialize equipment \(slot\)” \(5-110\)](#)

References

GR-833-CORE



Autonomous notifications

**Change of the data base
change status**

The data base change state (see *dbstate* parameter in [“RTRV-STATE-EQPT \(system\): Retrieve equipment state” \(5-33\)](#)) can change autonomously. This change shall be reported by means of an ED-STATE-EQPT notification.

**System start-up with
default DB**

The system shall autonomously create the entity *system* when starting up with the default database

No notification shall be sent.



Bay

Overview

Purpose This entity includes the bay level configuration messages.

Contents

RTRV-EQPT (bay): Retrieve Equipment (bay)	5-70
Autonomous notifications	5-72

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” \(5-6\)](#) 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* shall be allowed.
Default: 1
3. *ctag* – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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:

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

aid – Access Identifier

Description: The AID of the bay/rack.

Type: AID

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

Range: BayAID. The keyword all shall not be allowed as output parameter.

Default: 1

Spec block parameters

none

Detailed behavior description

The system shall supply 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” \(5-6\)](#) command Error responses section. The error responses listed there also apply to RTRV-EQPT (bay) command.

Related TL1 messages

none

References

GR-199-CORE



Autonomous notifications

**System start-up with
default DB**

The system shall autonomously create the entity ***bay*** when starting up with the default database.

No notification shall be sent.



Shelf

Overview

Purpose This entity includes the shelf level configuration messages.

Contents

RTRV-EQPT (shelf): Retrieve Equipment (shelf)	5-74
ED-EQPT (shelf): Edit Equipment (shelf)	5-77
ED-EQPT (shelf) notification	5-79
Autonomous notifications	5-80



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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
Description: The AID of the shelf/subrack.
Type: AID
Range: ShelfAID. The keyword all shall be allowed on bay AID and shelf AID level.
Default: 1-1
3. ctag – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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
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 for the RTRV-HDR command.

Output parameters

aid – Access Identifier

Description: The AID of the shelf/subrack.

Type: AID

Range: ShelfAID. The keyword all shall not be allowed on bay AID and shelf AID level.

Default: 1-1

Spec block parameters

1. eqptpn – Equipment ASAP Profile Name
Description: 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
Description: 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
Description: The shelf type of the addressed NE is provided.
Type: alphanumeric value set
Range: LXC40
Default: none

Detailed behavior description

The system shall retrieve the output parameters as described above.
The shelf type shall be derived from the inventory data of the subrack.

RTRV-EQPT (shelf): Retrieve Equipment
(shelf)

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” \(5-6\)](#) command Error responses section. The error responses listed there also apply to RTRV-EQPT (shelf) command.

Related TL1 messages

- [“ENT-EQPT \(slot\): Enter Equipment \(slot\)” \(5-88\)](#)
- [“ED-EQPT \(shelf\): Edit Equipment \(shelf\)” \(5-77\)](#)
- [“DLT-EQPT \(slot\): Delete equipment \(slot\)” \(5-101\)](#)
- [“RTRV-STATE-EQPT \(system\): Retrieve equipment state” \(5-33\)](#)

References GR-199-CORE



ED-EQPT (shelf): Edit Equipment (shelf)

The ED-EQPT command shall modify 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
See definition of output parameter *aid* in RTRV-EQPT (shelf).
3. ctag – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. eqptpn – Equipment ASAP Profile Name
See definition of output parameter *eqptpn* in [“RTRV-EQPT \(shelf\): Retrieve Equipment \(shelf\)” \(5-74\)](#).
2. eqptprotpn – Protected Equipment ASAP Profile Name
See definition of output parameter *eqptprotpn* in [“RTRV-EQPT \(shelf\): Retrieve Equipment \(shelf\)” \(5-74\)](#).

Output format If the ED-EQPT command completes successfully, then the following normal completion response is returned:

```

      sid date time
M  ctag COMPLD

```

ED-EQPT (shelf): Edit Equipment (shelf)

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 following attribute of the shelf entity shall be updated due to the command ED-EQPT

eqtpn as specified in the command input *eqtpn* as specified in the command input

The modification shall be reported by means of an ED-EQPT notification for the shelf

Updated affected entities

There shall be no further entities be affected.

Example input/output

```
ED-EQPT:UNITE-NE:1-1:123456:::eqtpn=Nuernberg-1;
UNITE-NE 98-01-01 08:00:00
M 123456 COMPLD
;
```

Error responses

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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 *eqtpn* or *eqtpnprot* does not exist the following error shall be returned.

Error code: IDNV - Input, Data Not Valid, ASAP profile does not exist

Related TL1 messages

- [“RTRV-EQPT \(system\): Retrieve Equipment \(system\)” \(5-39\)](#)
- [“DLT-EQPT \(slot\): Delete equipment \(slot\)” \(5-101\)](#)
- [“RTRV-STATE-EQPT \(system\): Retrieve equipment state” \(5-33\)](#)

References

GR-199-CORE



ED-EQPT (shelf) notification

Output format The ED-EQPT notification shall use the general format of a REPT DBCHG Report Database Change notification.

Syntax: ED-EQPT:*aid*::*spec_block*

Output parameters

Command parameters

See definition of output parameter *aid* in [“RTRV-EQPT \(shelf\): Retrieve Equipment \(shelf\)” \(5-74\)](#).

Spec block parameters

eqptpn – Equipment ASAP Profile Name

See definition of output parameter *eqptpn* in [“RTRV-EQPT \(shelf\): Retrieve Equipment \(shelf\)” \(5-74\)](#).

eqptprotpn – Protected Equipment ASAP Profile Name

See definition of output parameter *eqptprotpn* in [“RTRV-EQPT \(shelf\): Retrieve Equipment \(shelf\)” \(5-74\)](#).

Example output

```
ED-EQPT:UNITE-NE:1-1:123456:::eqptpn=Nuernberg-1;
M  UNITE-NE 00-11-20 08:00:00
  123456 COMPLD
;
A  UNITE-NE 00-11-20 8:01:03
  610 REPT DBCHG
  "Time=8-00-30,DATE=00-11-20:ED-EQPT:1-1::eqptpn=Nuernberg-1"
;
```



Autonomous notifications

**System start-up with
default DB**

The system shall autonomously create the entity ***shelf*** when starting up with the default database.

No notification shall be sent.



Slot

Overview

Purpose This entity includes the slot level configuration messages.

Contents

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RTRV-EQPT (slot): Retrieve Equipment (slot)

The RTRV-EQPT command shall retrieve 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
 Description: The AID of a slot.
 Type: AID
 Range:
 - SlotAID
 - UnivSlotAID
 - XCSlotAID
 - CTLSlotAID
 The keyword `usa11` shall be allowed for Simple_UnivSlotAID.
 The keyword `xca11` shall be allowed for Simple_XCSlotAID.
 The keyword `cta11` shall be allowed for Simple_CTLSlotAID.
 The keyword `a11` shall be allowed for Simple_SlotAID
 The keyword `a11` is not allowed on bay/shelf level.
 Default: none
3. ctag – Correlation Tag
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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 shall be returned:

```
M  sid date time  
   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 The output actlname/actlqual is a list of attribute pairs per slot and nvmmname/nvmqual is an optional pair of attributes per slot.

aid – Access Identifier

Description: The AID of a slot.

Type: AID

Range: SlotAID

The keyword *usall* shall not be allowed for Simple_UnivSlotAID. The keyword *xcall* shall not be allowed for Simple_XCSlotAID. The keyword *ct1all* shall not be allowed for Simple_CTLSlotAID. The keyword *all* shall not be allowed for Simple_SlotAID, Simple_UnivSlotAID, Simple_XCSlotAID, Simple_CTLSlotAID.

The keyword *all* is not allowed on bay/shelf level.

Default: none

Spec block parameters

1. actlname – Acceptable Circuit Pack Name

Description: This parameter shall be reported by itself together with **actlqual**. The line shall be repeated for all acceptable circuit packs in the slot. This list specifies the circuit packs which can be provisioned for that slot.

Type: value set

Range: 12 character

Default: none

2. actlqual – Acceptable Circuit Pack Qualifier

Description: This parameter shall be reported by itself together with **actlname**. The line shall be repeated for all acceptable circuit packs in the slot. This list specifies the circuit packs which can be provisioned for that slot.

Type: value set

Range: 7 character

Default: none

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

Description: 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

Default: none

4. clei – Common Language Equipment

Description: 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

Default: none

5. eci – Equipment Catalog Item

Description: 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

6. eqtpn – Equipment ASAP Profile Name

Description: 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

7. name – Circuit Pack Name

Description: 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

Default: none

8. nvmmname – Circuit Pack Name

Description: This parameter shall specify 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

9. nvmmqual – Circuit Pack Qualifier

Description: This parameter shall specify 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
 - EXTEND
 - all values as defined in SRD_ConfigurationManagement
- Default: The special character '-' (i.e. the minus-sign, without the quotes)

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

10. qual – Circuit Pack Qualifier

Description: 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

Default: none

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

11. sln – Serial Number

Description: 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

Default: none

12. ssn – Series Number

Description: 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

Default: none

Note

A dash (-) is used instead of a colon (:) for the series number in TL1.

**Detailed behavior
description**

Omit Inventory Data parameters if not accessible

If the system cannot access inventory 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 be omitted from the command response:

- app
- clei
- eci
- name
- qual

RTRV-EQPT (slot): Retrieve Equipment
(slot)

- sln
- ssn

Return parameters for working CTL slot only

If *ctlall* is specified as **Simple_CTLSlotAID** or all is specified as **Simple_SlotAID** the system shall respond only with parameters of the working CTL slot (*ctlw*), it shall not return any parameters for the protection CTL slot.

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,actlqual=13SR4"
"1-1-#-#-5:actlname=OP10,actlqual=15LR1"
|
"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"
;
```

Error responses

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command in the Error responses section. The error responses listed there also pertain to the RTRV-EQPT command.

Validation rule: Reject Request for protection CTL slot

If *ctlp* is specified as **Simple_CTLSlotAID** the command shall be rejected.

Error code: IENE - Input, Entity Not Exists

Related TL1 messages

- [“ENT-EQPT \(slot\): Enter Equipment \(slot\)” \(5-88\)](#)
- [“ED-EQPT \(slot\): Edit Equipment \(slot\)” \(5-94\)](#)
- [“DLT-EQPT \(slot\): Delete equipment \(slot\)” \(5-101\)](#)
- [“RTRV-STATE-EQPT \(slot\): Retrieve equipment state \(slot\)” \(5-106\)](#)

References

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ENT-EQPT (slot): Enter Equipment (slot)

The ENT-EQPT command preprovisions a slot for a dedicated circuit pack.

The CTL can not be preprovisioned. It is always autoprovisioned.

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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
See definition of output parameter *aid* in [“RTRV-EQPT \(slot\): Retrieve Equipment \(slot\)” \(5-82\)](#).
3. ctag – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. nvmmname – Circuit Pack Name
See definition of output parameter *nvmmname* in [“RTRV-EQPT \(slot\): Retrieve Equipment \(slot\)” \(5-82\)](#).
2. nvmmqual – Circuit Pack Qualifier
See definition of output parameter *nvmmqual* in [“RTRV-EQPT \(slot\): Retrieve Equipment \(slot\)” \(5-82\)](#).

Output format If the ENT-EQPT command completes successfully, then the following normal completion response is returned:

```
sid date time
M ctag COMPLD
:
```

ENT-EQPT (slot): Enter Equipment (slot)

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 preprovision a slot for a dedicated circuit pack. The following attributes of the slot entity shall be 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 unprovisioned (*nvmname/nvmqual* = UNDEFINED/UNDEF).

The update shall be reported by means of an ED-EQPT notification for that slot.

Update affected entities

The command shall create 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 shall be created. This shall be reported by means of an ENT-EQPT notification for circuit pack.
2. Some instances of port STM-16 shall be created if *nvmname* of command equals 'OP2G5' and attribute *istddflt* of the node equals 'SDH'. This shall be 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 shall be created if *nvmname* of command equals 'OP2G5' and attribute *istddflt* of the node equals 'SONET'. This shall be 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 shall be created if *nvmname* of command equals 'OP10' and attribute *istddflt* of the node equals 'SDH'. This shall be reported by means of ENT-STM64 notification for port.
5. One instance of port OC-192 shall be created if *nvmname* of command equals 'OP10' and attribute *istddflt* of the node equals 'SONET'. This shall be reported by means of ENT-OC192 notification for port.

ENT-EQPT (slot): Enter Equipment (slot)

6. One instance of port STM-256 shall be created if **nvmname** of command equals 'OP40' and attribute **istddflt** of the node equals 'SDH'. This shall be reported by means of ENT-STM256 notification for port.
7. One instance of port OC-768 shall be created if **nvmname** of command equals 'OP40' and attribute **istddflt** of the node equals 'SONET'. This shall be reported by means of ENT-OC768 notification for port.
8. 48, 192, 768 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.
9. 48, 192, 768 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-STST1 notification for tributary.
10. 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.
11. One instance of 1+1 equipment protection group of type 'EQPTSWFBR' shall be created if nvmname of command equals 'XC320' and another XC320 circuit pack exists already. 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.

Update affected entities – GE1

The command shall create 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 shall be created. This shall be reported by means of an ENT-EQPT notification for circuit pack.
2. Four instances of entity EPORT shall be created if **nvmname** of command equals 'GE1'. This shall be reported by means of ENT-EPORT notification.

ENT-EQPT (slot): Enter Equipment (slot)

3. Four instances of entity VCG shall be created if *nvmname* of command equals 'GE1'. This shall be reported by means of ENT-VCG notification.
4. 7 VC-4 tributaries shall be created for each to the previously created VCG if attribute *istddflt* of the node equals 'SDH' or 'SONET'. This shall be reported by means of ENT-VCGTRIB notification.

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.

Reference - 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.

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&&-<N> for sequential range
- 1&-4 .. &-<N> for non-sequential range

with N is maximal legal VCG number.

Reference - 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-#-#-1-1-1&&-21 (for STS-1/VC-3 mapping) 1-1-#-#-1-1-1&-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” \(5-6\)](#) 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 between *actlname/actlqual* with *nvmname/nvmqual* shall be checked.

Error code: EATN - Status, incorrect equpage, unrecognized CP for this slot.

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 \(system\)” \(5-39\)](#)).

Error code: SNVS - Status, Not in Valid State, maintenance condition

Validation rule: Reject Request for protection CTL slot

If ctlp is specified as Simple_CTLSlotAID the command shall be rejected.

Error code: IENE - Input, Entity Not Exists

Related TL1 messages

- [“ED-EQPT \(slot\): Edit Equipment \(slot\)” \(5-94\)](#)
- [“RTRV-EQPT \(slot\): Retrieve Equipment \(slot\)” \(5-82\)](#)
- [“DLT-EQPT \(slot\): Delete equipment \(slot\)” \(5-101\)](#)

Slot

Configuration management

ENT-EQPT (slot): Enter Equipment (slot)

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ED-EQPT (slot): Edit Equipment (slot)

The ED-EQPT command shall modify 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
 See definition of output parameter *aid* in [“RTRV-EQPT \(slot\): Retrieve Equipment \(slot\)” \(5-82\)](#).
3. ctag – Correlation Tag
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. eqtpn – Equipment ASAP Profile Name
 See definition of output parameter *eqtpn* in [“RTRV-EQPT \(slot\): Retrieve Equipment \(slot\)” \(5-82\)](#).
2. nvmmname – Circuit Pack Name
 See definition of output parameter *nvmmname* in [“RTRV-EQPT \(slot\): Retrieve Equipment \(slot\)” \(5-82\)](#).
3. nvmmqual – Circuit Pack Qualifier
 See definition of output parameter *nvmmqual* in [“RTRV-EQPT \(slot\): Retrieve Equipment \(slot\)” \(5-82\)](#).

ED-EQPT (slot): Edit Equipment (slot)

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 shall modify the provisioned circuit pack for a specified slot. The following attributes of the slot entity shall be updated due to that operation.

1. *nvmname* as specified in the command input
2. *nvmqual* as specified in the command input
3. *eqtpn* as specified in the command input

The modification shall be reported by means of ED-EQPT notification for the slot.

If the *nvmname* and *nvmqual* parameters are issued, a new circuit pack is accepted in place of a previous one if the new circuit pack is exchangeable with the previous one, and the value of *holdst* is not VALID.

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” \(5-6\)](#) 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 between *actlname/actlqual* with *nvmname/nvmqual* shall be checked.

Error code: EATN - Status, incorrect equipage, unrecognized CP for this slot.

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 \(system\)” \(5-39\)](#)).

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: Reject Request for protection CTL slot

If *ctlp* is specified as Simple_CTLSlotAID the command shall be rejected.

Error code: IENE - Input, Entity Not Exists

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 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: EATN - Status, incorrect equipage, unrecognized CP for this slot.

Related TL1 messages

- [“RTRV-EQPT \(slot\): Retrieve Equipment \(slot\)” \(5-82\)](#)
- [“DLT-EQPT \(slot\): Delete equipment \(slot\)” \(5-101\)](#)
- [“RTRV-STATE-EQPT \(slot\): Retrieve equipment state \(slot\)” \(5-106\)](#)

References GR-199-CORE

ED-EQPT notification

Output format The ED-EQPT notification shall use 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
See definition of output parameter *aid* in [“RTRV-EQPT \(slot\): Retrieve Equipment \(slot\)” \(5-82\)](#).

Spec block parameters

1. actlname – Acceptable Circuit Pack Name
See definition of output parameter *actlname* in [“RTRV-EQPT \(slot\): Retrieve Equipment \(slot\)” \(5-82\)](#).
2. actlqual – Acceptable Circuit Pack Qualifier
See definition of output parameter *actlqual* in [“RTRV-EQPT \(slot\): Retrieve Equipment \(slot\)” \(5-82\)](#).
3. nvmmname – Circuit Pack Name
See definition of output parameter *nvmmname* in [“RTRV-EQPT \(slot\): Retrieve Equipment \(slot\)” \(5-82\)](#).
4. nvmmqual – Circuit Pack Qualifier
See definition of output parameter *nvmmqual* in [“RTRV-EQPT \(slot\): Retrieve Equipment \(slot\)” \(5-82\)](#).
5. eqptpn – Equipment ASAP Profile Name
See definition of output parameter *eqptpn* in [“RTRV-EQPT \(slot\): Retrieve Equipment \(slot\)” \(5-82\)](#).
6. name – Circuit Pack Name
Description: 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 be escaped \".
7. qual – Circuit Pack Qualifier

Description: 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 \"

8. app – Apparatus Code

Description: 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 \"

9. ssn – Series Number

Description: 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.

10. clei – Common Language Equipment

Description: 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 \"

11. eci – Equipment Catalog Item

Description: 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 be escaped \"

12. sln – Serial Number

Description: 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 be escaped \"

Example output

The following examples show the case after pre-provisioning of slot 1 for an OP2G5/13SR4 pack:

```
ED-EQPT:UNITE-NE:1-1-#-#-1:123456:::nvmmname=OP2G5, nvmmqual=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::nvmmname=OP2G5,nvmmqual=13SR4"
;
```

The following examples show a case after auto-provisioning of slot 1 with an OP2G5/13SR4 pack (note: it is possible that change of nvmmname, nvmmqual 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::nvmmname=OP2G5,nvmmqual=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
^ 001 REPT DBCHG
  "TIME=08-00-12,DATE=00-11-14:ED-EQPT:1-1-#-#-
1::name="",qual="",app="",ssn="",clei="",eci="",sln=""
;
```



DLT-EQPT (slot): Delete equipment (slot)

The DLT-EQPT command shall delete equipment that has been previously created with the ENT-EQPT command or via CP 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. *aid* – Access Identifier
See definition of output parameter *aid* in [“RTRV-EQPT \(slot\): Retrieve Equipment \(slot\)” \(5-82\)](#).
The CTL cannot be deprovisioned.
3. *ctag* – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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 command.

Detailed behavior description

The command shall delete a circuit pack for a specified slot.

The deletion shall be reported by means of an DLT-EQPT notification for circuit pack.

DLT-EQPT (slot): Delete equipment (slot)

For deprovisioning of a slots some conditions shall be fulfilled.

Update affected entities

The command shall delete in addition a set of entities of different types depending on the provisioned circuit pack.

1. One instance of type circuit pack shall be deleted with attribute **aid**. This shall be reported by means of DLT-EQPT notification for the CP.
2. The instances of port STM-16 shall be deleted if **nvmname** of the addressed circuit pack equals 'OP2G5' and the port attribute **istd** equals 'SDH'. This shall be 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 shall be deleted if **nvmname** of the addressed circuit pack equals 'OP2G5' and the port attribute **istd** equals 'SONET'. This shall be 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 shall be deleted if **nvmname** of the addressed circuit pack equals 'OP10' and the port attribute **istd** equals 'SDH'. This shall be reported by means of DLT-STM64 notification of port.
5. One instances of port OC-192 shall be deleted if **nvmname** of the addressed circuit pack equals 'OP10' and the port attribute **istd** equals 'SONET'. This shall be reported by means of DLT-OC192 notification of port.
6. One instance of port STM-256 shall be deleted if **nvmname** of the addressed circuit pack equals 'OP40' and the port attribute **istd** equals 'SDH'. This shall be reported by means of DLT-STM256 notification of port.
7. One instances of port OC-768 shall be deleted if **nvmname** of the addressed circuit pack equals 'OP40' and the port attribute **istd** equals 'SONET'. This shall be reported by means of DLT-OC768 notification of port.
8. 48, 192, 768 VC3 tributaries shall be deleted for each existing SDH port. This shall be reported by means of DLT-VC3 notifications for tributary.

DLT-EQPT (slot): Delete equipment (slot)

9. 48, 192, 768 STS1 tributaries shall be deleted for each existing SONET port. This shall be reported by means of DLT-STST1 notifications for tributary.
10. 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.
11. One instance of 1+1 equipment protection group shall be deleted if **nvmname** of the addressed circuit pack equals 'XC320' and another XC320 circuit pack 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.
13. The command may effect the values of the **actlname**, **actqual** of neighboring slots. This is reported by means of ED-EQPT notifications.

Group Notification for STS-1/AU-3 Tributaries

Reference DLT-EQPT (slot) Group Notifications for STS1/AU3 Tributaries: Refer to Detailed Behavior of the [“ENT-EQPT \(slot\): Enter Equipment \(slot\)” \(5-88\)](#) command for details on grouped notifications for STS1/AU3 tributaries.

Group Notification for VCG Tributaries

Reference DLT-EQPT (slot) Group Notifications for VCG Tributaries: Refer to Detailed Behavior of the [“ENT-EQPT \(slot\): Enter Equipment \(slot\)” \(5-88\)](#) command for details on grouped notifications for VCG tributaries.

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” \(5-6\)](#) 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 circuit pack to be removed

DLT-EQPT (slot): Delete equipment (slot)

Error code: SNVS - Status, Not in Valid State, 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 facility loopbacks allowed

Check of facility loopbacks involving the circuit pack 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 circuit pack to be removed.

Error code: SNVS - Status, Not in Valid State, protection group still exist

Validation rule: Not used as timing reference

Check of that none of the ports of the involving circuit pack is not 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 shall not be allowed, when the system in maintenance condition (see [“RTRV-EQPT \(system\): Retrieve Equipment \(system\)” \(5-39\)](#)).

Error code: SNVS - Status, Not in Valid State, maintenance condition

DLT-EQPT (slot): Delete equipment (slot)

Validation rule: Reject Request for protection CTL slot

If ctpl is specified as Simple_CTLSlotAID the command shall be rejected.

Error code: IENE - Input, Entity Not Exists

Related TL1 messages

- [“RTRV-EQPT \(slot\): Retrieve Equipment \(slot\)” \(5-82\)](#)
- [“ED-EQPT \(slot\): Edit Equipment \(slot\)” \(5-94\)](#)
- [“ENT-EQPT \(slot\): Enter Equipment \(slot\)” \(5-88\)](#)
- [“RTRV-STATE-EQPT \(slot\): Retrieve equipment state \(slot\)” \(5-106\)](#)
- [“ED-STATE-EQPT \(system\): Edit equipment state” \(5-36\)](#)

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RTRV-STATE-EQPT (slot): Retrieve equipment state (slot)

The RTRV-STATE-EQPT command shall retrieve the state information for slots in the network element.

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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. **aid** – Access Identifier
See definition of input parameter ***aid*** in [“RTRV-EQPT \(slot\): Retrieve Equipment \(slot\)” \(5-82\)](#).
3. **ctag** – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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:

```

M  sid date time
   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

RTRV-STATE-EQPT (slot): Retrieve
equipment state (slot)

aid – Access Identifier

See definition of output parameter **aid** in [“RTRV-EQPT \(slot\): Retrieve Equipment \(slot\)” \(5-82\)](#).

Spec block parameters

1. holdst – Holder Status

Description: Each provisionable slot shall have an attribute indicating its equipage state.

Type: alphanumeric value set

Range:

EMPTY. The system shall set the “holder state” to “Empty” if:

- slot m is not equipped AND
- slot m+1 is not equipped with an OP40 AND
- slot m+2 is not equipped with an OP40 AND
- slot m+3 is not equipped with an OP40

VALID. The system shall set the “holder state” to “Valid” if:

- slot n is equipped AND
- inserted CTIP occupies slot m to n (with $n \geq m$) AND
- actual functional type of CTIP is readable AND
- actual functional type is in acceptable type list of slot n AND
- provisioned functional type of each slot m till n equal (Undefined,Undefined)
- OR
- slot n is equipped AND
- inserted CTIP occupies slot m to n (with $n \geq m$) AND
- actual functional type of CTIP is readable AND
- actual functional type equal provisioned functional type of slot n

UNEXPECTED. The system shall set the “holder state” to “Unexpected” if:

- slot n is equipped AND
- inserted CTIP occupies slot m to n (with $n \geq m$) AND
- actual functional type is readable from slot n AND
- actual functional type is not in acceptable type list of slot n

RTRV-STATE-EQPT (slot): Retrieve equipment state (slot)

UNKNOWN. The system shall set the "holder state" to "Unknown" if:

- a CTIP is newly inserted (slot changes from unequipped to equipped) AND
- actual functional type is not readable from slot

Default: EMPTY

Detailed behavior description

The system shall retrieve 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” \(5-6\)](#) command Error responses section. The error responses listed there also apply to the ED-STATE-EQPT command.

Validation rule: Reject Request for protection CTL slot

If ctpl is specified as Simple_CTLSlotAID the command shall be rejected.

Error code: IENE - Input, Entity Not Exists

Related TL1 messages

- [“ED-STATE-EQPT \(system\): Edit equipment state” \(5-36\)](#)
- [“ED-EQPT \(slot\): Edit Equipment \(slot\)” \(5-94\)](#)
- [“ENT-EQPT \(slot\): Enter Equipment \(slot\)” \(5-88\)](#)

References

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ED-STATE-EQPT (slot) 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
See definition of output parameter *aid* in [“RTRV-EQPT \(slot\): Retrieve Equipment \(slot\)” \(5-82\)](#).

Spec block parameters

1. holdst – Holder Status
See definition of output parameter *holdst* in [“RTRV-STATE-EQPT \(slot\): Retrieve equipment state \(slot\)” \(5-106\)](#).

Example output

```
A UNITE-NE 00-11-14 08:00:30
001 REPT DBCHG
; "TIME=08-00-12,DATE=00-11-14:ED-STATE-EQPT:1-1-#-1::holdst=VALID"
```



INIT-EQPT (slot): Initialize equipment (slot)

The INIT-EQPT command for slot AIDs shall be used to reset a pack in a specific slot.

According to the optional *spec_block* parameter *resettype* the command shall initiate a full reset or a controller reset of the pack present in the specified slot.

- *resettype*=FULL: The initialization shall be equivalent to removing the circuit pack and reinserting.
- *resettype*=CONTR: The resulting initialization is not traffic affecting.

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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

2. *aid* – Access Identifier
Description: The AID of a slot.
Type: AID
Range:

- SlotAID
- UnivSlotAID
- XCSlotAID
- CTLSlotAID

The keyword *usa11* shall not be allowed for Simple_UnivSlotAID

The keyword *xca11* shall not be allowed for Simple_XCSlotAID

The keyword *cta11* shall not be allowed for Simple_CTLSlotAID

INIT-EQPT (slot): Initialize equipment
(slot)

The keyword `all` shall not be allowed for `Simple_SlotAID`
The keyword `all` is not allowed on bay/shelf level.
Default: none

3. `ctag` – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

Spec-Block parameters

1. `resettype` – Reset Type
Description: With this parameter the type of the reset shall be selected. Full reset can be traffic affecting and controller reset shall not be traffic affecting.
Type: alphanumeric value set
Range:
 - `FULL`: Full reset
 - `CONTR`: Controller reset
Default: `FULL`

Output format If the network element 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 for the RTRV-HDR command.

Output parameters

Detailed behavior description

- `resettype=FULL`: The command shall reset the controller and all transmission devices of the circuit pack in the addressed slot.
- `resettype=CONTR`: The command shall reset only the controller of the circuit pack in the addressed slot and not the transmission devices.

The INIT-EQPT command shall 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 shall be 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” \(5-6\)](#) command Error responses section. The error responses listed there also apply to the INIT-EQPT command.

Validation rule: Reject Request for protection CTL slot
If ctlp is specified as Simple_CTLSlotAID the command shall be rejected.
Error code: IENE - Input, Entity Not Exists

Related TL1 messages [“INIT-SYS: Intialize System” \(5-66\)](#)

References GR-833-CORE



Autonomous notifications

Circuit pack plug in

If a circuit pack is plugged into an allowed slot, which is not provisioned to any circuit pack, this slot shall be autoprovisioned to this plugged-in pack. This change shall be 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.

If an expected, unexpected or non-acceptable circuit pack or a circuit pack whichs 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 the last three cases alarms will be sent out in addition.

In addition to the notifications above the system shall report an ED-EQPT (slot) notification for the parameters ***name***, ***qual***, ***app***, ***ssn***, ***clei***, ***eci***, ***sln***.

No reaction when plugging a CTL into the protection CTL slot

When plugging a circuit pack into the protection CTL slot (addressed by aid ***ctlp***) the system shall not react as described above. No auto-provisioning shall take place, no changes of ***nvmname***, ***nvmqual*** and ***holdst*** shall take place (this implies that no notifications are sent).

Further Autonomous Notifications

Reference Autonomous Notifications Circuit Pack Plug In (slot): For details on further autonomous notifications when autoprovisioning a slot refer to the detailed behavior of [“ENT-EQPT \(slot\): Enter Equipment \(slot\)” \(5-88\)](#) describing the side effects during pre-provisioning.

Circuit pack plug out

If a circuit pack is plugged out the holderstate for this board will change. This change shall be reported by means of an ED-STATE-EQPT notification for the ***holdst*** parameter.

In addition to the notification above the system shall report an ED-EQPT (slot) notification for the parameters ***name***, ***qual***, ***app***, ***ssn***, ***clei***, ***eci***, ***sln***.

System start-up with default DB

The system shall autonomously create all entities addressable by SlotAID when starting up with the default database with the exception of ***ctlp*** (the protection CTL slot).

No notification shall be sent.



Circuit Pack

Overview

Purpose This entity includes the slot level configuration messages.

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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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
 Description: 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
 The keyword `usa11` shall be allowed for Simple_UnivSlotAID. The keyword `xca11` shall be allowed for Simple_XCSlotAID. The keyword `ctla11` shall be allowed for Simple_CTLSlotAID. The keyword `a11` shall be allowed for Simple_SlotAID
 - BackplaneAID for backplane. The keyword `a11` shall not be allowed for the backplane AID.
 - UserPanelAID for userpanel. The keyword `a11` shall not be allowed for the userpanel AID.

- FanAID for fan. The keyword `fanall` shall be allowed for FanAID.
- TimingInterfaceAID for TI Interface board. The keyword `tiall` shall be allowed for TimingInterfaceAID.
- CiCtlAID for CI-CTL Interface board. The keyword `all` shall not be allowed for the CiCtl AID
- PowerAID for power interface The keyword `"piall"` shall be allowed for PowerAID.

The keyword `all` shall not be allowed on bay/shelf level.

Refer to the AID syntax description.

Default: none

3. `ctag` – Correlation Tag

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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 shall be returned:

```
M sid date time
  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

aid – Access Identifier

Description: 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 a universal circuit pack
- CpAID ::= XCSlotAID-cp for a cross-connect circuit pack
- CpAID ::= CTLSlotAID-cp for a controller circuit pack
- CpAID ::= SlotAID-cp for any circuit pack

The keyword `usa11` shall not be allowed for `Simple_UnivSlotAID`. The keyword `xca11` shall not be allowed for `Simple_XCSlotAID`. The keyword `ct1a11` shall not be allowed for `Simple_CTLSlotAID`. The keyword `a11` shall not be allowed for `Simple_SlotAID`

- `BackplaneAID` for backplane. The keyword `a11` shall not be allowed for the backplane AID.
- `UserPanelAID` for userpanel. The keyword `a11` shall not be allowed for the userpanel AID.
- `FanAID` for fan. The keyword `fana11` shall not be allowed for `FanAID`.
- `TimingInterfaceAID` for TI Interface board. The keyword `tia11` shall not be allowed for `TimingInterfaceAID`.
- `CiCtlAID` for CI-CTL Interface board. The keyword `a11` shall not be allowed for the `CiCtl AID`
- `PowerAID` for power interface The keyword "piall" shall not be allowed for `PowerAID`.

Refer to the AID syntax description.

Default: none

Spec block parameters

1. `name` – Circuit Pack Name
Description: 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 userpanel , 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`.
Type: value set
Range: up to 12 characters
Default: none
2. `qual` – Circuit Pack Qualifier
Description: 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 userpanel , 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.

Type: value set

Range: up to 7 characters

Default: none

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

Description: 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 userpanel , 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.

Type: alphanumeric string

Range: up to 9 characters

Default: none

4. ssn – Series Number

Description: 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 userpanel , 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.

Type: value set

Range: up to 6 characters

Default: none

Note

A dash (-) is used instead of a colon (:) for the series number in TL1.

5. clei – Common Language Equipment

Description: 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 userpanel , 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.

Type: value set

Range: 10 characters

Default: none

6. eci – Equipment Catalog Item

Description: 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 userpanel , 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.

Type: value set

Range: 6 digits

Default: none

7. sln – Serial Number

Description: 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 userpanel , 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.

Type: Alphanumeric string

Range: 12 characters

Default: none

8. eqptpn – Equipment ASAP Profile Name

Description: The name of the current ASAP profile of type EQIP-UNPROT of the circuit pack. This parameter is only reported for a CpAID.

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

Description: The name of the current ASAP profile of type EQUIP-PROT for the equipment.

Option: This parameter shall only be reported for a CpAID.

Type: Alphanumeric string

Range: up to 24 characters. A hyphen (-) is additionally allowed in the name.

Default: DEFAULT

Detailed behavior 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-usrpn1:123456;  
  
UNITE-NE 00-11-03 08:00:00  
M 123456 COMPLD  
"1-1-usrpn1:name=UPL,qual=-"  
"1-1-usrpn1:app=XYZ,ssn=S1-3,clei=WMMYABJDAA"  
"1-1-usrpn1: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” \(5-6\)](#) command Error responses section. The error responses listed there also apply to the RTRV-EQPT command.

RTRV-EQPT (CP): Retrieve equipment
(circuit pack)

Related TL1 messages

- [“ENT-EQPT \(slot\): Enter Equipment \(slot\)” \(5-88\)](#)
- [“ED-EQPT \(CP\): Edit equipment \(circuit pack\)” \(5-124\)](#)
- [“DLT-EQPT \(slot\): Delete equipment \(slot\)” \(5-101\)](#)
- [“RTRV-STATE-EQPT \(CP\): Retrieve equipment state \(circuit pack\)” \(5-130\)](#)

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ENT-EQPT notification

Output format The ENT-EQPT notification shall use 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
See definition of input parameter *aid* in [“ED-EQPT \(CP\): Edit equipment \(circuit pack\)” \(5-124\)](#).

Spec block parameters

1. eqptpn – Equipment ASAP Profile Name
See definition of output parameter *eqptpn* in [“ED-EQPT \(CP\): Edit equipment \(circuit pack\)” \(5-124\)](#).
2. eqptprotpn – Protected Equipment ASAP Profile Name
See definition of output parameter *eqptprotpn* in [“ED-EQPT \(CP\): Edit equipment \(circuit pack\)” \(5-124\)](#).
3. opstate – Operational State
See definition of output parameter *opstate* in [“RTRV-STATE-EQPT \(CP\): Retrieve equipment state \(circuit pack\)” \(5-130\)](#).

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=DEFAULT,opstate=OS_ENABLE";
```



ED-EQPT (CP): Edit equipment (circuit pack)

The ED-EQPT command shall modify the provisioning values associated with equipment. Circuit packs must first be provisioned with the ENT-EQPT command or via autoprovisioning 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
 Description: The AID of an equipment.
 Type: AID
 Range:
 - CpAID ::= UnivSlotAID-cp for a universal circuit pack
 - CpAID ::= XCSlotAID-cp for a cross-connect circuit pack
 - CpAID ::= CTLSlotAID-cp for a controller circuit pack
 - CpAID ::= SlotAID-cp for any circuit pack
 The keyword `usa11` shall not be allowed for Simple_UnivSlotAID. The keyword `xca11` shall not be allowed for Simple_XCSlotAID. The keyword `ctla11` shall not be allowed for Simple_CTLSlotAID. The keyword `a11` shall not be allowed for Simple_SlotAID
 Default: none
3. ctag – Correlation Tag
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

ED-EQPT (CP): Edit equipment (circuit pack)

Spec block parameters

1. eqptpn – Equipment ASAP Profile Name
See definition of output parameter **eqptpn** in [“RTRV-EQPT \(CP\): Retrieve equipment \(circuit pack\)” \(5-116\)](#).
2. eqptprotpn – Protected Equipment ASAP Profile Name
See definition of output parameter **eqptprotpn** in [“RTRV-EQPT \(CP\): Retrieve equipment \(circuit pack\)” \(5-116\)](#)

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 shall modify the value of **eqptpn**, **eqptprotpn** for a circuit pack entity as indicated by the **spec_block** parameter.

The update shall be reported by means of an ED-EQPT notification for circuit pack.

Update affected entities

No additional entities shall be affected.

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” \(5-6\)](#) command Error responses section. The error responses listed there also apply to the ED-EQPT command.

Validation rule: Validate ASAP profile

Check of the existence of the ASAP profile.

Error code: IDNV – Input, Data Not Valid, ASAP profile does not exist

ED-EQPT (CP): Edit equipment (circuit pack)

Related TL1 messages

- [“ENT-EQPT \(slot\): Enter Equipment \(slot\)” \(5-88\)](#)
- [“RTRV-EQPT \(CP\): Retrieve equipment \(circuit pack\)” \(5-116\)](#)
- [“DLT-EQPT \(slot\): Delete equipment \(slot\)” \(5-101\)](#)

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ED-EQPT (cp) notification

Output format The ED-EQPT notification shall use 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
See definition of input parameter *aid* in [“RTRV-EQPT \(CP\): Retrieve equipment \(circuit pack\)” \(5-116\)](#).

Spec block parameters

1. eqtpn – Equipment ASAP Profile Name
See definition of output parameter *eqtpn* in [“RTRV-EQPT \(CP\): Retrieve equipment \(circuit pack\)” \(5-116\)](#).
2. eqtprotn – Protected Equipment ASAP Profile Name
See definition of output parameter *eqtprotn* in [“RTRV-EQPT \(CP\): Retrieve equipment \(circuit pack\)” \(5-116\)](#).

Example output

```
ED-EQPT:UNITE-NE:1-1-#-#-1-cp:123456:::eqtpn=NOALARM;
M
;
UNITE-NE 00-11-14 08:00:00
123456 COMPLD
;
A
UNITE-NE 00-11-14 08:00:30
001 REPT DBCHG
"TIME=08-00-12,DATE=00-11-14:ED-EQPT:1-1-#-#-1-cp:::eqtpn=NOALARM"
;
```



DLT-EQPT notification

Output format The DLT-EQPT notification shall use 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: CpAID

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 `usa11` shall not be allowed for

Simple_UnivSlotAID. The keyword `xca11` shall not be allowed for Simple_XCSlotAID. The keyword `cta11` shall not be allowed for Simple_CTLSlotAID. The keyword `a11` shall not be allowed for Simple_SlotAID

Default: none

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&-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=UNDEF:"
;
```



RTRV-STATE-EQPT (CP): Retrieve equipment state (circuit pack)

The RTRV-STATE-EQPT command shall retrieve the state information for circuit packs in the network element.

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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
 Description: 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 `usa11` shall be allowed for Simple_UnivSlotAID.
 The keyword `xca11` shall be allowed for Simple_XCSlotAID.
 The keyword `ctla11` shall be allowed for Simple_CTLSlotAID
 The keyword `a11` shall be allowed for Simple_SlotAID
 Refer to the AID syntax description.
 Default: none
3. ctag – Correlation Tag
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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:

```
M  sid date time  
   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 Parameter

1. aid – Access Identifier
Description: 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 packThe keyword `usa11` shall not be allowed for Simple_UnivSlotAID. The keyword `xca11` shall not be allowed for Simple_XCSlotAID. The keyword `ct1a11` shall not be allowed for Simple_CTLSlotAID. The keyword `a11` shall not be allowed for Simple_SlotAID
Default: none

Spec block parameters

1. opstate – Operational State
Description: Each circuit pack shall have a retrievable attribute indicating whether circuit pack is operational for the system internal communication.
Type: alphanumeric value set
Range:
 - OS_ENABLED
 - OS_DISABLEDDefault: OS_DISABLED

RTRV-STATE-EQPT (CP): Retrieve
equipment state (circuit pack)

**Detailed behavior
description**

The system shall retrieve 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” \(5-6\)](#) 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” \(5-36\)](#)
- [“ED-EQPT \(CP\): Edit equipment \(circuit pack\)” \(5-124\)](#)
- [“ENT-EQPT \(slot\): Enter Equipment \(slot\)” \(5-88\)](#)

References

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ED-STATE-EQPT 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
See definition of output parameter *aid* in [“RTRV-STATE-EQPT \(CP\): Retrieve equipment state \(circuit pack\)” \(5-130\)](#).

Spec block parameters

opstate – Operational State

See definition of output parameter *opstate* in [“RTRV-STATE-EQPT \(CP\): Retrieve equipment state \(circuit pack\)” \(5-130\)](#).

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";
```



Autonomous notifications

System start-up with default DB

The system shall autonomously create 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 shall be sent.

Change of the operational state

A change of the operational state shall be 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 OPn packs including the 10-Gigabit Ethernet WANPHY interface variant. These ports can work in SDH or SONET mode. Therefore SDH and SONET related commands are defined for physically identical ports.

TL1 commands related to gigabit Ethernet LAN ports (GE1 packs) are described in the Transmission fragment 3.3.4.5

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RTRV-STM16: Retrieve STM-16 port

The RTRV-STM16 command shall be used to retrieve all parameters related to the optical STM-16 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. *aid* – Access Identifier
Description: Access Identifier of an STM-16 port.
Type: AID
Range: SPortAID of STM-16 port
The keyword *all* shall be allowed up to shelf level.
Default: none
3. *ctag* – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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 shall be returned:

```

M  sid date time
   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 Parameter

1. aid – Access Identifier
Description: Access Identifier of STM-16 port.
Type: AID
Range: SPortAID of STM-16 port.
The keyword all shall not be allowed.
Default: none

Spec block parameters

1. brstintvl – Bursty Interval
Description: Bursty Interval. Measurement period for determining bursty errors. This parameter applies when **sdsfmode**=BURST.
Type: numeric value set
Range: 2 to 10
Default: 7
2. brstthr – Bursty Error Threshold
Description: 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
Description: 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
Default: none
4. degthr – Signal Degrade Threshold
Description: 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

RTRV-STM16: Retrieve STM-16 port

Description: 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

6. **exprstrc** – Value of Expected J0

Description: 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. **femspm** – Far-end Multiplex Section PM Enable

Description: Enable or disable of the performance monitoring of the multiplex section.

Type: alphanumeric value set

Range:

- ENABLE
- DISABLE

Default: DISABLE

8. **frcdus** – Force to DUS

Description: 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 (clear a forced DUS/DNU)

Default: DISABLE

9. **fsflpbkstat** – Far Side Facility Loopback Status

Description: The parameter **fsflpbkstat** (far-side facility loopback status) specifies the current far-side facility loopback status of the considered output **aid**.

RTRV-STM16: Retrieve STM-16 port

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: NO

10. inputsig – Tributary Input Signal Rate List

Description: This parameter shall be 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.

11. istd – Interface Standard

Description: 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 \(system\)” \(5-39\)](#).

12. lpbk – Loopback

Description: The parameter **lpbk** (Loopback) specifies the current near-side loopback status of the considered output **aid**.

RTRV-STM16: Retrieve STM-16 port

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: NO

13. nemspm – MS Near-End PM Enable

Description: Enable or disable near-end multiplex section (near-end line) performance monitoring.

Type: alphanumeric value set

Range:

- ENABLE
- DISABLE

Default: DISABLE

14. opdis – Optical Distance

Description: 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

Default: none

15. opwl – Optical Wavelength

Description: Optical Wavelength in nanometers. It shows the type of optics that is used on this port.

Type: numeric value set

Range (wavelength in [nm]): 1310; 1550; 1530.334; ...; 1562.640 (i.e. C-Band); 1553.731; ...; 1608.329 (i.e. L-Band)

RTRV-STM16: Retrieve STM-16 port

Default: none

16. outql – Outgoing timing quality

Description: This parameter shall provide the outgoing quality level message on the S1 SDH MS overhead byte.

Type: alphanumeric value set

Range:

- PRC
- SSUL
- SSUT
- SEC
- DNU

Default: DNU

17. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold

Description: 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: 8835
- SONET OC768: 39340

18. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold

RTRV-STM16: Retrieve STM-16 port

Description: 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: 8835
- SONET OC768: 39340

19. pmode – Port Mode

Description: 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 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.

Default: AUTO

20. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold

RTRV-STM16: Retrieve STM-16 port

Description: 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

Description: This identifies the port type of the AID.

Type: alphanumeric value set

Range: STM16

Default: STM16

22. rspm – RS PM Enable

Description: Enable or disable regenerator section (section) performance monitoring.

Type: alphanumeric value set

Range:

- ENABLE
- DISABLE

Default: DISABLE

23. rstimca – RS TIM Consequent Action Enable

Description: 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: disable consequent action for TIM

RTRV-STM16: Retrieve STM-16 port

Default: ENABLE

24. rstimmon – RS TIM Monitor Enable

Description: 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: disable TIM Monitor

Default: DISABLE

25. sdhpn – SDH ASAP

Description: SDH Alarm Severity Assignment Profile. 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 OC-48 port” \(5-162\)](#)) 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

26. sdsfmode – Signal Degrade/Signal Fail Mode

Description: The degraded state shall be detected in Burst or Poisson mode.

Type: alphanumeric value set

Range:

- BURST
- POISSON

Default: BURST

27. servcond – Service Condition

Description: This parameter shall indicate its status concerning service involvement.

Type: alphanumeric value set

RTRV-STM16: Retrieve STM-16 port

Range:

- INSERVICE: Provisioning values for service shall be accepted
- OUTOFSERVICE: Provisioning values for service shall not be accepted.

Default: INSERVICE

28. strcfmt – Format of incoming J0

Description: 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: 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)

Default: 2

29. strcout – Value of outgoing J0

Description: 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.

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

30. strcwfmt – Format of outgoing J0

Description: The write format of J0, the outgoing section trace (strcout).

Type: numeric string

RTRV-STM16: Retrieve STM-16 port

Range:

- 1: for specific repeating byte (SONET)
- 2: 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)

Default: 2

31. **trbmd** – Tributary mode

Description: 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: FIXED

Default: The initial value is defined as the **trbmddflt** parameter on system level, see definition in [“RTRV-EQPT \(system\): Retrieve Equipment \(system\)” \(5-39\)](#) command.

32. **unequipoisig** – Unequipped Output Signal List

Description: Tributary Unequipped Output Signal Rate 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. **unequipoisig** 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

**Detailed behavior
description**

The command shall retrieve the parameters as described above.

The RTRV-STM16 command shall 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,...,pmmeneses=15,pmrsneses=30"
;
```

Error responses Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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 whether the CCB fits to *ptype* and *istd*. E.g. DENY, if RTRV-STM16 is made on a OP2G5 port which is provisioned as *istd*=SONET and *ptype*=OC48.
Error code: ICNV - Input, Command Not Valid, Interface Standard does not match.

Related TL1 messages [“ED-STM16: Edit STM16 port” \(5-187\)](#)

References GR-199-CORE (RTRV-*rr*)



RTRV-STM64: Retrieve STM-64 port

The RTRV-STM64 command shall be used to retrieve all parameters related to the optical STM-64 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. *aid* – Access Identifier
 Description: Access Identifier of an STM-64 port.
 Type: AID
 Range: SPortAID of STM-64 port
 The keyword *all* shall be allowed up to shelf level.
 Default: none
3. *ctag* – Correlation Tag
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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 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 Parameter

1. aid – Access Identifier
Description: Access Identifier
Type: AID
Range: STM-64 port AID
Default: none

Spec block parameters

1. brstintvl – Bursty Interval
See definition of output parameter **brstintvl** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
2. brstthr – Bursty Error Threshold
See definition of output parameter **brstthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
3. crstat – Constituent Rates Status list
Description: 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
Default: none
4. degthr – Signal Degrade Threshold
See definition of output parameter **degthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
5. dexcthr – Excessive Degrade Threshold
See definition of output parameter **dexcthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
6. exprstrc – Value of Expected J0
See definition of output parameter **exprstrc** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
7. fec – FEC Enable
Description: Forward Error Correction Enable. Enable to include the FEC information in the outgoing signal.
Type: alphanumeric value set

RTRV-STM64: Retrieve STM-64 port

Range:

- ENABLE
- DISABLE

Default: DISABLE

8. feccor – FEC Correction Enable

Description: Forward Error Correction correction enable.

Enabling of the error correction of the incoming signal if FEC type "inband" is configured. For FEC type "outband" this parameter should have no impact.

Type: alphanumeric value set

Range:

- ENABLE
- DISABLE

Default: DISABLE

9. fectype – FEC Type

Description: Forward Error Correction Type

Type: alphanumeric value set

Range:

- INBAND
- OUTBAND

Default: INBAND

10. femspm – Far-end Multiplex Section PM Enable

See definition of output parameter *femspm* in ["RTRV-STM16: Retrieve STM-16 port" \(5-137\)](#).

11. frcdus – Force to DUS

Description: 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: (clear a forced DUS/DNU)

Default: DISABLE

12. fsflpbkstat – Far Side Facility Loopback Status

See definition of output parameter *fsflpbkstat* in ["RTRV-STM16: Retrieve STM-16 port" \(5-137\)](#).

13. inputsig – Tributary Input Signal Rate List

RTRV-STM64: Retrieve STM-64 port

Description: This parameter shall be 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

14. *istd* – Interface Standard

See definition of output parameter *istd* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

15. *lpbk* – Loopback

See definition of output parameter *lpbk* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

16. *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: EXTENDED

17. *nemspm* – MS Near-End PM Enable

See definition of output parameter *nemspm* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

18. *och* – optical channel enable

Description: 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:

- ENABLE: enable optical channel
- DISABLE: disable optical channel

Default: DISABLE

19. *opdis* – Optical Distance

See definition of output parameter *opdis* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

RTRV-STM64: Retrieve STM-64 port

20. opwl – Optical Wavelength
See definition of output parameter **opwl** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
21. outql – Outgoing timing quality
See definition of output parameter **outql** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
22. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
See definition of output parameter **pmmsfeses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
23. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
See definition of output parameter **pmmsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
24. pmode – Port Mode
See definition of output parameter **pmode** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
25. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
See definition of output parameter **pmrsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
26. ptype – Port Type
Definition
This identifies the port type of the AID.
It is derived from the functional name and functional qualifer of a circuit pack. If the functional qualifier indicates a pack with 10GE_WANPHY interfaces the port type shall have the value 10GE_WANPHY, else STM64.
Type: alphanumeric value set
Range: STM64
Default: STM64
27. rspm – RS PM Enable
See definition of output parameter **rspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
28. rstimca – RS TIM Consequent Action Enable
See definition of output parameter **rstimca** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
29. rstimmon – RS TIM Monitor Enable

RTRV-STM64: Retrieve STM-64 port

See definition of output parameter ***rstimmon*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

30. sdhpn – SDH ASAP

Description: SDH Alarm Severity Assignment Profile. 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 OC-192 port” \(5-170\)](#)) 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. sdsfmode – Signal Degrade/Signal Fail Mode

See definition of output parameter ***sdsfmode*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

32. servcond – Service Condition

See definition of output parameter ***servcond*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

33. strcfmt – Format of incoming J0

See definition of output parameter ***strcfmt*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

34. strcout – Value of outgoing J0

See definition of output parameter ***strcout*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

35. strcwfmt – Format of outgoing J0

See definition of output parameter ***strcwfmt*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

36. trbmd – Tributary mode

See definition of output parameter ***trbmd*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

37. unequiposig – Unequipped Output Signal List

Description: Tributary Unequipped Output Signal Rate 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.

RTRV-STM64: Retrieve STM-64 port

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 shall retrieve the parameters as described above.

The RTRV-STM64 command shall 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,dexctr=-3,degthr=-6,
pmode=MON,...,pmmsneses=15,pmrsneses=30"
;
```

Error responses

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there also apply to the RTRV-STM64 command.

Validation rule: Check CCB against ptype and istd

Check whether the CCB fits to *ptype* and *istd*. E.g. DENY, if RTRV-STM64 is made on a OP10 port which is provisioned as *istd*=SONET and *ptype*=OC192.

Error code: ICNV - Input, Command Not Valid, Interface Standard does not match.

Related TL1 messages

[“ED-STM64: Edit STM64 port” \(5-204\)](#)

References

GR-199-CORE (RTRV-*rr*)



RTRV-STM256: Retrieve STM-256 port

The RTRV-STM256 command shall be used to retrieve all parameters related to the optical STM-256 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
 Description: Access Identifier of an STM-256 port.
 Type: AID
 Range: SPortAID of STM-256 port
 The keyword all shall be allowed up to shelf level.
 Default: none
3. ctag – Correlation Tag
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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 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 The RTRV-STM256 command does not generate a REPT DBCHG message.

Command parameters

1. aid – Access Identifier
Description: Access Identifier
Type: AID
Range: STM-256 port AID
Default: none

Spec block parameters

1. brstintvl – Bursty Interval
See definition of output parameter **brstintvl** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
2. brstthr – Bursty Error Threshold
See definition of output parameter **brstthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
3. crstat – Constituent Rates Status list
See definition of output parameter **crstat** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
4. degthr – Signal Degrade Threshold
See definition of output parameter **degthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
5. dexcthr – Excessive Degrade Threshold
See definition of output parameter **dexcthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
6. exprstrc – Value of Expected J0
See definition of output parameter **exprstrc** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
7. fec – FEC Enable
See definition of output parameter **fec** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
8. feccor – FEC Correction Enable
See definition of output parameter **feccor** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
9. fectype – FEC Type
See definition of output parameter **fectype** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
10. femspm – Far-end Multiplex Section PM Enable

RTRV-STM256: Retrieve STM-256 port

See definition of output parameter *femspm* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

11. frcdus – Force to DUS

See definition of output parameter *frcdus* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

12. fsflpbkstat – Far Side Facility Loopback Status

See definition of output parameter *fsflpbkstat* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

13. inputsig – Tributary Input Signal Rate List

Description: This parameter shall be 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)

14. istd – Interface Standard

See definition of output parameter *istd* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

15. lpbk – Loopback

See definition of output parameter *lpbk* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

16. nemspm – MS Near-End PM Enable

See definition of output parameter *nemspm* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

17. och – optical channel enable

See definition of output parameter *och* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).

18. opdis – Optical Distance

See definition of output parameter *opdis* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

19. opwl – Optical Wavelength

See definition of output parameter *opwl* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

20. outql – Outgoing timing Quality

See definition of output parameter *outql* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

RTRV-STM256: Retrieve STM-256 port

21. **pmmsfeses** – Performance Monitoring Line/MS Far-End SES Threshold
See definition of output parameter **pmmsfeses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
22. **pmmsneses** – Performance Monitoring Line/MS Near-End SES Threshold
See definition of output parameter **pmmsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
23. **pmode** – Port Mode
See definition of output parameter **pmode** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
24. **pmrsneses** – Performance Monitoring Section/RS Near-End SES Threshold
See definition of output parameter **pmrsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
25. **ptype** – Port Type
Description: This identifies the port type of the AID.
Type: alphanumeric value set
Range: STM256
Default: STM256
26. **rspm** – RS PM Enable
See definition of output parameter **rspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
27. **rstimca** – RS TIM Consequent Action Enable
See definition of output parameter **rstimca** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
28. **rstimmon** – RS TIM Monitor Enable
See definition of output parameter **rstimmon** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
29. **sdhpn** – SDH ASAP
Description: SDH Alarm Severity Assignment Profile. 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 OC-768 port” \(5-177\)](#)) to be compatible with current generation applications.
Type: alphanumeric string

RTRV-STM256: Retrieve STM-256 port

Range: String with a maximum of 24 characters. A hyphen (-) is additionally allowed in the name.

Default: DEFAULT

30. **sdsfmode** – Signal Degrade/Signal Fail Mode
See definition of output parameter **sdsfmode** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
31. **servcond** – Service Condition
See definition of output parameter **servcond** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
32. **strcfmt** – Format of incoming J0
See definition of output parameter **strcfmt** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
33. **strcout** – Value of outgoing J0
See definition of output parameter **strcout** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
34. **strcwfmt** – Format of outgoing J0
See definition of output parameter **strcwfmt** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
35. **trbmd** – Tributary mode
See definition of output parameter **trbmd** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
36. **unequiposig** – Unequipped Output Signal List
Description: Tributary Unequipped Output Signal Rate 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, 16C, C64 representing VC3, VC4, VC4-4C, VC4-16C or VC4-64C.
Default: 2564 = all VC4

Detailed behavior description

The command shall retrieve the parameters as described above.

The RTRV-STM256 command shall not generate a REPT DBCHG message.

RTRV-STM256: Retrieve STM-256 port

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” \(5-6\)](#) command Error responses section. The error responses listed there also apply to the RTRV-STM256 command.

Validation rule: Check CCB against ptype and istd

Check whether the CCB fits to *ptype* and *istd*. E.g. DENY, if RTRV-STM64 is made on a OP10 port which is provisioned as *istd*=SONET and *ptype*=OC192.

Error code: ICNV - Input, Command Not Valid, Interface Standard does not match.

Related TL1 messages [“ED-STM256: Edit STM256 port” \(5-222\)](#)

References GR-199-CORE (RTRV-*rr*)



RTRV-OC48: Retrieve OC-48 port

The RTRV-OC48 command shall be used to retrieve all parameters related to the optical OC-48 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
 Description: Access Identifier of an OC-48 port.
 Type: AID
 Range: SPortAID of OC48 port
 The keyword all shall be allowed up to shelf level.
 Default: none
3. ctag – Correlation Tag
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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 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
Description: Access Identifier
Type: AID
Range: OC-48 port AID
Default: none

Spec block parameters

1. brstintvl – Bursty Interval
See definition of output parameter **brstintvl** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
2. brstthr – Bursty Error Threshold
See definition of output parameter **brstthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
3. crstat – Constituent Rates Status list
Description: 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.
Default: none
4. exprstrc – Value of Expected J0
See definition of output parameter **exprstrc** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
5. felpm – Far-end Line PM Enable
See definition of output parameter **femsppm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
6. frcdus – Force to DUS

- See definition of output parameter **frcdus** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
7. fsflpbkstat – Far Side Facility Loopback Status
See definition of output parameter **fsflpbkstat** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 8. inputsig – Tributary Input Signal Rate List
Description: 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 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.
 9. istd – Interface Standard
Description: 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 \(system\)” \(5-39\)](#).
 10. lpbk – Loopback
See definition of output parameter **lpbk** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 11. nelpm – Near-End Line PM Enable
See definition of output parameter **nemspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 12. opdis – Optical Distance
Description: It shows the type of application for which the optical transmitter on this port is suited.
Type: alphanumeric value set

RTRV-OC48: Retrieve OC-48 port

Range:

- VERY-SHORT-REACH
- SHORT-REACH
- INTERMEDIATE-REACH
- LONG-REACH
- VERY-LONG-REACH
- OLS_PASSIVE
- OLS_400G
- OLS_800G
- XTREME

Default: none

13. opwl – Optical Wavelength

See definition of output parameter **opwl** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

14. outql – Outgoing timing quality

Description: This parameter shall provide the outgoing quality level message on the S1 SONET line overhead byte.

Type: alphanumeric value set

Range:

- PRS
- STU
- ST2
- ST3
- DUS

Default: DUS

15. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold

See definition of output parameter **pmmsfeses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

16. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold

See definition of output parameter **pmmsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

17. pmode – Port Mode

See definition of output parameter **pmode** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

18. **pmrsneses** – Performance Monitoring Section/RS Near-End SES Threshold
See definition of output parameter **pmrsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
19. **ptype** – Port Type
Description: This identifies the port type of the AID.
Type: alphanumeric value set
Range: OC48
Default: OC48
20. **rstimca** – RS TIM Consequent Action Enable
Description: 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**: disable consequent action for TIMDefault: DISABLE
21. **rstimmon** – RS TIM Monitor Enable
See definition of output parameter **rstimmon** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
22. **sdsfmode** – Signal Degrade/Signal Fail Mode
Description: The degraded state shall be detected in Burst or Poisson mode.
Type: alphanumeric value set
Range:
 - **BURST**
 - **POISSON**Default: POISSON
23. **sdthr** – Signal Degrade Threshold
See definition of output parameter **degthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
24. **servcond** – Service Condition
See definition of output parameter **servcond** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
25. **sfthr** – Signal Failure Threshold

See definition of output parameter **dexcthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

26. sonet – SONET ASAP

Description: 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: Retrieve STM-16 port” \(5-137\)](#), 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

27. spm – Section PM Enable

See definition of output parameter **rspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

28. strcfmt – Format of incoming J0

See definition of output parameter **strcfmt** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

29. strcout – Value of outgoing J0

See definition of output parameter **strcout** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

30. strcwfmt – Format of outgoing J0

See definition of output parameter **strcwfmt** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

31. trbmd – Tributary mode

Description: 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. See definition of output parameter **trbmd** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#) for SDH equivalent.

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 \(system\)” \(5-39\)](#) command.

32. **unequiposig** – Unequipped Output Signal List

Description: 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 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)

33. **z0outmode** – Mode of outgoing Z0 byte insertion

Description: 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**: for inserting the fixed value CChex
- **STSID**: for inserting the STS-Id of the current frame

Default: FIXEDCC

**Detailed behavior
description**

The command shall retrieve the parameters as described above.

The RTRV-OC48 command shall not generate a REPT DBCHG message.

RTRV-OC48: Retrieve OC-48 port

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” \(5-6\)](#) command Error responses section. The error responses listed there also apply to the RTRV-OC48 command.

Validation rule: Check CCB against ptype and istd

Check whether the CCB fits to *ptype* and *istd*. E.g. DENY, if RTRV-OC48 is made on a OP2G5 port which is provisioned as *istd*=SDH and *ptype*=STM16.

Error code: ICNV - Input, Command Not Valid, Interface Standard does not match.

References GR-199-CORE (RTRV-rr)



RTRV-OC192: Retrieve OC-192 port

The RTRV-OC192 command shall be used to retrieve all parameters related to the optical OC-192 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
 Description: Access Identifier of an OC-192 port.
 Type: AID
 Range: SPortAID of OC192 port
 The keyword all shall be allowed up to shelf level.
 Default: none
3. ctag – Correlation Tag
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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 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
Description: Access Identifier of the OC-192 port
Type: AID
Range: SPortAID of OC192 port
The keyword `all` shall not be allowed.
Default: none

Spec block parameters

1. brstintvl – Bursty Interval
See definition of output parameter **brstintvl** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
2. brstthr – Bursty Error Threshold
See definition of output parameter **brstthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
3. crstat – Constituent Rates Status list
Description: 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.
Default: none
4. exprstrc – Value of Expected J0
See definition of output parameter **exprstrc** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
5. fec – FEC Enable
See definition of output parameter **fec** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
6. feccor – FEC Correction Enable

- See definition of output parameter **feccor** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
7. fectype – FEC Type
See definition of output parameter **fectype** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
 8. felpm – Far-end Line PM Enable
See definition of output parameter **femspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 9. frcdus – Force to DUS
See definition of output parameter **frcdus** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
 10. fsflpbkstat – Far Side Facility Loopback Status
See definition of output parameter **fsflpbstat** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 11. inputsig – Tributary Input Signal Rate List
Description: 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 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
 12. istd – Interface Standard
See definition of output parameter **istd** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
 13. lpbk – Loopback
See definition of output parameter **lpbk** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 14. msrei – MS-REI mode
See definition of output parameter **msrei** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
 15. nelpm – Near-End Line PM Enable
See definition of output parameter **nemspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 16. och – optical channel enable

See definition of output parameter **och** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).

17. opdis – Optical Distance
See definition of output parameter **opdis** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
18. opwl – Optical Wavelength
See definition of output parameter **opwl** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
19. outql – Outgoing timing quality
See definition of output parameter **outql** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
20. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
See definition of output parameter **pmmsfeses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
21. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
See definition of output parameter **pmmsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
22. pmode – Port Mode
See definition of output parameter **pmode** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
23. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
See definition of output parameter **pmrsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
24. ptype – Port Type
Description: This identifies the port type of the AID.
It is derived from the functional name and functional qualifer of a circuit pack. If the functional qualifier indicates a pack with 10GE_WANPHY interfaces the port type shall have the value 10GE_WANPHY, else OC192.
Type: alphanumeric value set
Range: OC192
Default: OC192
25. rstimca – RS TIM Consequent Action Enable
See definition of output parameter **rstimca** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
26. rstimmon – RS TIM Monitor Enable

- See definition of output parameter ***rstimmon*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
27. **sdsfmode** – Signal Degrade/Signal Fail Mode
See definition of output parameter ***sdsfmode*** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
28. **sdthr** – Signal Degrade Threshold
See definition of output parameter ***degthr*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
29. **servcond** – Service Condition
See definition of output parameter ***servcond*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
30. **sfthr** – Signal Failure Threshold
See definition of output parameter ***dexcth*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
31. **sonet** – SONET ASAP
Description: 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-STM64: Retrieve STM-64 port” \(5-149\)](#), 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
32. **spm** – Section PM Enable
See definition of output parameter ***rspm*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
33. **strcfmt** – Format of incoming J0
See definition of output parameter ***strcfmt*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
34. **strcout** – Value of outgoing J0
See definition of output parameter ***strcout*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
35. **strcwfmt** – Format of outgoing J0
See definition of output parameter ***strcwfmt*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
36. **trbmd** – Tributary mode

See definition of output parameter **trbmd** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).

37. unequippedsig – Unequipped Output Signal List

Description: 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. **unequippedsig** 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 **unequippedsig** 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 shall retrieve the parameters as described above.

The RTRV-OC192 command shall 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,..... pmsneses=15,pmsneses=30"
;
```

Error Responses

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there also apply to the RTRV-OC192 command.

Validation rule: Check CCB against ptype and istd

Check whether the CCB fits to **ptype** and **istd**. E.g. DENY, if RTRV-OC192 is made on a OP10 port which is provisioned as **istd**=SONET and **ptype**=STM64.

RTRV-OC192: Retrieve OC-192 port

Error code: ICNV - Input, Command Not Valid, Interface
Standard does not match.

References GR-199-CORE (RTRV-*rr*)



RTRV-OC768: Retrieve OC-768 port

The RTRV-OC768 command shall be used to retrieve all parameters related to the optical OC-768 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” \(5-6\)](#) 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* shall be allowed up to shelf level.
 Default: none
3. *ctag* – Correlation Tag
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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 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
Description: Access Identifier of the OC768 port.
Type: AID
Range: SPortAID of OC768 port
The keyword `all` shall not be allowed.
Default: none

Spec block parameters

Refer to spec block description of the [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#) command

1. brstintvl – Bursty Interval
See definition of output parameter **brstintvl** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
2. brstthr – Bursty Error Threshold
See definition of output parameter **brstthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
3. crstat – Constituent Rates Status list
Description: 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.
Default: none
4. exprstrc – Value of Expected J0
See definition of output parameter **exprstrc** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
5. fec – FEC Enable

- See definition of output parameter **fec** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
6. **feccor** – FEC Correction Enable
See definition of output parameter **feccor** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
 7. **fectype** – FEC Type
See definition of output parameter **fectype** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
 8. **felpm** – Far-end Line PM Enable
See definition of output parameter **femspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 9. **frcdus** – Force to DUS
See definition of output parameter **frcdus** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 10. **fsflpbkstat** – Far Side Facility Loopback Status
See definition of output parameter **fsflpbkstat** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 11. **inputsig** – Tributary Input Signal Rate List
Description: 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 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
 12. **istd** – Interface Standard
See definition of output parameter **istd** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
 13. **lpbk** – Loopback
See definition of output parameter **lpbk** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 14. **nelpm** – Near-End Line PM Enable
See definition of output parameter **nemspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 15. **och** – optical channel enable

- See definition of output parameter **och** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
16. opdis – Optical Distance
See definition of output parameter **opdis** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
 17. opwl – Optical Wavelength
See definition of output parameter **opwl** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 18. outql – Outgoing timing quality
See definition of output parameter **opdis** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
 19. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
See definition of output parameter **pmmsfeses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 20. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
See definition of output parameter **pmmsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 21. pmode – Port Mode
See definition of output parameter **pmode** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 22. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
See definition of output parameter **pmrsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 23. ptype – Port Type
Description: This identifies the port type of the AID.
Type: alphanumeric value set
Range: OC768
Default: OC768
 24. rstimca – RS TIM Consequent Action Enable
See definition of output parameter **rstimca** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
 25. rstimmon – RS TIM Monitor Enable
See definition of output parameter **rstimmon** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 26. sdsfmode – Signal Degrade/Signal Fail Mode

- See definition of output parameter **sdsfmode** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
27. sdthr – Signal Degrade Threshold
See definition of output parameter **degthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
28. servcond – Service Condition
See definition of output parameter **servcond** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
29. sfthr – Signal Failure Threshold
See definition of output parameter **dexcth** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
30. sonet – SONET ASAP
Description: 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-STM256: Retrieve STM-256 port” \(5-156\)](#), 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
See definition of output parameter **rspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
32. strcfmt – Format of incoming J0
See definition of output parameter **strcfmt** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
33. strcout – Value of outgoing J0
See definition of output parameter **strcout** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
34. strcwfmt – Format of outgoing J0
See definition of output parameter **strcwfmt** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
35. trbmd – Tributary mode
See definition of output parameter **trbmd** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
36. unequippedsig – Unequipped Output Signal List

Description: 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 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 shall retrieve the parameters as described above.

The RTRV-OC768 command shall 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” \(5-6\)](#) command Error responses section. The error responses listed there also apply to the RTRV-OC768 command.

Validation rule: Check CCB against ptype and istd

Check wether the CCB fits to **ptype** and **istd**. E.g. DENY, if RTRV-OC192 is made on a OP10 port which is provisioned as **istd**=SONET and **ptype**=STM64.

Error code: ICNV - Input, Command Not Valid, Interface Standard does not match.

Related TL1 messages

[“ED-OC768: Edit OC768 port” \(5-276\)](#)

RTRV-OC768: Retrieve OC-768 port

References GR-199-CORE (RTRV-*rr*)



RTRV-ALL: Retrieve all

The RTRV-ALL command shall be 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*;

Command parameters

tid – Target Identifier

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

aid – Access Identifier

Description: AID of SDH or SONET port

Type: AID

Range: SPortAID of STMn ports and OCn ports of supported rates

The keyword `usa11` and `a11` shall be allowed for Simple_SlotAID.
The keyword `a11` shall be allowed for Simple_SPortAID.

Default: none

ctag – Correlation Tag

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

Output format In response to a valid RTRV-ALL 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
Description: Access Identifier of the SDH or SONET port
Type: AID
Range: SPortAID
The value all is not allowed.
Default: none

Spec block parameters

1. ptype – Port Type
Description: This identifies the port type of the AID.
Type: alphanumeric value set
Range:
 - STM16
 - STM64
 - STM256
 - OC48
 - OC192
 - OC768Default: none
2. <others>
Depending on *ptype* see definition of *spec_block* output parameters in RTRV-*ptype*.

Detailed behavior description

The command shall retrieve the parameters as described above.
The RTRV-ALL command shall 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,pmsneses=30"  
"1-1-#-#-5-1: ptype=STM64,frcdus=DISABLE,dexctr=-3,degthr=-6,  
pmode=MON,.....,pmmsneses=15,pmsneses=30"  
;
```

Error Responses Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there also apply to the RTRV-ALL command.

Related TL1 messages

- [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#)
- [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#)
- [“RTRV-STM256: Retrieve STM-256 port” \(5-156\)](#)
- [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#)
- [“RTRV-OC192: Retrieve OC-192 port” \(5-170\)](#)
- [“RTRV-OC768: Retrieve OC-768 port” \(5-177\)](#)

References GR-199-CORE (RTRV-*rr*)



ED-STM16: Edit STM16 port

The ED-STM16 command shall be 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
See definition of output parameter *aid* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
3. ctag – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. brstintvl – Bursty Interval
See definition of output parameter *brstintvl* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
Usage: The setting of this parameter is allowed when the related STM16 port is created, it is used when *sdfsmode*=BURST
2. brstthr – Bursty Error Threshold
See definition of output parameter *brstthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
Usage: The setting of this parameter is allowed when the related STM16 port is created, it is used when *sdfsmode*=BURST
3. degthr – Signal Degrade Threshold
See definition of output parameter *degthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
Usage: The setting of this parameter is allowed when the related STM16 port is created, it is used when *sdfsmode*=POISSON

4. **dexcthr** – Excessive Degrade Threshold
See definition of output parameter **dexcthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
Usage: The setting of this parameter is allowed when the related STM16 port is created, it is used when **sdfsmode**=POISSON
5. **exprstrc** – Value of Expected J0
See definition of output parameter **exprstrc** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
6. **femspm** – Far-end Multiplex Section Enable
See definition of output parameter **femspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
7. **frcdus** – Force to DUS
See definition of output parameter **frcdus** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
8. **inputsig** – Tributary Input Signal Rate List
See definition of output parameter **inputsig** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
9. **istd** – Interface Standard
Description: Each synchronous optical interface can be set to SDH or SONET.
Type: alphanumeric value set
Range:
 - SONET
 - SDHDefault: As specified via **istddflt** on system level, see definition in [“RTRV-EQPT \(system\): Retrieve Equipment \(system\)” \(5-39\)](#).
10. **nemspm** – MS Near-End PM Enable
See definition of output parameter **nemspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
11. **pmmsfeses** – Performance Monitoring Line/MS Far-End SES Threshold
See definition of output parameter **pmmsfeses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
12. **pmmsneses** – Performance Monitoring Line/MS Near-End SES Threshold
See definition of output parameter **pmmsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
13. **pmode** – Port Mode

- See definition of output parameter ***pmode*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
14. **pmrsneses** – Performance Monitoring Section/RS Near-End SES Threshold
See definition of output parameter ***pmrsneses*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 15. **rspm** – RS PM Enable
See definition of output parameter ***rspm*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 16. **rstimca** – RS TIM Consequent Action Enable
See definition of output parameter ***rstimca*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 17. **rstimmon** – RS TIM Monitor Enable
See definition of output parameter ***rstimmon*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 18. **sdhpn** – SDH ASAP
See definition of output parameter ***sdhpn*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 19. **sdsfmode** – Signal Degrade/Signal Fail Mode
See definition of output parameter ***sdsfmode*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 20. **servcond** – Service Condition
See definition of output parameter ***servcond*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 21. **strcfmt** – Format of incoming J0
See definition of output parameter ***strcfmt*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 22. **strcout** – Value of outgoing J0
See definition of output parameter ***strcout*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 23. **strcwfmt** – Format of outgoing J0
See definition of output parameter ***strcwfmt*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 24. **unequiposig** – Unequipped Output Signal List
See definition of output parameter ***unequiposig*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

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 for the RTRV-HDR command.

Detailed behavior description

Behavior

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-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 shall have the following impact related to Fault Management:

- All SDH alarms related to that port shall be cleared
- The corresponding SONET alarms shall be 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 shall always be supplied within the same TL1-command to always have a consistent set of trace format and value.

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.

In detail 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):

- **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 mapped to **sdthr** (no changes)
- **dexcthr** is mapped to **sfthr** (no changes)
- **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)
- **sdhpn** is mapped to **sonet** (no changes)
- **sdsfmode** 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 shall remain unchanged.

Switching of interface standard – Side effects on tributaries

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-OCn command for SONET parameter description):

- **brstintvl** shall be set to the default value for a SONET tributary
- **brstthr** shall be set to the default value for a SONET tributary

- **pse** (PDI-P parameter) shall be set to the default value for a SONET tributary
- **sdsfmode** shall be set to the default value for a SONET tributary

All other tributary parameters shall remain unchanged.

Switching of interface standard – notification behavior

Switching of interface standard – notification Behavior for Port Attributes

When changing the interface standard **istd** using the ED-STMn command all resulting parameter changes shall be 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 shall be reported by ED-STS1 notifications.

Switching of interface standard – PM impact

The change of interface standard for shall have the following impacts w.r.t. existing PM registers: 1. All current bins related to the port shall be reset. 2. All history bins related to the port shall remain unchanged. 3. All current bins related to tributaries being a member of the port shall be reset. 4. All history bins related to tributaries being a member of the 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.

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” \(5-6\)](#) 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/unequiposig*) if the port is member of a 2f protection group. Then the assigned bandwidth shall 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, inconsistent input signal

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, inconsistent output signal

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: 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 disabled for facility loopback

Check that the ***servcond*** is not enabled when a facility loopbackp 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 (2000) before a new PM monitor is enabled.

Error code: SSRE - Status, System Resources Exceeded, limit of PM monitors exceeded.

The updates of the parameters specified in the ED command request will take place in any arbitrary order. Since several monitor points can be enabled/disabled within one command, the ED command may fail although from an overall perspective the maximal number is not crossed. An example would be if already 2000 monitors are enabled and the ED command would request that 1 monitor point is enabled and 1 monitor points is disabled. To avoid that, the disabling of PM points should be done in a seperate ED command before other PM monitors are enabled.

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.

Related TL1 messages [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#)

References GR-199-CORE (ED-*rr*)



ED-STM16 notification

Output format The ED-STM16 notification shall use 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
See definition of output parameter *aid* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

Spec block parameters

1. *brstintvl* – Bursty Interval
See definition of output parameter *brstintvl* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
2. *brstthr* – Bursty Error Threshold
See definition of output parameter *brstthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
3. *crstat* – Constituent Rates Status list
See definition of output parameter *crstat* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
4. *degthr* – Signal Degrade Threshold
See definition of output parameter *degthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
5. *dexcthr* – Excessive Degrade Threshold
See definition of output parameter *dexcthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
6. *exprstrc* – Value of Expected J0
See definition of output parameter *exprstrc* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
7. *femspm* – Far-end Multiplex Section Enable
See definition of output parameter *femspm* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
8. *frcdus* – Force to DUS
See definition of output parameter *frcdus* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
9. *fsflpbkstat* – Far Side Facility Loopback Status

- See definition of output parameter ***fsflpbkstat*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
10. inputsig – Tributary Input Signal Rate List
See definition of output parameter ***inputsig*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 11. istd – Interface Standard
See definition of input parameter ***istd*** in [“ED-STM16: Edit STM16 port” \(5-187\)](#).
 12. lpbk – Loopback
See definition of output parameter ***lpbk*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 13. nemspm – MS Near-End PM Enable
See definition of output parameter ***nemspm*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 14. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
See definition of output parameter ***pmmsfeses*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 15. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
See definition of output parameter ***pmmsneses*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 16. pmode – Port Mode
See definition of output parameter ***pmode*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 17. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
See definition of output parameter ***pmrsneses*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 18. rspm – RS PM Enable
See definition of output parameter ***rspm*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 19. rstimca – RS TIM Consequent Action Enable
See definition of output parameter ***rstimca*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 20. rstimmon – RS TIM Monitor Enable
See definition of output parameter ***rstimmon*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

21. **sdhpn** – SDH ASAP
See definition of output parameter **sdhpn** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
22. **sdsfmode** – Signal Degrade/Signal Fail Mode
See definition of output parameter **sdsfmode** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
23. **servcond** – Service Condition
See definition of output parameter **servcond** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
24. **strcfmt** – Format of incoming J0
See definition of output parameter **strcfmt** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
25. **strcout** – Value of outgoing J0
See definition of output parameter **strcout** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
26. **strcwfmt** – Format of outgoing J0
See definition of output parameter **strcwfmt** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
27. **trbmd** – Tributary mode
See definition of output parameter **trbmd** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
28. **unequiposig** – Unequipped Output Signal List
See definition of output parameter **unequiposig** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

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:"
;
```



ENT-STM16 notification

Output format The ENT-STM16 notification shall use 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
See definition of output parameter *aid* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

Spec block parameters

1. *brstintvl* – Bursty Interval
See definition of output parameter *brstintvl* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
2. *brstthr* – Bursty Error Threshold
See definition of output parameter *brstthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
3. *crstat* – Constituent Rates Status list
See definition of output parameter *crstat* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
4. *degthr* – Signal Degrade Threshold
See definition of output parameter *degthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
5. *dexcth* – Excessive Degrade Threshold
See definition of output parameter *dexcth* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
6. *exprstrc* – Value of Expected J0
See definition of output parameter *exprstrc* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
7. *femspm* – Far-end Multiplex Section Enable
See definition of output parameter *femspm* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
8. *frcdus* – Force to DUS
See definition of output parameter *frcdus* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

9. fsflpbkstat – Far Side Facility Loopback Status
See definition of output parameter **fsflpbkstat** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
10. inputsig – Tributary Input Signal Rate List
See definition of output parameter **inputsig** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
11. istd – Interface Standard
See definition of input parameter **istd** in [“ED-STM16: Edit STM16 port” \(5-187\)](#).
12. lpbk – Loopback
See definition of output parameter **lpbk** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
13. nemspm – MS Near-End PM Enable
See definition of output parameter **nemspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
14. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
See definition of output parameter **pmmsfeses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
15. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
See definition of output parameter **pmmsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
16. pmode – Port Mode
See definition of output parameter **pmode** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
17. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
See definition of output parameter **pmrsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
18. rspm – RS PM Enable
See definition of output parameter **rspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
19. rstimca – RS TIM Consequent Action Enable
See definition of output parameter **rstimca** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
20. rstimmon – RS TIM Monitor Enable

- See definition of output parameter ***rstimmon*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
21. sdhpn – SDH ASAP
See definition of output parameter ***sdhpn*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 22. sdsfmode – Signal Degrade/Signal Fail Mode
See definition of output parameter ***sdsfmode*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 23. servcond – Service Condition
See definition of output parameter ***servcond*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 24. strcfmt – Format of incoming J0
See definition of output parameter ***strcfmt*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 25. strcout – Value of outgoing J0
See definition of output parameter ***strcout*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 26. strcwfmt – Format of outgoing J0
See definition of output parameter ***strcwfmtin*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 27. trbmd – Tributary Mode
See definition of output parameter ***trbmd*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 28. unequipoisig – Unequipped Output Signal List
See definition of output parameter ***unequipoisig*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

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=164,...,unequipoisig=164"
;
```

□

DLT-STM16 notification

Output format The DLT-STM16 notification shall use the general format of a REPT DBCHG Report Database Change notification.
Syntax: DLT-STM16:*aid*

Output parameters

Command parameters

1. *aid* – Access Identifier
See definition of output parameter *aid* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

Example output

```
A UNITE-NE 00-11-20 8:01:03
611 REPT DBCHG
"Time=8-00-30,DATE=00-11-20:DLT-STM16:1-1-#-#-4-1"
;
```



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***.



ED-STM64: Edit STM64 port

The ED-STM64 command shall be 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
 See definition of output parameter aidin [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
3. ctag – Correlation Tag
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. brstintvl – Bursty Interval
 See definition of output parameter *brstintvl* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 Usage: 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
 See definition of output parameter *brstthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 Usage: 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
 See definition of output parameter *degthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 Usage: 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
See definition of output parameter **dexcthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
Usage: 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
See definition of output parameter **exprstrc** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
6. **fec** – FEC Enable
See definition of output parameter **fec** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
7. **feccor** – FEC Correction Enable
See definition of output parameter **feccor** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
8. **fectype** – FEC Type
See definition of output parameter **fectype** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
9. **femspm** – Far-end Multiplex Section Enable
See definition of output parameter **femspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
10. **frcdus** – Force to DUS
See definition of output parameter **frcdus** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
11. **inputsig** – Tributary Input Signal Rate List
See definition of output parameter **inputsig** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
12. **istd** – Interface Standard
See definition of input parameter **istd** in [“ED-STM16: Edit STM16 port” \(5-187\)](#).
13. **msrei** – MS-REI Mode
See definition of output parameter **msrei** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
14. **och** – Optical Channel enable
See definition of output parameter **msrei** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
15. **pmmsfes** – Performance Monitoring Line/MS Far-End SES Threshold

- See definition of output parameter ***pmmsfes*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
16. **pmmsneses** – Performance Monitoring Line/MS Near-End SES Threshold
See definition of output parameter ***pmmsneses*** [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 17. **pmode** – Port Mode
See definition of output parameter ***pmode*** [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 18. **pmrsneses** – Performance Monitoring Section/RS Near-End SES Threshold
See definition of output parameter ***pmrsneses*** [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 19. **rspm** – RS PM Enable
See definition of output parameter ***rspm*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 20. **nemspm** – MS Near-End PM Enable
See definition of output parameter ***nemspm*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 21. **rstimca** – RS TIM Consequent Action Enable
See definition of output parameter ***rstimca*** [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 22. **rstimmon** – RS TIM Monitor Enable
See definition of output parameter ***rstimmon*** [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 23. **sdhpn** – SDH ASAP
See definition of output parameter ***sdhpn*** [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
 24. **sdsfmode** – Signal Degrade/Signal Fail Mode
See definition of output parameter ***sdsfmode*** [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 25. **servcond** – Service Condition
See definition of output parameter ***servcond*** [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 26. **strcfmt** – Format of incoming J0
See definition of output parameter ***strcfmt*** [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 27. **strcout** – Value of outgoing J0

See definition of output parameter *strcout* [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

28. *strcwfmt* – Format of outgoing J0

See definition of output parameter *strcwfmt* [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

29. *unequiposig* – Unequipped Output Signal List

See definition of output parameter *unequiposig* [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).

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 for the RTRV-HDR command.

Detailed behavior description

Behavior

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-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 shall have the following impact related to Fault Management:

- All SDH alarms related to that port shall be cleared
- The corresponding SONET alarms shall be 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 shall always be supplied within the same TL1-command to always have a consistent set of trace format and value.

Switching of interface standard – Impact on Port parameters

See Detailed Behavior Specification in [“ED-STM16: Edit STM16 port” \(5-187\)](#) Detailed Behavior

Switching of interface standard – Side effects on tributaries

See Detailed Behavior Specification in [“ED-STM16: Edit STM16 port” \(5-187\)](#) Detailed Behavior

Switching of interface standard – notification behavior

See Detailed Behavior Specification in [“ED-STM16: Edit STM16 port” \(5-187\)](#) Detailed Behavior

Switching of interface standard – PM impact

See Detailed Behavior Specification in [“ED-STM16: Edit STM16 port” \(5-187\)](#) Detailed Behavior

Example input/output

```
ED-STM64:UNITE-NE:1-1-#-1-1:123456:::INPUTSIG=644,UNEQUIPOSIG=644;
M
UNITE-NE 00-11-28 08:00:00
123456 COMPLD
;
A
UNITE-NE 00-11-28 08:00:30
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” \(5-6\)](#) 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 shall 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, inconsistent input signal

Validation rule: uneqiposig consistent with existing cross-connections

Check of the consistency of the structure of the output signal (*uneqiposig*) with existing cross connections.

Error code: SNVS - Status, Not in Valid State, inconsistent output signal

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: 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 disabled for facility loopback

Check that the **servcond** is not enabled when a facility loopbackp 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 (2000) before a new PM monitor is enabled.

Error code: SSRE - Status, System Resources Exceeded, limit of PM monitors exceeded.

The updates of the parameters specified in the ED command request will take place in any arbitrary order. Since several monitor points can be enabled/disabled within one command, the ED command may fail although from an overall perspective the maximal number is not crossed. An example would be if already 2000 monitors are enabled and the ED command would request that 1 monitor point is enabled and 1 monitor points is disabled. To avoid that, the disabling of PM points should be done in a seperate ED command before other PM monitors are enabled.

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: 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 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: 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: IDNV - Input, Data Not Valid, Parameter not supported

Validation rule: Enabling of outband FEC only if Optical Channel is enabled

When enabling outband FEC (*fectype* = *OUTBAND*, *fec* = *ENABLE*) it shall be checked, whether the optical channel is enabled (*och* = *ENABLE*) as well.

Error code: SNVS - Status, Not in Valid State, Optical Channel must be enabled

Related TL1 messages [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#)

References GR-199-CORE (ED-*rr*)



ED-STM64 notification

Output format The ED-STM64 notification shall use 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
See definition of output parameter aid in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).

Spec block parameters

1. brstintvl – Bursty Interval
See definition of output parameter *brstintvl* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
Usage: 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
See definition of output parameter *brstthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
Usage: 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
See definition of output parameter *crstat* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
4. degthr – Signal Degrade Threshold
See definition of output parameter *degthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
Usage: 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
See definition of output parameter *dexcthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
Usage: 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
See definition of output parameter *exprstrc* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

7. fec – FEC Enable
See definition of output parameter **fec** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
8. feccor – FEC Correction Enable
See definition of output parameter **feccor** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
9. fectype – FEC Type
See definition of output parameter **fectype** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
10. femspm – Far-end Multiplex Section Enable
See definition of output parameter **femspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
11. frcdus – Force to DUS
See definition of output parameter **frcdus** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
12. fsflpbkstat – Far Side Facility Loopback Status
See definition of output parameter **fsflpbkstat** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
13. inputsig – Tributary Input Signal Rate List
See definition of output parameter **inputsig** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
14. istd – Interface Standard
See definition of input parameter **istd** in [“ED-STM16: Edit STM16 port” \(5-187\)](#).
15. lpbk – Loopback
See definition of output parameter **lpbk** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
16. msrei – MS-REI Mode
See definition of output parameter **msrei** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
17. nemspm – MS Near-End PM Enable
See definition of output parameter **nemspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
18. och – Optical Channel enable
See definition of output parameter **msrei** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
19. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold

- See definition of output parameter ***pmmsfes*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
20. **pmmsnes** – Performance Monitoring Line/MS Near-End SES Threshold
See definition of output parameter ***pmmsnes*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
21. **pmode** – Port Mode
See definition of output parameter ***pmode*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
22. **pmrsnes** – Performance Monitoring Section/RS Near-End SES Threshold
See definition of output parameter ***pmrsnes*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
23. **rspm** – RS PM Enable
See definition of output parameter ***rspm*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
24. **rstimca** – RS TIM Consequent Action Enable
See definition of output parameter ***rstimca*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
25. **rstimmon** – RS TIM Monitor Enable
See definition of output parameter ***rstimmon*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
26. **sdhpn** – SDH ASAP
See definition of output parameter ***sdhpn*** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
27. **sdsfmode** – Signal Degrade/Signal Fail Mode
See definition of output parameter ***sdsfmode*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
28. **servcond** – Service Condition
See definition of output parameter ***servcond*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
29. **strcfmt** – Format of incoming J0
See definition of output parameter ***strcfmt*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
30. **strcout** – Value of outgoing J0
See definition of output parameter ***strcout*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
31. **strcwfmt** – Format of outgoing J0

See definition of output parameter *strcwfmt* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

32. *trbmd* – Tributary mode

See definition of output parameter *trbmd* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

33. *unequiposig* – Unequipped Output Signal List

See definition of output parameter *unequiposig* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).

Example output

```
ED-STM64:UNITE-NE:1-1-#-1-1:123456:::INPUTSIG=644,UNEQUIPOSIG=644;
M
;
UNITE-NE 00-11-28 08:00:00
123456 COMPLD
;
A
UNITE-NE 00-11-28 08:00:30
001 REPT DBCHG
"TIME=08-00-12,DATE=00-11-28:ED-STM16:1-1-#-1-1::inputsig=644,unequiposig=644:"
;
```



ENT-STM64 notification

Output format The ENT-STM64 notification shall use 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
See definition of output parameter *aid* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).

Spec block parameters

1. brstintvl – Bursty Interval
See definition of output parameter *brstintvl* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
2. brstthr – Bursty Error Threshold
See definition of output parameter *brstthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
3. crstat – Constituent Rates Status list
See definition of output parameter *crstat* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
4. degthr – Signal Degrade Threshold
See definition of output parameter *degthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
5. dexcthr – Excessive Degrade Threshold
See definition of output parameter *dexcthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
6. exprstrc – Value of Expected J0
See definition of output parameter *exprstrc* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
7. fec – FEC Enable
See definition of output parameter *fec* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
8. feccor – FEC Correction Enable
See definition of output parameter *feccor* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).

9. **fectype** – FEC Type
See definition of output parameter **fectype** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
10. **femspm** – Far-end Multiplex Section Enable
See definition of output parameter **femspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
11. **frcdus** – Force to DUS
See definition of output parameter **frcdus** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
12. **fsflpbkstat** – Far Side Facility Loopback Status
See definition of output parameter **fsflpbkstat** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
13. **inputsig** – Tributary Input Signal Rate List
See definition of output parameter **femspm** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
14. **istd** – Interface Standard
See definition of input parameter **istd** in [“ED-STM16: Edit STM16 port” \(5-187\)](#).
15. **lpbk** – Loopback
See definition of output parameter **lpbk** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
16. **msrei** – MS-REI Mode
See definition of output parameter **msrei** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
17. **nemspm** – MS Near-End PM Enable
See definition of output parameter **nemspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
18. **och** – Optical Channel enable
See definition of output parameter **msrei** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
19. **pmmsfeses** – Performance Monitoring Line/MS Far-End SES Threshold
See definition of output parameter **pmmsfeses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
20. **pmmsneses** – Performance Monitoring Line/MS Near-End SES Threshold
See definition of output parameter **pmmsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

21. pmode – Port Mode
See definition of output parameter ***pmode*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
22. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
See definition of output parameter ***pmrsneses*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
23. rspm – RS PM Enable
See definition of output parameter ***rspm*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
24. rstimca – RS TIM Consequent Action Enable
See definition of output parameter ***rstimca*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
25. rstimmon – RS TIM Monitor Enable
See definition of output parameter ***rstimmon*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
26. sdhpn – SDH ASAP
See definition of output parameter ***sdhpn*** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
27. sdsfmode – Signal Degrade/Signal Fail Mode
See definition of output parameter ***sdsfmode*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
28. servcond – Service Condition
See definition of output parameter ***servcond*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
29. strcfmt – Format of incoming J0
See definition of output parameter ***strcfmt*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
30. strcout – Value of outgoing J0
See definition of output parameter ***strcout*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
31. strcwfmt – Format of outgoing J0
See definition of output parameter ***strcwfmt*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
32. trbmd – Tributary Mode
See definition of output parameter ***trbmd*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
33. unequiposig – Unequipped Output Signal List

See definition of output parameter *unequiposig* in
[“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).

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"
;
```



DLT-STM64 notification

Output format The DLT-STM64 notification shall use the general format of a REPT DBCHG Report Database Change notification.
Syntax: DLT-STM64:*aid*

Output parameters

Command parameters

1. *aid* – Access Identifier
See definition of output parameter *aid* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).

Example output

```
A UNITE-NE 00-11-20 8:01:03
  611 REPT DBCHG
  "Time=8-00-30,DATE=00-11-20:DLT-STM64:1-1-#-#-4-1"
;
```



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.



ED-STM256: Edit STM256 port

The ED-STM256 command shall be 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. *aid* – Access Identifier
See definition of output parameter *aid* in [“RTRV-STM256: Retrieve STM-256 port” \(5-156\)](#).
3. *ctag* – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. *brstintvl* – Bursty Interval
See definition of output parameter *brstintvl* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
Usage: The setting of this parameter is allowed when the related STM256 port is created, it is used when *sdfsmode*=BURST
2. *brstthr* – Bursty Error Threshold
See definition of output parameter *brstthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
Usage: The setting of this parameter is allowed when the related STM256 port is created, it is used when *sdfsmode*=BURST
3. *degthr* – Signal Degrade Threshold
See definition of output parameter *degthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
Usage: The setting of this parameter is allowed when the related STM256 port is created, it is used when *sdfsmode*=POISSON

4. **dexcthr** – Excessive Degrade Threshold
See definition of output parameter **dexcthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
Usage: 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
See definition of output parameter **exprstrc** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
6. **fec** – FEC Enable
See definition of output parameter **fec** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
7. **feccor** – FEC Correction Enable
See definition of output parameter **feccor** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
8. **fectype** – FEC Type
See definition of output parameter **fectype** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
9. **femspm** – Far-end Multiplex Section Enable
See definition of output parameter **femspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
10. **frcdus** – Force to DUS
See definition of output parameter **frcdus** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
11. **inputsig** – Tributary Input Signal Rate List
See definition of output parameter **inputsig** in [“RTRV-STM256: Retrieve STM-256 port” \(5-156\)](#).
12. **istd** – Interface Standard
See definition of input parameter **istd** in [“ED-STM16: Edit STM16 port” \(5-187\)](#).
13. **nemspm** – MS Near-End PM Enable
See definition of output parameter **nemspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
14. **och** – optical channel enable
See definition of output parameter **och** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
15. **pmmsfes** – Performance Monitoring Line/MS Far-End SES Threshold

- See definition of output parameter ***pmmsfes*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
16. **pmmsneses** – Performance Monitoring Line/MS Near-End SES Threshold
See definition of output parameter ***pmmsneses*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 17. **pmode** – Port Mode
See definition of output parameter ***pmode*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 18. **pmrsneses** – Performance Monitoring Section/RS Near-End SES Threshold
See definition of output parameter ***pmrsneses*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 19. **rspm** – RS PM Enable
See definition of output parameter ***rspm*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 20. **rstimca** – RS TIM Consequent Action Enable
See definition of output parameter ***rstimca*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 21. **rstimmon** – RS TIM Monitor Enable
See definition of output parameter ***rstimmon*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 22. **sdhpn** – SDH ASAP
See definition of output parameter ***sdhpn*** in [“RTRV-STM256: Retrieve STM-256 port” \(5-156\)](#).
 23. **sdsfmode** – Signal Degrade/Signal Fail Mode
See definition of output parameter ***sdsfmode*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 24. **servcond** – Service Condition
See definition of output parameter ***servcond*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 25. **strcfmt** – Format of incoming J0
See definition of output parameter ***strcfmt*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 26. **strcout** – Value of outgoing J0
See definition of output parameter ***strcout*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 27. **strcwfmt** – Format of outgoing J0

See definition of output parameter *strcwfmt* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

28. *unequiposig* – Unequipped Output Signal List
See definition of output parameter *unequiposig* in [“RTRV-STM256: Retrieve STM-256 port” \(5-156\)](#).

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 for the RTRV-HDR command.

Detailed behavior description

Behavior

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-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 shall have the following impact related to Fault Management:

- All SDH alarms related to that port shall be cleared
- The corresponding SONET alarms shall be 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 shall always be supplied within the same TL1-command to always have a consistent set of trace format and value.

Switching of interface standard – Impact on Port parameters

See Detailed Behavior Specification in [“ED-STM16: Edit STM16 port” \(5-187\)](#) Detailed Behavior

Switching of interface standard – Side effects on tributaries

See Detailed Behavior Specification in [“ED-STM16: Edit STM16 port” \(5-187\)](#) Detailed Behavior

Switching of interface standard – notification behavior

See Detailed Behavior Specification in [“ED-STM16: Edit STM16 port” \(5-187\)](#) Detailed Behavior

Switching of interface standard – PM impact

See Detailed Behavior Specification in [“ED-STM16: Edit STM16 port” \(5-187\)](#) Detailed Behavior

Example input/output

```
ED-STM256:UNITE-NE:1-1-#-#-us01-1:123456:::INPUTSIG=644,UNEQUIPOSIG=644;
M
;
UNITE-NE 00-11-28 08:00:00
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” \(5-6\)](#) command Error responses section. The error responses listed there also apply to the [“ED-STM256: Edit STM256 port” \(5-222\)](#) command.

Validation rule: Enough bandwidth reserved for 2F protection group

Check of the tributary rate (*inputsig/unequiposig*) if the port is member of a 2f protection group. Then the assigned bandwidth shall 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, inconsistent input signal

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, inconsistent output signal

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: 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 disabled for facility loopback

Check that the *servcond* is not enabled when a facility loopbackp 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 (2000) before a new PM monitor is enabled.

Error code: SSRE - Status, System Resources Exceeded, limit of PM monitors exceeded.

The updates of the parameters specified in the ED command request will take place in any arbitrary order. Since several monitor points can be enabled/disabled within one command, the ED command may fail although from an overall perspective the maximal number is not crossed. An example would be if already 2000 monitors are enabled and the ED command would request that 1 monitor point is enabled and 1 monitor points is disabled. To avoid that, the disabling of PM points should be done in a separate ED command before other PM monitors are enabled.

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: 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 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: IDNV - Input, Data Not Valid, Parameter not supported

Related TL1 messages [“RTRV-STM256: Retrieve STM-256 port” \(5-156\)](#)

References GR-199-CORE (ED-*rr*)



ED-STM256 notification

Output format The ED-STM256 notification shall use 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
See definition of output parameter *aid* in [“RTRV-STM256: Retrieve STM-256 port” \(5-156\)](#).

Spec block parameters

1. *brstintvl* – Bursty Interval
See definition of output parameter *brstintvl* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
Usage: The setting of this parameter is allowed when the related STM256 port is created, it is used when *sdfsmode*=BURST
2. *brstthr* – Bursty Error Threshold
See definition of output parameter *brstthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
Usage: The setting of this parameter is allowed when the related STM256 port is created, it is used when *sdfsmode*=BURST
3. *crstat* – Constituent Rates Status list
See definition of output parameter *crstat* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
4. *degthr* – Signal Degrade Threshold
See definition of output parameter *degthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
Usage: The setting of this parameter is allowed when the related STM256 port is created, it is used when *sdfsmode*=POISSON
5. *dexcth* – Excessive Degrade Threshold
See definition of output parameter *dexcth* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
Usage: 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
See definition of output parameter *exprstrc* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

7. fec – FEC Enable
See definition of output parameter **fec** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
8. feccor – FEC Correction Enable
See definition of output parameter **feccor** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
9. fectype – FEC Type
See definition of output parameter **fectype** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
10. femspm – Far-end Multiplex Section Enable
See definition of output parameter **femspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
11. frcdus – Force to DUS
See definition of output parameter **frcdus** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
12. fsflpbkstat – Far Side Facility Loopback Status
See definition of output parameter **fsflpbkstat** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
13. inputsig – Tributary Input Signal Rate List
See definition of output parameter **inputsig** in [“RTRV-STM256: Retrieve STM-256 port” \(5-156\)](#).
14. istd – Interface Standard
See definition of input parameter **istd** in [“ED-STM16: Edit STM16 port” \(5-187\)](#).
15. lpbk – Loopback
See definition of output parameter **lpbk** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
16. nemspm – MS Near-End PM Enable
See definition of output parameter **nemspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
17. och – optical channel enable
See definition of output parameter **och** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
18. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
See definition of output parameter **pmmsfeses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

19. **pmmsneses** – Performance Monitoring Line/MS Near-End SES Threshold
See definition of output parameter **pmmsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
20. **pmode** – Port Mode
See definition of output parameter **pmode** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
21. **pmrsneses** – Performance Monitoring Section/RS Near-End SES Threshold
See definition of output parameter **pmrsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
22. **rspm** – RS PM Enable
See definition of output parameter **rspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
23. **rstimca** – RS TIM Consequent Action Enable
See definition of output parameter **rstimca** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
24. **rstimmon** – RS TIM Monitor Enable
See definition of output parameter **rstimmon** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
25. **sdhpn** – SDH ASAP
See definition of output parameter **sdhpn** in [“RTRV-STM256: Retrieve STM-256 port” \(5-156\)](#).
26. **sdsfmode** – Signal Degrade/Signal Fail Mode
See definition of output parameter **sdsfmode** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
27. **servcond** – Service Condition
See definition of output parameter **servcond** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
28. **strcfmt** – Format of incoming J0
See definition of output parameter **strcfmt** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
29. **strcout** – Value of outgoing J0
See definition of output parameter **strcout** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
30. **strcwfmt** – Format of outgoing J0
See definition of output parameter **strcwfmt** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

31. trbmd – Tributary mode
See definition of output parameter *trbmd* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
32. unequipoisig – Unequipped Output Signal List
See definition of output parameter *unequipoisig* in [“RTRV-STM256: Retrieve STM-256 port” \(5-156\)](#).

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,unequipoisig=644:"  
;
```



ENT-STM256 notification

Output format The ENT-STM256 notification shall use 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
See definition of output parameter *aid* in [“RTRV-STM256: Retrieve STM-256 port” \(5-156\)](#).

Spec block Parameter

1. *brstintvl* – Bursty Interval
See definition of output parameter *brstintvl* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
2. *brstthr* – Bursty Error Threshold
See definition of output parameter *brstthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
3. *crstat* – Constituent Rates Status list
See definition of output parameter *crstat* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
4. *degthr* – Signal Degrade Threshold
See definition of output parameter *degthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
5. *dexcthr* – Excessive Degrade Threshold
See definition of output parameter *dexcthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
6. *exprstrc* – Value of Expected J0
See definition of output parameter *exprstrc* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
7. *fec* – FEC Enable
See definition of output parameter *fec* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
8. *feccor* – FEC Correction Enable
See definition of output parameter *feccor* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).

9. **fectype** – FEC Type
See definition of output parameter **fectype** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
10. **femspm** – Far-end Multiplex Section Enable
See definition of output parameter **femspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
11. **frcdus** – Force to DUS
See definition of output parameter **frcdus** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
12. **fsflpbkstat** – Far Side Facility Loopback Status
See definition of output parameter **fsflpbkstat** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
13. **inputsig** – Tributary Input Signal Rate List
See definition of output parameter **inputsig** in [“RTRV-STM256: Retrieve STM-256 port” \(5-156\)](#).
14. **istd** – Interface Standard
See definition of input parameter **istd** in [“ED-STM16: Edit STM16 port” \(5-187\)](#).
15. **lpbk** – Loopback
See definition of output parameter **lpbk** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
16. **nemspm** – MS Near-End PM Enable
See definition of output parameter **nemspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
17. **och** – optical channel enable
See definition of output parameter **och** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
18. **pmmsfeses** – Performance Monitoring Line/MS Far-End SES Threshold
See definition of output parameter **pmmsfeses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
19. **pmmsneses** – Performance Monitoring Line/MS Near-End SES Threshold
See definition of output parameter **pmmsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
20. **pmode** – Port Mode
See definition of output parameter **pmode** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

21. **pmrsneses** – Performance Monitoring Section/RS Near-End SES Threshold
See definition of output parameter **pmrsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
22. **rspm** – RS PM Enable
See definition of output parameter **rspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
23. **rstimca** – RS TIM Consequent Action Enable
See definition of output parameter **rstimca** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
24. **rstimmon** – RS TIM Monitor Enable
See definition of output parameter **rstimmon** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
25. **sdhpn** – SDH ASAP
See definition of output parameter **sdhpn** in [“RTRV-STM256: Retrieve STM-256 port” \(5-156\)](#).
26. **sdsfmode** – Signal Degrade/Signal Fail Mode
See definition of output parameter **sdsfmode** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
27. **servcond** – Service Condition
See definition of output parameter **servcond** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
28. **strcfmt** – Format of incoming J0
See definition of output parameter **strcfmt** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
29. **strcout** – Value of outgoing J0
See definition of output parameter **strcout** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
30. **strcwfmt** – Format of outgoing J0
See definition of output parameter **strcwfmt** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
31. **trbmd** – Tributary mode
See definition of output parameter **trbmd** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
32. **unequiposig** – Unequipped Output Signal List
See definition of output parameter **unequiposig** in [“RTRV-STM256: Retrieve STM-256 port” \(5-156\)](#).

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"
;
```



DLT-STM256 notification

Output format The DLT-STM256 notification shall use the general format of a REPT DBCHG Report Database Change notification.
Syntax: DLT-STM256:*aid*

Output parameters

Command parameters

1. *aid* – Access Identifier
See definition of output parameter *aid* in [“RTRV-STM256: Retrieve STM-256 port” \(5-156\)](#).

Example output

```
A UNITE-NE 00-11-20 8:01:03
611 REPT DBCHG
"Time=8-00-30,DATE=00-11-20:DLT-STM256:1-1-#-#-4-1
;
```



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-OC48: Edit OC48 port

The ED-OC48 command shall be 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. aid – Access Identifier
See definition of output parameter *aid* in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
3. ctag – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. brstintvl – Bursty Interval
See definition of output parameter *brstintvl* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
2. brstthr – Bursty Error Threshold
See definition of output parameter *brstthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
3. exprstrc – Value of Expected J0
See definition of output parameter *exprstrc* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
4. felpm – Far-end Line PM Enable
See definition of output parameter *femspm* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
5. frcdus – Force to DUS

- See definition of output parameter ***frcdus*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
6. inputsig – Tributary Input Signal Rate List
See definition of output parameter ***inputsig*** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
 7. istd – Interface Standard
See definition of input parameter ***istd*** in [“ED-STM16: Edit STM16 port” \(5-187\)](#).
 8. nelpm – Near-End Line PM Enable
See definition of output parameter ***nemspm*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 9. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
See definition of output parameter ***pmmsfeses*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 10. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
See definition of output parameter ***pmmsneses*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 11. pmode – Port Mode
See definition of output parameter ***pmode*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 12. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
See definition of output parameter ***pmrsneses*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 13. rstimca – RS TIM Consequent Action Enable
See definition of output parameter ***rstimca*** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
 14. rstimmon – RS TIM Monitor Enable
See definition of output parameter ***rstimmon*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 15. sdsfmode – Signal Degrade/Signal Fail Mode
See definition of output parameter ***sdsfmode*** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
 16. sdthr – Signal Degrade Threshold
See definition of output parameter ***degthr*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

17. **servcond** – Service Condition
See definition of output parameter **servcond** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
18. **sfthr** – Signal Failure Threshold
See definition of output parameter **dexcthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
19. **sonet** – SONET ASAP
See definition of output parameter **sonet** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
20. **spm** – Section PM Enable
See definition of output parameter **rspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
21. **strcfmt** – Format of incoming J0
See definition of output parameter **strcfmt** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
22. **strcout** – Value of outgoing J0
See definition of output parameter **strcout** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
23. **strcwfmt** – Format of outgoing J0
See definition of output parameter **strcfwmt** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
24. **trbmd** – Tributary mode
See definition of output parameter **trbmd** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
25. **unequiposig** – Unequipped Output Signal List
See definition of output parameter **unequiposig** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
26. **z0outmode** – Mode of outgoing Z0 byte insertion
See definition of output parameter **z0outmode** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).

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 for the RTRV-HDR command.

Detailed behavior description

Behavior

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-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 shall have the following impact related to Fault Management:

- All SONET alarms related to that port shall be cleared
- The corresponding SDH alarms shall be 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 shall always be

supplied within the same TL1-command to always have a consistent set of trace format and value.

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.

In detail 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):

- **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**)
- **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)
- **sdsfmode** is set to the default value for an SDH port
- **sdthr** is mapped to **degthr** (no changes)
- **sfthr** is mapped to **dexcth** (no changes)
- **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 shall remain unchanged.

Switching of interface standard – Side effects on tributaries

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-STMn command for SDH parameter description):

- **brstintvl** shall be set to the default value for a SDH tributary
- **brstthr** shall be 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** shall be set to the default value for a SDH tributary

All other tributary parameters shall remain unchanged.

Switching of interface standard – notification behavior

Switching of interface standard – notification Behavior for Port Attributes

When changing the interface standard **istd** using the ED-OCn command all resulting parameter changes shall be 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 shall be reported by ED-VC3 notifications.

Switching of interface standard – PM impact

See Detailed Behavior Specification in [“ED-STM16: Edit STM16 port” \(5-187\)](#) Detailed Behavior

Example input/output

```
ED-OC48:UNITE-NE:1-1-#-#-1-1:123456:::INPUTSIG=74-33-84,UNEQUIPOSIG=74-33-84;
M  UNITE-NE 00-11-28 08:00:00
  123456 COMPLD
;
A  UNITE-NE 00-11-28 08:00:30
  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” \(5-6\)](#) 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/unequiposig*) if the port is member of a 2f protection group. Then the assigned bandwidth shall 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, inconsistent input signal

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, inconsistent output signal

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 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 path protection for trbmd change to ADAPTIVE

Check that *trbmd* is not set to ADAPTIVE when this port is 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 disabled for facility loopback

Check that the *servcond* is not enabled when a facility loopbackp 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 (2000) before a new PM monitor is enabled.

Error code: SSRE - Status, System Resources Exceeded, limit of PM monitors exceeded.

The updates of the parameters specified in the ED command request will take place in any arbitrary order. Since several monitor points can be enabled/disabled within one command, the ED command may fail although from an overall perspective the maximal number is not

crossed. An example would be if already 2000 monitors are enabled and the ED command would request that 1 monitor point is enabled and 1 monitor points is disabled. To avoid that, the disabling of PM points should be done in a seperate ED command before other PM monitors are enabled.

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.

Related TL1 messages [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#)

References GR-199-CORE (ED-rr)



ED-OC48 notification

Output format The ED-OC48 notification shall use 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
See definition of output parameter *aid* in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).

Spec block parameters

1. *brstintvl* – Bursty Interval
See definition of output parameter *brstintvl* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
2. *brstthr* – Bursty Error Threshold
See definition of output parameter *brstthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
3. *crstat* – Constituent Rates Status list
See definition of output parameter *crstat* in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
4. *exprstrc* – Value of Expected J0
See definition of output parameter *exprstrc* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
5. *felpm* – Far-end Line PM Enable
See definition of output parameter *femspm* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
6. *frcdus* – Force to DUS
See definition of output parameter *frcdus* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
7. *fsflpbkstat* – Far Side Facility Loopback Status
See definition of output parameter *fsflpbkstat* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
8. *inputsig* – Tributary Input Signal Rate List
See definition of output parameter *inputsig* in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
9. *istd* – Interface Standard

- See definition of input parameter **istd** in [“ED-STM16: Edit STM16 port” \(5-187\)](#).
10. lpbk – Loopback
See definition of output parameter **lpbk** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 11. nelpm – Near-End Line PM Enable
See definition of output parameter **nemspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 12. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
See definition of output parameter **pmmsfeses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 13. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
See definition of output parameter **pmmsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 14. pmode – Port Mode
See definition of output parameter **pmode** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 15. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
See definition of output parameter **pmrsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 16. rstimca – RS TIM Consequent Action Enable
See definition of output parameter **rstimca** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
 17. rstimmon – RS TIM Monitor Enable
See definition of output parameter **rstimmon** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 18. sdsfmode – Signal Degrade/Signal Fail Mode
See definition of output parameter **sdsfmode** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
 19. sdthr – Signal Degrade Threshold
See definition of output parameter **degthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 20. servcond – Service Condition
See definition of output parameter **servcond** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

21. **sfthr** – Signal Failure Threshold
See definition of output parameter **dexcthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
22. **sonet** – SONET ASAP
See definition of output parameter **sonet** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
23. **spm** – Section PM Enable
See definition of output parameter **rspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
24. **strcfmt** – Format of incoming J0
See definition of output parameter **strcfmt** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
25. **strcout** – Value of outgoing J0
See definition of output parameter **strcout** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
26. **strcwfmt** – Format of outgoing J0
See definition of output parameter **strcwfmt** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
27. **trbmd** – Tributary mode
See definition of output parameter **trbmd** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
28. **unequiposig** – Unequipped Output Signal List
See definition of output parameter **unequiposig** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
29. **z0outmode** – Mode of outgoing Z0 byte insertion
See definition of output parameter **z0outmode** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).

Example output

```
ED-OC48:UNITE-NE:1-1-#-#-u1-1:123456:::INPUTSIG=74-33-84,UNEQUIPOSIG=74-33-84;
M  UNITE-NE 00-11-28 08:00:00
  123456 COMPLD
;
A  UNITE-NE 00-11-28 08:00:30
  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:"
;
```



ENT-OC48 notification

Output format The ENT-OC48 notification shall use 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
See definition of output parameter *aid* in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).

Spec block parameters

1. *brstintvl* – Bursty Interval
See definition of output parameter *brstintvl* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
2. *brstthr* – Bursty Error Threshold
See definition of output parameter *brstthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
3. *crstat* – Constituent Rates Status list
See definition of output parameter *crstat* in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
4. *exprstrc* – Value of Expected J0
See definition of output parameter *exprstrc* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
5. *felpm* – Far-end Line PM Enable
See definition of output parameter *femspm* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
6. *frcdus* – Force to DUS
See definition of output parameter *frcdus* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
7. *fsflpbkstat* – Far Side Facility Loopback Status
See definition of output parameter *fsflpbkstat* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
8. *inputsig* – Tributary Input Signal Rate List
See definition of output parameter *inputsig* in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).

9. istd – Interface Standard
See definition of input parameter **istd** in [“ED-STM16: Edit STM16 port” \(5-187\)](#).
10. lpbk – Loopback
See definition of output parameter **lpbk** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
11. nelpm – Near-End Line PM Enable
See definition of output parameter **nemspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
12. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
See definition of output parameter **pmmsfeses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
13. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
See definition of output parameter **pmmsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
14. pmode – Port Mode
See definition of output parameter **pmode** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
15. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
See definition of output parameter **pmrsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
16. rstimca – RS TIM Consequent Action Enable
See definition of output parameter **rstimca** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
17. rstimmon – RS TIM Monitor Enable
See definition of output parameter **rstimmon** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
18. sdsfmode – Signal Degrade/Signal Fail Mode
See definition of output parameter **sdsfmode** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
19. sdthr – Signal Degrade Threshold
See definition of output parameter **degthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
20. servcond – Service Condition

- See definition of output parameter **servcond** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
21. sfthr – Signal Failure Threshold
See definition of output parameter **dexcthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
22. sonet – SONET ASAP
See definition of output parameter **sonet** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
23. spm – Section PM Enable
See definition of output parameter **rspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
24. strcfmt – Format of incoming J0
See definition of output parameter **strcfmt** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
25. strcout – Value of outgoing J0
See definition of output parameter **strcout** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
26. strcwfmt – Format of outgoing J0
See definition of output parameter **strcfwmt** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
27. trbmd – Tributary mode
See definition of output parameter **trbmd** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
28. unequiposig – Unequipped Output Signal List
See definition of output parameter **unequiposig** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
29. z0outmode – Mode of outgoing Z0 byte insertion
See definition of output parameter **z0outmode** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).

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"
;
```



DLT-OC48 notification

Output format The DLT-OC48 notification shall use the general format of a REPT DBCHG Report Database Change notification.

Syntax: DLT-OC48:*aid*

Output parameters

Command parameters

1. *aid* – Access Identifier
See definition of output parameter *aid* in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).

Example output

```
A UNITE-NE 00-11-20 8:01:03
  611 REPT DBCHG
  "Time=8-00-30,DATE=00-11-20:DLT-OC48:1-1-#-#-4-1
  ;
```



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.



ED-OC192: Edit OC192 port

The ED-OC192 command shall be 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. *aid* – Access Identifier
 See definition of output parameter *aid* in [“RTRV-OC192: Retrieve OC-192 port” \(5-170\)](#).
3. *ctag* – Correlation Tag
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. *brstintvl* – Bursty Interval
 See definition of output parameter *brstintvl* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
2. *brstthr* – Bursty Error Threshold
 See definition of output parameter *brstthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
3. *exprstrc* – Value of Expected J0
 See definition of output parameter *exprstrc* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
4. *fec* – FEC Enable
 See definition of output parameter *fec* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
5. *feccor* – FEC Correction Enable

- See definition of output parameter **feccor** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
6. fectype – FEC Type
See definition of output parameter **fectype** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
 7. felpm – Far-end Line PM Enable
See definition of output parameter **femspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 8. frcdus – Force to DUS
See definition of output parameter **frdus** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
 9. inputsig – Tributary Input Signal Rate List
See definition of output parameter **inputsig** in [“RTRV-OC192: Retrieve OC-192 port” \(5-170\)](#).
 10. istd – Interface Standard
See definition of input parameter **istd** in [“ED-STM16: Edit STM16 port” \(5-187\)](#).
 11. msrei – MS-REI mode
See definition of output parameter **msrei** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
 12. nelpm – Near-End Line PM Enable
See definition of output parameter **nemspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 13. och – Optical Channel enable
See definition of output parameter **och** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
 14. pmmsfes – Performance Monitoring Line/MS Far-End SES Threshold
See definition of output parameter **pmmsfes** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 15. pmmsnes – Performance Monitoring Line/MS Near-End SES Threshold
See definition of output parameter **pmmsnes** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 16. pmode – Port Mode
See definition of output parameter **pmode** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

17. **pmrsneses** – Performance Monitoring Section/RS Near-End SES Threshold
See definition of output parameter **pmrsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
18. **rstimca** – RS TIM Consequent Action Enable
See definition of output parameter **rstimca** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
19. **rstimmon** – RS TIM Monitor Enable
See definition of output parameter **rstimmon** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
20. **sdsfmode** – Signal Degrade/Signal Fail Mode
See definition of output parameter **sdsfmode** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
21. **sdthr** – Signal Degrade Threshold
See definition of output parameter **degthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
22. **servcond** – Service Condition
See definition of output parameter **servcond** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
23. **sfthr** – Signal Failure Threshold
See definition of output parameter **dexcth** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
24. **sonet** – SONET ASAP
See definition of output parameter **sonet** in [“RTRV-OC192: Retrieve OC-192 port” \(5-170\)](#).
25. **spm** – Section PM Enable
See definition of output parameter **rspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
26. **strcfmt** – Format of incoming J0
See definition of output parameter **strcfmt** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
27. **strcout** – Value of outgoing J0
See definition of output parameter **strcout** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
28. **strcwfmt** – Format of outgoing J0
See definition of output parameter **strcwfmt** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
29. **trbmd** – Tributary mode

See definition of output parameter **trbmd** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).

30. unequiposig – Unequipped Output Signal List
See definition of output parameter **unequiposig** in [“RTRV-OC192: Retrieve OC-192 port” \(5-170\)](#).

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 for the RTRV-HDR command.

Detailed behavior description

Behavior

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-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 shall have the following impact related to Fault Management:

- All SONET alarms related to that port shall be cleared
- The corresponding SDH alarms shall be 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 shall always be supplied within the same TL1-command to always have a consistent set of trace format and value.

Switching of interface standard – Impact on Port parameters

See Detailed Behavior Specification in [“ED-OC48: Edit OC48 port” \(5-240\)](#) Detailed Behavior

Switching of interface standard – Side effects on tributaries

See Detailed Behavior Specification in [“ED-OC48: Edit OC48 port” \(5-240\)](#) Detailed Behavior

Switching of interface standard – notification behavior

See Detailed Behavior Specification in [“ED-OC48: Edit OC48 port” \(5-240\)](#) Detailed Behavior

Switching of interface standard – PM impact

See Detailed Behavior Specification in [“ED-STM16: Edit STM16 port” \(5-187\)](#) Detailed Behavior

Example input/output

```
ED-OC192:UNITE-NE:1-1-#-#-1-1:123456:::INPUTSIG=74-33-84,UNEQUIPOSIG=74-33-84;
M  UNITE-NE 00-11-28 08:00:00
  123456 COMPLD
;
A  UNITE-NE 00-11-28 08:00:30
  001 REPT DBCHG
  "TIME=08-00-12,DATE=00-11-28:ED-OC192:1-1-#-#-1-1::inputsig=74-33-
84,unequipoisig=74-33-84:"
;
```

Error responses Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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/unequiposig*) if the port is member of a 2f protection group. Then the assigned bandwidth shall 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, inconsistent input signal

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, inconsistent output signal

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 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 path protection for trbmd change to ADAPTIVE

Check that *trbmd* is not set to ADAPTIVE when this port is 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 disabled for facility loopback

Check that the *servcond* is not enabled when a facility loopbackp 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 (2000) before a new PM monitor is enabled.

Error code: SSRE - Status, System Resources Exceeded, limit of PM monitors exceeded.

The updates of the parameters specified in the ED command request will take place in any arbitrary order. Since several monitor points can be enabled/disabled within one command, the ED command may fail although from an overall perspective the maximal number is not crossed. An example would be if already 2000 monitors are enabled and the ED command would request that 1 monitor point is enabled and 1 monitor points is disabled. To avoid that, the disabling of PM points should be done in a separate ED command before other PM monitors are enabled.

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: 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 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: 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: IDNV - Input, Data Not Valid, Parameter not supported

Validation rule: Enabling of outband FEC only if Optical Channel is enabled

When enabling outband FEC (*fectype* = *OUTBAND*, *fec* = *ENABLE*) it shall be checked, whether the optical channel is enabled (*och* = *ENABLE*) as well.

Error code: SNVS - Status, Not in Valid State, Optical Channel must be enabled

Related TL1 messages [“RTRV-OC192: Retrieve OC-192 port” \(5-170\)](#)

References GR-199-CORE (ED-*rr*)



ED-OC192 notification

Output format The ED-OC192 notification shall use 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
See definition of output parameter *aid* in [“RTRV-OC192: Retrieve OC-192 port” \(5-170\)](#).

Spec block parameters

1. *brstintvl* – Bursty Interval
See definition of output parameter *brstintvl* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
2. *brstthr* – Bursty Error Threshold
See definition of output parameter *brstthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
3. *crstat* – Constituent Rates Status list
See definition of output parameter *crstat* in [“RTRV-OC192: Retrieve OC-192 port” \(5-170\)](#).
4. *exprstrc* – Value of Expected J0
See definition of output parameter *exprstrc* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
5. *fec* – FEC Enable
See definition of output parameter *fec* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
6. *feccor* – FEC Correction Enable
See definition of output parameter *feccor* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
7. *fectype* – FEC Type
See definition of output parameter *fectype* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
8. *felpm* – Far-end Line PM Enable
See definition of output parameter *femspm* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
9. *frcdus* – Force to DUS

- See definition of output parameter **frdus** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
10. fsflpbkstat – Far Side Facility Loopback Status
See definition of output parameter **fsflpbkstat** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 11. inputsig – Tributary Input Signal Rate List
See definition of output parameter **inputsig** in [“RTRV-OC192: Retrieve OC-192 port” \(5-170\)](#).
 12. istd – Interface Standard
See definition of input parameter **istd** in [“ED-STM16: Edit STM16 port” \(5-187\)](#).
 13. lpbk – Loopback
See definition of output parameter **lpbk** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 14. msrei – MS-REI mode
See definition of output parameter **msrei** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
 15. nelpm – Near-End Line PM Enable
See definition of output parameter **nemspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 16. och – Optical Channel enable
See definition of output parameter **och** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
 17. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
See definition of output parameter **pmmsfeses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 18. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
See definition of output parameter **pmmsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 19. pmode – Port Mode
See definition of output parameter **pmode** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 20. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
See definition of output parameter **pmrsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

21. *rstimca* – RS TIM Consequent Action Enable
See definition of output parameter *rstimca* in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
22. *rstimmon* – RS TIM Monitor Enable
See definition of output parameter *rstimmon* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
23. *sdsfmode* – Signal Degrade/Signal Fail Mode
See definition of output parameter *sdsfmode* in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
24. *sdthr* – Signal Degrade Threshold
See definition of output parameter *degthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
25. *servcond* – Service Condition
See definition of output parameter *servcond* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
26. *sfthr* – Signal Failure Threshold
See definition of output parameter *dexcthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
27. *sonet* – SONET ASAP
See definition of output parameter *sonet* in [“RTRV-OC192: Retrieve OC-192 port” \(5-170\)](#).
28. *spm* – Section PM Enable
See definition of output parameter *rspm* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
29. *strcfmt* – Format of incoming J0
See definition of output parameter *strcfmt* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
30. *strcout* – Value of outgoing J0
See definition of output parameter *strcout* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
31. *strcwfmt* – Format of outgoing J0
See definition of output parameter *strcwfmt* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
32. *trbmd* – Tributary mode
See definition of output parameter *trbmd* in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
33. *unequiposig* – Unequipped Output Signal List

See definition of output parameter *unequiposig* in
[“RTRV-OC192: Retrieve OC-192 port” \(5-170\)](#).

Example output

```
ED-OC192:UNITE-NE:1-1-#-#-1-1:123456:::INPUTSIG=74-33-84,UNEQUIPOSIG=74-33-84;
M  UNITE-NE 00-11-28 08:00:00
  123456 COMPLD
;
A  UNITE-NE 00-11-28 08:00:30
  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:"
;
```



ENT-OC192 notification

Output format The ENT-OC192 notification shall use 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
See definition of output parameter *aid* in [“RTRV-OC192: Retrieve OC-192 port” \(5-170\)](#).

Spec block parameters

1. *brstintvl* – Bursty Interval
See definition of output parameter *brstintvl* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
2. *brstthr* – Bursty Error Threshold
See definition of output parameter *brstthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
3. *crstat* – Constituent Rates Status list
See definition of output parameter *crstat* in [“RTRV-OC192: Retrieve OC-192 port” \(5-170\)](#).
4. *exprstrc* – Value of Expected J0
See definition of output parameter *exprstrc* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
5. *fec* – FEC Enable
See definition of output parameter *fec* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
6. *feccor* – FEC Correction Enable
See definition of output parameter *feccor* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
7. *fectype* – FEC Type
See definition of output parameter *fectype* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
8. *felpm* – Far-end Line PM Enable
See definition of output parameter *femspm* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

9. frcdus – Force to DUS
See definition of output parameter **frcdus** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
10. fsflpbkstat – Far Side Facility Loopback Status
See definition of output parameter **fsflpbkstat** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
11. inputsig – Tributary Input Signal Rate List
See definition of output parameter **inputsig** in [“RTRV-OC192: Retrieve OC-192 port” \(5-170\)](#).
12. istd – Interface Standard
See definition of input parameter **istd** in [“ED-STM16: Edit STM16 port” \(5-187\)](#).
13. lpbk – Loopback
See definition of output parameter **lpbk** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
14. msrei – MS-REI mode
See definition of output parameter **msrei** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
15. nelpm – Near-End Line PM Enable
See definition of output parameter **nelpm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
16. och – Optical Channel enable
See definition of output parameter **och** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
17. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
See definition of output parameter **pmmsfeses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
18. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
See definition of output parameter **pmmsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
19. pmode – Port Mode
See definition of output parameter **pmode** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
20. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold

- See definition of output parameter ***pmrsneses*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
21. **rstimca** – RS TIM Consequent Action Enable
See definition of output parameter ***rstimca*** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
 22. **rstimmon** – RS TIM Monitor Enable
See definition of output parameter ***rstimmon*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 23. **sdsfmode** – Signal Degrade/Signal Fail Mode
See definition of output parameter ***sdsfmode*** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
 24. **sdthr** – Signal Degrade Threshold
See definition of output parameter ***degthr*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 25. **servcond** – Service Condition
See definition of output parameter ***servcond*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 26. **sfthr** – Signal Failure Threshold
See definition of output parameter ***dexcth*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 27. **sonet** – SONET ASAP
See definition of output parameter ***sonet*** in [“RTRV-OC192: Retrieve OC-192 port” \(5-170\)](#).
 28. **spm** – Section PM Enable
See definition of output parameter ***rspm*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 29. **strcfmt** – Format of incoming J0
See definition of output parameter ***strcfmt*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 30. **strcout** – Value of outgoing J0
See definition of output parameter ***strcout*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 31. **strcwfmt** – Format of outgoing J0
See definition of output parameter ***strcwfmt*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 32. **trbmd** – Tributary mode

See definition of output parameter *trbmd* in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).

33. unequiposig – Unequipped Output Signal List
See definition of output parameter *unequiposig* in [“RTRV-OC192: Retrieve OC-192 port” \(5-170\)](#).

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"
;
```



DLT-OC192 notification

Output format The DLT-OC192 notification shall use the general format of a REPT DBCHG Report Database Change notification.

Syntax: DLT-OC192:*aid*

Output parameters

Command parameters

1. *aid* – Access Identifier
See definition of output parameter *aid* in [“RTRV-OC192: Retrieve OC-192 port” \(5-170\)](#).

Example output

```
A  UNITE-NE 00-11-20 8:01:03
   611 REPT DBCHG
   "Time=8-00-30,DATE=00-11-20:DLT-OC192:1-1-#-#-4-1"
;
```



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.



ED-OC768: Edit OC768 port

The ED-OC768 command shall be 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. *aid* – Access Identifier
 See definition of output parameter *aid* in [“RTRV-OC768: Retrieve OC-768 port” \(5-177\)](#).
3. *ctag* – Correlation Tag
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. *brstintvl* – Bursty Interval
 See definition of output parameter *brstintvl* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
2. *brstthr* – Bursty Error Threshold
 See definition of output parameter *brstthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
3. *exprstrc* – Value of Expected J0
 See definition of output parameter *exprstrc* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
4. *fec* – FEC Enable
 See definition of output parameter *fec* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
5. *feccor* – FEC Correction Enable

- See definition of output parameter **feccor** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
6. fectype – FEC Type
See definition of output parameter **fectype** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
 7. felpm – Far-end Line PM Enable
See definition of output parameter **femspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 8. frcdus – Force to DUS
See definition of output parameter **frcdus** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 9. inputsig – Tributary Input Signal Rate List
See definition of output parameter **inputsig** in [“RTRV-OC768: Retrieve OC-768 port” \(5-177\)](#).
 10. istd – Interface Standard
See definition of input parameter **istd** in [“ED-STM16: Edit STM16 port” \(5-187\)](#).
 11. nelpm – Near-End Line PM Enable
See definition of output parameter **nemspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 12. och – Optical Channel enable
See definition of output parameter **och** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
 13. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
See definition of output parameter **pmmsfeses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 14. pmmsneses – Performance Monitoring Line/MS Near-End SES Threshold
See definition of output parameter **pmmsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 15. pmode – Port Mode
See definition of output parameter **pmode** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 16. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
See definition of output parameter **pmrsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

17. **rstimca** – RS TIM Consequent Action Enable
See definition of output parameter **rstimca** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
18. **rstimmon** – RS TIM Monitor Enable
See definition of output parameter **rstimmon** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
19. **sdsfmode** – Signal Degrade/Signal Fail Mode
See definition of output parameter **sdsfmode** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
20. **sdthr** – Signal Degrade Threshold
See definition of output parameter **degthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
21. **servcond** – Service Condition
See definition of output parameter **servcond** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
22. **sfthr** – Signal Failure Threshold
See definition of output parameter **dexcthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
23. **sonet** – SONET ASAP
See definition of output parameter **sonet** in [“RTRV-OC768: Retrieve OC-768 port” \(5-177\)](#).
24. **spm** – Section PM Enable
See definition of output parameter **rspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
25. **strcfmt** – Format of incoming J0
See definition of output parameter **strcfmt** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
26. **strcout** – Value of outgoing J0
See definition of output parameter **strcout** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
27. **strcwfmt** – Format of outgoing J0
See definition of output parameter **strcwfmt** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
28. **trbmd** – Tributary mode
See definition of output parameter **trbmd** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
29. **unequiposig** – Unequipped Output Signal List

See definition of output parameter *unequiposig* in
[“RTRV-OC768: Retrieve OC-768 port” \(5-177\)](#).

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 for the RTRV-HDR command.

Detailed behavior description

Behavior

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-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 shall have the following impact related to Fault Management:

- All SONET alarms related to that port shall be cleared
- The corresponding SDH alarms shall be 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 shall always be supplied within the same TL1-command to always have a consistent set of trace format and value.

Switching of interface standard – Impact on Port parameters

See Detailed Behavior Specification in [“ED-OC48: Edit OC48 port” \(5-240\)](#) Detailed Behavior

Switching of interface standard – Side effects on tributaries

See Detailed Behavior Specification in [“ED-OC48: Edit OC48 port” \(5-240\)](#) Detailed Behavior

Switching of interface standard – notification behavior

See Detailed Behavior Specification in [“ED-OC48: Edit OC48 port” \(5-240\)](#) Detailed Behavior

Switching of interface standard – PM impact

See Detailed Behavior Specification in [“ED-STM16: Edit STM16 port” \(5-187\)](#) Detailed Behavior

Example input/output

```
ED-OC768:UNITE-NE:1-1-#-1-1:123456:::INPUTSIG=74-33-84,UNEQUIPOSIG=74-33-84;
M  UNITE-NE 00-11-28 08:00:00
   123456 COMPLD
;
A  UNITE-NE 00-11-28 08:00:30
   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” \(5-6\)](#) 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 shall 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, inconsistent input signal

Validation rule: uneqiposig consistent with existing cross-connections

Check of the consistency of the structure of the output signal (*uneqiposig*) with existing cross connections.

Error code: SNVS - Status, Not in Valid State, inconsistent output signal

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 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 path protection for trbmd change to ADAPTIVE

Check that *trbmd* is not set to ADAPTIVE when this port is 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 disabled for facility loopback

Check that the *servcond* is not enabled when a facility loopbackp 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 (2000) before a new PM monitor is enabled.

Error code: SSRE - Status, System Resources Exceeded, limit of PM monitors exceeded.

The updates of the parameters specified in the ED command request will take place in any arbitrary order. Since several monitor points can be enabled/disabled within one command, the ED command may fail although from an overall perspective the maximal number is not

crossed. An example would be if already 2000 monitors are enabled and the ED command would request that 1 monitor point is enabled and 1 monitor points is disabled. To avoid that, the disabling of PM points should be done in a seperate ED command before other PM monitors are enabled.

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: 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 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: IDNV - Input, Data Not Valid, Parameter not supported

Related TL1 messages [“RTRV-OC768: Retrieve OC-768 port” \(5-177\)](#)

References GR-199-CORE (ED-*rr*)



ED-OC768 notification

Output format The ED-OC768 notification shall use 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
See definition of output parameter *aid* in [“RTRV-OC768: Retrieve OC-768 port” \(5-177\)](#).

Spec block parameters

1. *brstintvl* – Bursty Interval
See definition of output parameter *brstintvl* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
2. *brstthr* – Bursty Error Threshold
See definition of output parameter *brstthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
3. *crstat* – Constituent Rates Status list
See definition of output parameter *crstat* in [“RTRV-OC768: Retrieve OC-768 port” \(5-177\)](#).
4. *exprstrc* – Value of Expected J0
See definition of output parameter *exprstrc* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
5. *fec* – FEC Enable
See definition of output parameter *fec* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
6. *feccor* – FEC Correction Enable
See definition of output parameter *feccor* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
7. *fectype* – FEC Type
See definition of output parameter *fectype* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
8. *felpm* – Far-end Line PM Enable
See definition of output parameter *femspm* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
9. *frcdus* – Force to DUS

- See definition of output parameter ***frcdus*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
10. fsflpbkstat – Far Side Facility Loopback Status
See definition of output parameter ***fsflpbkstat*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 11. inputsig – Tributary Input Signal Rate List
See definition of output parameter ***inputsig*** in [“RTRV-OC768: Retrieve OC-768 port” \(5-177\)](#).
 12. istd – Interface Standard
See definition of input parameter ***istd*** in [“ED-STM16: Edit STM16 port” \(5-187\)](#).
 13. lpbk – Loopback
See definition of output parameter ***lpbk*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 14. nelpm – Near-End Line PM Enable
See definition of output parameter ***nemspm*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 15. och – Optical Channel enable
See definition of output parameter ***och*** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
 16. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
See definition of output parameter ***pmmsfeses*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 17. pmmsneses – Performance MonitoringLine/MS Near-End SES Threshold
See definition of output parameter ***pmmsneses*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 18. pmode – Port Mode
See definition of output parameter ***pmode*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 19. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
See definition of output parameter ***pmrsneses*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
 20. rstimca – RS TIM Consequent Action Enable
See definition of output parameter ***rstimca*** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).

21. **rstimmon** – RS TIM Monitor Enable
See definition of output parameter **rstimmon** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
22. **sdsfmode** – Signal Degrade/Signal Fail Mode
See definition of output parameter **sdsfmode** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
23. **sdthr** – Signal Degrade Threshold
See definition of output parameter **degthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
24. **servcond** – Service Condition
See definition of output parameter **servcond** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
25. **sfthr** – Signal Failure Threshold
See definition of output parameter **dexcthr** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
26. **sonet** – SONET ASAP
See definition of output parameter **sonet** in RTRV-OC768
27. **spm** – Section PM Enable
See definition of output parameter **rspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
28. **strcfmt** – Format of incoming J0
See definition of output parameter **strcfmt** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
29. **strcout** – Value of outgoing J0
See definition of output parameter **strcout** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
30. **strcwfmt** – Format of outgoing J0
See definition of output parameter **strcwfmt** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
31. **trbmd** – Tributary mode
See definition of output parameter **trbmd** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
32. **unequiposig** – Unequipped Output Signal List
See definition of output parameter **unequiposig** in [“RTRV-OC768: Retrieve OC-768 port” \(5-177\)](#).

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:"  
;  
;
```



ENT-OC768 notification

Output format The ENT-OC768 notification shall use 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
See definition of output parameter *aid* in [“RTRV-OC768: Retrieve OC-768 port” \(5-177\)](#).

Spec block parameters

1. *brstintvl* – Bursty Interval
See definition of output parameter *brstintvl* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
2. *brstthr* – Bursty Error Threshold
See definition of output parameter *brstthr* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
3. *crstat* – Constituent Rates Status list
See definition of output parameter *crstat* in [“RTRV-OC768: Retrieve OC-768 port” \(5-177\)](#).
4. *exprstrc* – Value of Expected J0
See definition of output parameter *exprstrc* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
5. *fec* – FEC Enable
See definition of output parameter *fec* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
6. *feccor* – FEC Correction Enable
See definition of output parameter *feccor* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
7. *fectype* – FEC Type
See definition of output parameter *fectype* in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
8. *felpm* – Far-end Line PM Enable
See definition of output parameter *femspm* in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).

9. frcdus – Force to DUS
See definition of output parameter **frcdus** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
10. fsflpbkstat – Far Side Facility Loopback Status
See definition of output parameter **fsflpbkstat** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
11. inputsig – Tributary Input Signal Rate List
See definition of output parameter **inputsig** in [“RTRV-OC768: Retrieve OC-768 port” \(5-177\)](#).
12. istd – Interface Standard
See definition of input parameter **istd** in [“ED-STM16: Edit STM16 port” \(5-187\)](#).
13. lpbk – Loopback
See definition of output parameter **lpbk** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
14. nelpm – Near-End Line PM Enable
See definition of output parameter **nemspm** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
15. och – Optical Channel enable
See definition of output parameter **och** in [“RTRV-STM64: Retrieve STM-64 port” \(5-149\)](#).
16. pmmsfeses – Performance Monitoring Line/MS Far-End SES Threshold
See definition of output parameter **pmmsfeses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
17. pmmsneses – Performance MonitoringLine/MS Near-End SES Threshold
See definition of output parameter **pmmsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
18. pmode – Port Mode
See definition of output parameter **pmode** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
19. pmrsneses – Performance Monitoring Section/RS Near-End SES Threshold
See definition of output parameter **pmrsneses** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
20. rstimca – RS TIM Consequent Action Enable

- See definition of output parameter ***rstimca*** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
21. ***rstimmon*** – RS TIM Monitor Enable
See definition of output parameter ***rstimmon*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
22. ***sdsfmode*** – Signal Degrade/Signal Fail Mode
See definition of output parameter ***sdsfmode*** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
23. ***sdthr*** – Signal Degrade Threshold
See definition of output parameter ***degthr*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
24. ***servcond*** – Service Condition
See definition of output parameter ***servcond*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
25. ***sfthr*** – Signal Failure Threshold
See definition of output parameter ***dexcth*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
26. ***sonet*** – SONET ASAP
See definition of output parameter ***sonet*** in RTRV-OC768
27. ***spm*** – Section PM Enable
See definition of output parameter ***rspm*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
28. ***strcfmt*** – Format of incoming J0
See definition of output parameter ***strcfmt*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
29. ***strcout*** – Value of outgoing J0
See definition of output parameter ***strcout*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
30. ***strcwfmt*** – Format of outgoing J0
See definition of output parameter ***strcwfmt*** in [“RTRV-STM16: Retrieve STM-16 port” \(5-137\)](#).
31. ***trbmd*** – Tributary mode
See definition of output parameter ***trbmd*** in [“RTRV-OC48: Retrieve OC-48 port” \(5-162\)](#).
32. ***unequiposig*** – Unequipped Output Signal List
See definition of output parameter ***unequiposig*** in [“RTRV-OC768: Retrieve OC-768 port” \(5-177\)](#).

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"
;
```



DLT-OC768 notification

Output format The DLT-OC768 notification shall use the general format of a REPT DBCHG Report Database Change notification.

Syntax: DLT-OC768:*aid*

Output parameters

Command parameters

1. *aid* – Access Identifier
See definition of output parameter *aid* in [“RTRV-OC768: Retrieve OC-768 port” \(5-177\)](#).

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";
```



ED-OC768 autonomous notifications

**LOS for transmission port
OC768 clears**

If LOS is cleared and currentl 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.



Tributary

Overview

Purpose The following chapter describes the commands for VC-3/STS-1 tributaries only. These tributaries are related to the optical interfaces on the OPn packs.

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.

TL1 commands related to gigabit Ethernet ports (GEn packs) are described in the Transmission fragment 3.3.4.7

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RTRV-VC3: Retrieve VC3 tributary

The RTRV-VC3 command shall be used to retrieve all parameters related to a VC3 tributary

Properties Login Privilege: User Privilege Code (UCFC/UCAL): P1
Priority: 1
Abortable: Yes

Input format Command Syntax: RTRV-VC3:*tid:aid:ctag*;

Command parameters

tid – Target Identifier

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

aid – Access Identifier

Description: AID of an SDH tributary. The keyword *all* shall be allowed on slot, port and tributary level.

Type: AID

Range: STS1NumAID

Default: none

ctag – Correlation Tag

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

Output format In response to a valid RTRV-VC3 command, the following output report shall be returned:

```

M  sid date time
   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
Description: AID of the SDH tributary. The keyword `all` is not allowed on any level.
Type: AID
Range: STS1NumAID
Default: none

Spec block parameters

1. brstintvl – Bursty Interval
Description: 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
Description: 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 – Crossconnect loopback Rate
Description: Rate of the crossconnect loopback. It is independent from the current interface standard and therefore both SDH and SONET values are allowed.
The parameter ***crslpbkrate*** shall not be reported if the parameter ***crslpbkstat*** indicates that no loopback is set.
Type: alphanumeric value set
Range:
 - VC3
 - VC4
 - VC44C
 - VC416C
 - VC464C
 - STS1
 - STS3

- STS12
 - STS48
 - STS192
- Default: None
4. **crslpbkstat** – Crossconnect loopback status
Description: State of cross connect loopback.
Type: alphanumeric value set
Range:
 - YES = Crossconnect loopback is provisioned
 - NO = No crossconnect loopback is provisionedDefault: NO
 5. **degthr** – Signal Degrade Threshold
Description: Signal Degrade Threshold. The setting of this parameter are used when **sdsfmode**=POISSON
Type: numeric value set
Range (as exponents of 10): -5; -6; -7; -8; -9
Default: -6
 6. **dexcth** – Excessive Degrade Threshold
Description: 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; -4; -5
Default: -3
 7. **exphptrc** – Expected Path Trace (J1)
Description: Expected HP trace (J1) identifier.
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 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
 8. **feppm** – Far-End Path PM Enable
Description: Far-end path PM enable. It indicates whether this performance monitoring feature is enabled or disabled.
Type: alphanumeric value set

Range:

- ENABLE
- DISABLE

Default: DISABLE

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
 - DISABLEDefault: DISABLE
10. neppm – Near-End Path PM Enable
Description: Near-end path PM enable. It indicates whether this performance monitoring feature is enabled or disabled.
Type: alphanumeric value set
Range:
 - ENABLE
 - DISABLEDefault: DISABLE
11. pmhpfeses – Performance Monitoring Path Far-End SES Threshold
Description: 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. pmhpnases – Performance Monitoring Path Near-End SES Threshold
Description: 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. ptrcrfmt – Path Trace Read Format (J1)
Description: The read format of J1, the incoming path trace (ptrc).
Type: numeric string
Range:
 - 1: for non-specific repeating byte
 - 16: for 16 byte specific string.
 - 64: for 64 byte string.
Default: 1
14. sdsfmode – Signal Degrade/Signal Fail Mode
Description: The degraded state shall be detected in BURST or POISSON mode.
Type: alphanumeric value set
Range:
 - BURST
 - POISSON
Default: BURST
15. tmonmd – Tributary Monitoring Mode
Description: 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 = alarm monitoring is not occurring on the port
Default: NMON
16. tribsdhpn – Tributary Alarm Severity Assignment Profile
Description: This parameter points to a tributary ASAP profile name of type PATH for the designated AID.
Type: alphanumeric string
Range: string with a maximum of 24 characters. A hyphen (-) is additionally allowed in the name.
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 shall be allowed to retrieve data from concatenated tributaries and the system shall repond 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.

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,dexctr=-  
3,ptrc=00,ptrcst=NORMAL,sdsfmode=POISSON"  
;
```

Error responses Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there also apply to the RTRV-VC3 command.

References GR-199-CORE (RTRV-rr)



RTRV-STs1: Retrieve STs1 tributary

The RTRV-STs1 command shall be used to retrieve all parameters related to the STs1 tributary.

Properties Login Privilege: User Privilege Code (UCFC/UCAL): P1
Priority: 1
Abortable: Yes

Input format Command Syntax: RTRV-STs1:*tid:aid:ctag*;

Command parameters

tid – Target Identifier

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

aid – Access Identifier

Description: AID of a SONET tributary. The keyword *all* shall be allowed on slot, port and tributary level.

Type: AID

Range: STs1NumAID

Default: none

ctag – Correlation Tag

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

Output format In response to a valid RTRV-STs1 command, the following output report shall be returned:

```
M  sid date time
   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
Description: AID of the SONET tributary. The keyword all is not allowed on any level.
Type: AID
Range: ST51NumAID
Default: none

Spec block parameters

1. brstintvl – Bursty Interval
See definition of output parameter *brstintvl* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
2. brstthr – Bursty Error Threshold
See definition of output parameter *brstthr* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
3. crslpbkrate – Crossconnect loopback Rate
See definition of output parameter *crslpbkrate* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
4. crslpbkstat – Crossconnect loopback status
See definition of output parameter *crslpbkstat* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
5. degthr – Signal Degrade Threshold
See definition of output parameter *degthr* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
6. dexcthr – Excessive Degrade Threshold
See definition of output parameter *dexcthr* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
7. exphptrc – Expected Path Trace (J1)
See definition of output parameter *exphptrc* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
8. feppm – Far-End Path PM Enable
See definition of output parameter *feppm* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
9. hptimmon – Path Trace Monitoring Enable (J1)
See definition of output parameter *hptimmon* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
10. neppm – Near-End Path PM Enable

See definition of output parameter **neppm** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).

11. pmhpfeses – Performance Monitoring Path Far-End SES Threshold
See definition of output parameter **pmhpfeses** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
12. pmhpnesees – Performance Monitoring Path Near-End SES Threshold
See definition of output parameter **pmhpnesees** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
13. pse – PDI-P Switching Enable
Description: The PDI-P Switching Enable parameter indicates if the PDI-P shall contribute to the automatic path protection switch criteria.
Type: alphanumeric value set
Range:
 - ENABLE
 - DISABLEDefault: DISABLE
14. ptrcrfmt – Path Trace Read Format (J1)
See definition of output parameter **ptrcrfmt** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
15. sdsfmode – Signal Degrade/Signal Fail Mode
Description: The degraded state shall be detected in BURST or POISSON mode.
Type: alphanumeric value set
Range:
 - BURST
 - POISSONDefault: POISSON
16. tmonmd – Tributary Monitoring Mode
See definition of output parameter **tmonmd** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
17. tribsonetpn – Tributary Alarm Severity Assignment Profile
Description: This parameter points to a tributary ASAP profile name of type PATH for the designated AID.
Type: Alphanumeric string

Range: String with a maximum of 24 characters. A hyphen (-) is additionally allowed in the name.
Default: DEFAULT

Detailed behavior description

Applicability for STS3c and Concatenated Signals

The RTRV-ST51 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-ST51 is also applicable to other "concatenated" signals

Retrieval of Concatenated Tributaries

The rules as defined for RTRV-VC3 apply as well.

Example input/output

```
RTRV-ST51: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,fepm=DISABLE,pmhpneses=30,pmhpfes=30,degthr=-  
6,...,ptrcrfmt=1,dexctr=-  
3,ptrc=00,ptrcst=NORMAL,sdsfmode=POISSON"  
z
```

Error responses Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there also apply to the RTRV-ST51 command.

Related TL1 messages [“ED-ST51: Edit STS1 tributary” \(5-313\)](#)

References GR-199-CORE (RTRV-rr)



RTRV-ALL: Retrieve all

The RTRV-ALL command shall be 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*;

Command parameters

tid – Target Identifier

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

aid – Access Identifier

Description: AID of SDH/SONET tributary. The keyword *all* shall be allowed on slot, port and tributary level.

Type: AID

Range: STS1NumAID

Default: none

ctag – Correlation Tag

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

Output format In response to a valid RTRV-ALL command, the following output report shall be returned:

```
M  sid date time
   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
Description: AID of the SDH/SONET tributary. The keyword all is not allowed on any level.
Type: AID
Range: STS1NumAID
Default: none

Spec block parameters

For the spec block parameters refer to the descriptions of the following commands [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#) and [“RTRV-ST51: Retrieve ST51 tributary” \(5-301\)](#) .

Detailed behavior description

The command shall retrieve 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” \(5-6\)](#) command Error responses section. The error responses listed there also apply to the RTRV-ALL command.

Related TL1 messages

- [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#)
- [“RTRV-STS1: Retrieve STS1 tributary” \(5-301\)](#)

References GR-199-CORE (RTRV-*rr*)



ED-VC3: Edit VC3 tributary

The ED-VC3 command shall be 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. *aid* – Access Identifier
 See definition of output parameter *aid* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
3. *ctag* – Correlation Tag
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. *brstintvl* – Bursty Interval
 See definition of output parameter *brstintvl* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
2. *brstthr* – Bursty Error Threshold
 See definition of output parameter *brstthr* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
3. *degthr* – Signal Degrade Threshold
 See definition of output parameter *degthr* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
4. *dexcthr* – Excessive Degrade Threshold
 See definition of output parameter *dexcthr* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
5. *exphptrc* – Expected Path Trace (J1)

- See definition of output parameter ***exphptrc*** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
6. feppm – Far-End Path PM Enable
See definition of output parameter ***feppm*** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
 7. hptimmon – Path Trace Monitoring Enable (J1)
See definition of output parameter ***hptimmon*** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
 8. neppm – Near-End Path PM Enable
See definition of output parameter ***neppm*** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
 9. pmhpfeses – Performance Monitoring Path Far-End SES Threshold
See definition of output parameter ***pmhpfeses*** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
 10. pmhpnases – Performance Monitoring Path Near-End SES Threshold
See definition of output parameter ***pmhpnases*** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
 11. ptrcrfmt – Path Trace Read Format (J1)
See definition of output parameter ***ptrcrfmt*** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
 12. sdsfmode – Signal Degrade/Signal Fail Mode
See definition of output parameter ***sdsfmode*** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
 13. tmonmd – Tributary Monitoring Mode
See definition of output parameter ***tmonmd*** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
 14. tribsdhpn – Tributary Alarm Severity Assignment Profile
See definition of output parameter ***tribsdhpn*** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).

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 for the RTRV-HDR command.

**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 shall allow to modify all attributes listed above as input spec-block parameters. The modification shall be reported by means of an ED-VC3 notification for tributary.

Update affected entities

There shall be no additional entities affected.

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 shall 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 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 and the Simple_STS1NumAID for that STS-12/VC4-4c group; i.e. the Simple_STS1NumAID field in the STS1NumAID is set to $\langle M \rangle \&\& - \langle N \rangle$

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.

Example input/output

```
ED-VC3:UNITE-NE:1-1-#-3-1-1:123456::tmonmd=MON,tribsdhpn=Default,degthr=-6,dexctr=-3,ptrcrfmt=1,ptca=Default0,neppm=ENABLE,pmhpneses=30,pmhpfses=30;
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,dexctr=-3,ptrcrfmt=1,ptca=Default0,neppm=ENABLE,pmhpneses=30,pmhpfses=30:"
;
```

Error responses

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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: 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 (2000) before a new PM monitor is enabled.

Error code: SSRE - Status, System Resources Exceeded, limit of PM monitors exceeded.

The updates of the parameters specified in the ED command request will take place in any arbitrary order. Since several monitor points can be enabled/disabled within one command, the ED command may fail

although from an overall perspective the maximal number is not crossed. An example would be if already 2000 monitors are enabled and the ED command would request that 1 monitor point is enabled and 1 monitor points is disabled. To avoid that, the disabling of PM points should be done in a seperate ED command before other PM monitors are enabled.

Related TL1 messages [“RTRV-STTS1: Retrieve STS1 tributary” \(5-301\)](#)

References GR-199-CORE (ED-*rr*)



ED-STS1: Edit STS1 tributary

The ED-STS1 command shall be 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. *aid* – Access Identifier
 See definition of output parameter *aid* in [“RTRV-STS1: Retrieve STS1 tributary” \(5-301\)](#).
3. *ctag* – Correlation Tag
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

Spec block parameters

1. *brstintvl* – Bursty Interval
 See definition of output parameter *brstintvl* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
2. *brstthr* – Bursty Error Threshold
 See definition of output parameter *brstthr* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
3. *degthr* – Signal Degrade Threshold
 See definition of output parameter *degthr* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
4. *dexcth* – Excessive Degrade Threshold
 See definition of output parameter *dexcth* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
5. *exphtpc* – Expected Path Trace (J1)

- See definition of output parameter **exphptrc** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
6. feppm – Far-End Path PM Enable
See definition of output parameter **feppm** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
 7. hptimmon – Path Trace Monitoring Enable (J1)
See definition of output parameter **hptimmon** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
 8. neppm – Near-End Path PM Enable
See definition of output parameter **neppm** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
 9. pmhpfeses – Performance Monitoring Path Far-End SES Threshold
See definition of output parameter **pmhpfeses** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
 10. pmhpneses – Performance Monitoring Path Near-End SES Threshold
See definition of output parameter **pmhpneses** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
 11. pse – PDI-P Switching Enable
See definition of output parameter **pse** in [“RTRV-ST51: Retrieve ST51 tributary” \(5-301\)](#).
 12. ptrcrfmt – Path Trace Read Format (J1)
See definition of output parameter **ptrcrfmt** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
 13. sdsfmode – Signal Degrade/Signal Fail Mode
See definition of output parameter **sdsfmode** in [“RTRV-ST51: Retrieve ST51 tributary” \(5-301\)](#).
 14. tmonmd – Tributary Monitoring Mode
See definition of output parameter **tmonmd** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
 15. tribsonetpn – Tributary Alarm Severity Assignment Profile
See definition of output parameter **tribsonetpn** in [“RTRV-ST51: Retrieve ST51 tributary” \(5-301\)](#).

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 for the RTRV-HDR command.

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 shall allow to modify all attributes listed above as input spec-block parameters. The modification shall be reported by means of an ED-STS1 notification for tributary.

Update affected entities

There shall be no additional entities affected.

Signal Degrade/Signal Fail Mode Provisioning

Refer to the Detailed Behavior of the [“ED-VC3: Edit VC3 tributary” \(5-308\)](#) command for details on Signal Degrade/Signal Fail Mode Provisioning for tributaries.

Example input/output

```
ED-STS1:UNITE-NE:1-1-#-#-3-1-1:123456::tmonmd=MON,tribsonetpn=Default,degthr=-
6,dexctr=-3,ptrcrfmt=1,ptca=Default0,neppm=ENABLE,pmhpeses=30,pmhpeses=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,dexctr=-3,ptrcrfmt=1,
ptca=Default0,neppm=ENABLE,pmhpeses=30,pmhpeses=30:"
;
```

Error responses Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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: 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 (2000) before a new PM monitor is enabled.

Error code: SSRE - Status, System Resources Exceeded, limit of PM monitors exceeded.

The updates of the parameters specified in the ED command request will take place in any arbitrary order. Since several monitor points can be enabled/disabled within one command, the ED command may fail although from an overall perspective the maximum number is not crossed. An example would be if already 2000 monitors are enabled and the ED command would request that one monitor point is enabled and one monitor point is disabled. To avoid that, the disabling of PM points should be done in a separate ED command before other PM monitors are enabled.

Related TL1 messages [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#)

References GR-199-CORE (ED-rr)



ED-VC3 notification

Output format The ED-VC3 notification shall use 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
See definition of output parameter *aid* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).

Spec block parameters

1. *brstintvl* – Bursty Interval
See definition of output parameter *brstintvl* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
2. *brstthr* – Bursty Error Threshold
See definition of output parameter *brstthr* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
3. *degthr* – Signal Degrade Threshold
See definition of output parameter *degthr* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
4. *crslpbkrate* – Crossconnect loopback Rate
See definition of output parameter *crslpbkrate* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
5. *crslpbkstat* – Crossconnect loopback Status
See definition of output parameter *crslpbkstat* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
6. *dexcthr* – Excessive Degrade Threshold
See definition of output parameter *dexcthr* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
7. *exphptrc* – Expected Path Trace (J1)
See definition of output parameter *exphptrc* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
8. *feppm* – Far-End Path PM Enable
See definition of output parameter *feppm* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
9. *hptimmon* – Path Trace Monitoring Enable (J1)

- See definition of output parameter **hptimmon** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
10. neppm – Near-End Path PM Enable
See definition of output parameter **neppm** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
 11. pmhpfeses – Performance Monitoring Path Far-End SES Threshold
See definition of output parameter **pmhpfeses** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
 12. pmhpnesees – Performance Monitoring Path Near-End SES Threshold
See definition of output parameter **pmhpnesees** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
 13. ptrcrfmt – Path Trace Read Format (J1)
See definition of output parameter **ptrcrfmt** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
 14. sdsfmode – Signal Degrade/Signal Fail Mode
See definition of output parameter **sdsfmode** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
 15. tmonmd – Tributary Monitoring Mode
See definition of output parameter **tmonmd** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
 16. tribsdhpn – Tributary Alarm Severity Assignment Profile
See definition of output parameter **tribsdhpn** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).

Example output

```
ED-VC3:UNITE-NE:1-1-#-3-1-1:123456:::tmonmd=MON,tribsdhpn=Default,degthr=-
6,dexctr=-3,ptrcrfmt=1,ptca=Default0,neppm=ENABLE,pmhpnesees=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,dexctr=-
3,ptrcrfmt=1,ptca=Default0,neppm=ENABLE,pmhpnesees=30,pmhpfeses=30:"
;
```



ENT-VC3 notification

Output format The ENT-VC3 notification shall use 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
See definition of output parameter *aid* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).

Spec block parameters

1. *brstintvl* – Bursty Interval
See definition of output parameter *brstintvl* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
2. *brstthr* – Bursty Error Threshold
See definition of output parameter *brstthr* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
3. *crslpbkstat* – Crossconnect loopback Status
See definition of output parameter *crslpbkstat* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
4. *degthr* – Signal Degrade Threshold
See definition of output parameter *degthr* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
5. *dexcth* – Excessive Degrade Threshold
See definition of output parameter *dexcth* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
6. *exphptrc* – Expected Path Trace (J1)
See definition of output parameter *exphptrc* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
7. *feppm* – Far-End Path PM Enable
See definition of output parameter *feppm* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
8. *hptimmon* – Path Trace Monitoring Enable (J1)
See definition of output parameter *hptimmon* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).

9. neppm – Near-End Path PM Enable
See definition of output parameter **neppm** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
10. pmhpfeses – Performance Monitoring Path Far-End SES Threshold
See definition of output parameter **pmhpfeses** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
11. pmhpneses – Performance Monitoring Path Near-End SES Threshold
See definition of output parameter **pmhpneses** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
12. ptrcrfmt – Path Trace Read Format (J1)
See definition of output parameter **ptrcrfmt** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
13. sdsfmode – Signal Degrade/Signal Fail Mode
See definition of output parameter **sdsfmode** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
14. tmonmd – Tributary Monitoring Mode
See definition of output parameter **tmonmd** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
15. tribsdhpn – Tributary Alarm Severity Assignment Profile
See definition of output parameter **tribsdhpn** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).

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"
:
```



DLT-VC3 notification

Output format The DLT-VC3 notification shall use the general format of a REPT DBCHG Report Database Change notification.

Syntax: DLT-VC3:*aid*

Output parameters

Command parameters

1. *aid* – Access Identifier
See definition of output parameter *aid* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).

Example output

```
UNITE-NE 00-11-20 8:01:03
^ 612 REPT DBCHG
  "Time=8-00-30,DATE=00-11-20:DLT-VC3:1-1-#-#-4-1-1&&-768"
}
```



ED-STS1 notification

Output format The ED-STS1 notification shall use 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
See definition of output parameter *aid* in [“RTRV-STS1: Retrieve STS1 tributary” \(5-301\)](#).

Spec block parameters

1. *brstintvl* – Bursty Interval
See definition of output parameter *brstintvl* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
2. *brstthr* – Bursty Error Threshold
See definition of output parameter *brstthr* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
3. *crslpbkrate* – Crossconnect loopback Rate
See definition of output parameter *crslpbkrate* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
4. *crslpbkstat* – Crossconnect loopback Status
See definition of output parameter *crslpbkstat* in [“RTRV-STS1: Retrieve STS1 tributary” \(5-301\)](#).
5. *degthr* – Signal Degrade Threshold
See definition of output parameter *degthr* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
6. *dexcthr* – Excessive Degrade Threshold
See definition of output parameter *dexcthr* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
7. *exphptrc* – Expected Path Trace (J1)
See definition of output parameter *exphptrc* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
8. *feppm* – Far-End Path PM Enable
See definition of output parameter *feppm* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).

9. hptimmon – Path Trace Monitoring Enable (J1)
See definition of output parameter **hptimmon** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
10. neppm – Near-End Path PM Enable
See definition of output parameter **neppm** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
11. pmhpfeses – Performance Monitoring Path Far-End SES Threshold
See definition of output parameter **pmhpfeses** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
12. pmhpnese – Performance Monitoring Path Near-End SES Threshold
See definition of output parameter **pmhpnese** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
13. pse – PDI-P Switching Enable
See definition of output parameter **pse** in [“RTRV-STS1: Retrieve STS1 tributary” \(5-301\)](#).
14. ptrcrfmt – Path Trace Read Format (J1)
See definition of output parameter **ptrcrfmt** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
15. sdsfmode – Signal Degrade/Signal Fail Mode
See definition of output parameter **sdsfmode** in [“RTRV-STS1: Retrieve STS1 tributary” \(5-301\)](#).
16. tmonmd – Tributary Monitoring Mode
See definition of output parameter **tmonmd** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
17. tribsonetpn – Tributary Alarm Severity Assignment Profile
See definition of output parameter **tribsonetpn** in [“RTRV-STS1: Retrieve STS1 tributary” \(5-301\)](#).

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:"
;
```



ENT-STS1 notification

Output format The ENT-STS1 notification shall use 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
See definition of output parameter *aid* in [“RTRV-STS1: Retrieve STS1 tributary” \(5-301\)](#).

Spec block parameters

1. brstintvl – Bursty Interval
See definition of output parameter *brstintvl* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
2. brstthr – Bursty Error Threshold
See definition of output parameter *brstthr* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
3. crslpbkstat – Crossconnect loopback Status
See definition of output parameter *crslpbkstat* in [“RTRV-STS1: Retrieve STS1 tributary” \(5-301\)](#).
4. degthr – Signal Degrade Threshold
See definition of output parameter *degthr* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
5. dexcthr – Excessive Degrade Threshold
See definition of output parameter *dexcthr* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
6. exphptrc – Expected Path Trace (J1)
See definition of output parameter *exphptrc* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
7. feppm – Far-End Path PM Enable
See definition of output parameter *feppm* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
8. hptimmon – Path Trace Monitoring Enable (J1)
See definition of output parameter *hptimmon* in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).

9. neppm – Near-End Path PM Enable
See definition of output parameter **neppm** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
10. pmhpfeses – Performance Monitoring Path Far-End SES Threshold
See definition of output parameter **pmhpfeses** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
11. pmhpnesees – Performance Monitoring Path Near-End SES Threshold
See definition of output parameter **pmhpnesees** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
12. pse – PDI-P Switching Enable
See definition of output parameter **pse** in [“RTRV-STS1: Retrieve STS1 tributary” \(5-301\)](#).
13. ptrcrfmt – Path Trace Read Format (J1)
See definition of output parameter **ptrcrfmt** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
14. sdsfmode – Signal Degrade/Signal Fail Mode
See definition of output parameter **sdsfmode** in [“RTRV-STS1: Retrieve STS1 tributary” \(5-301\)](#).
15. tmonmd – Tributary Monitoring Mode
See definition of output parameter **tmonmd** in [“RTRV-VC3: Retrieve VC3 tributary” \(5-295\)](#).
16. tribsonetpn – Tributary Alarm Severity Assignment Profile
See definition of output parameter **tribsonetpn** in [“RTRV-STS1: Retrieve STS1 tributary” \(5-301\)](#).

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,...,pmhpnesees=30,pmhpfeses=30"
;
```



DLT-STS1 notification

Output format The DLT-STS1 notification shall use the general format of a REPT DBCHG Report Database Change notification.

Syntax DLT-STS1:*aid*

Output parameters

Command parameters

1. *aid* – Access Identifier
See definition of output parameter *aid* in [“RTRV-STS1: Retrieve STS1 tributary” \(5-301\)](#).

Example output

```
UNITE-NE 00-11-20 8:01:03
612 REPT DBCHG
"Time=8-00-30,DATE=00-11-20:DLT-STS1:1-1-#-#-4-1-1&&-768"
;
```





6 Fault management

Overview

Purpose This section contains the TL1 interface definition for the domain “fault management”.

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Introduction

Overview

Purpose This section presents general information necessary to understand the subsequent sections.

Contents

Alarms, events, ASAPs	6-4
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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 network element. 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 CR, MJ, or MN – will be reported via REPT ALM and can be retrieved via RTRV-ALM. Events/Alarms (conditions) with severity NA – 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 network element supports the severities CR – Critical (ITU / Telcordia), MJ – Major (ITU / Telcordia), MN – Minor (ITU / Telcordia) NA – Warning (ITU) / Not-Alerted (Telcordia), NR – Non-Alerted (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 network element, 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 network element 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 network element 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

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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” \(5-6\)](#).
2. ctag – Correlation Tag
 See definition of [“RTRV-HDR: Retrieve header” \(5-6\)](#).
3. pftype – Profile Type
 Description: This indicates the type of the ASAP (ASAP type).
 Type: alphanumeric value set A '-' is also allowed vor the values
 Range:
 - DCN: Data Communications Network
 - ENET: Ethernet
 - 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.

4. **pfname** – Profile Name

Description: This indicates the name of the ASAP.

If **pfname** is omitted, then all profile names of type **pftype** will be returned.

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

Default: none

For predefined ASAPs is the value of ***pfname*** "DEFAULT", but it is no default name in general.

Output format Normal completion response if ***pfname*** is not specified.

The following example shows the successful completion of the RTRV-ASAP-PROF command by the network element if the ***pfname*** parameter is omitted:

```
M    sid date time
      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 network element if the ***pfname*** parameter is specified:

```
M    sid date time
      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 for the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command.

Output parameters

Command parameters

1. pftype – Profile Type
See definition of Input parameters of [“RTRV-ASAP-PROF: Retrieve ASAP profile” \(6-8\)](#).
2. pfname – ASAP Profile Name
See definition of Input parameters of [“RTRV-ASAP-PROF: Retrieve ASAP profile” \(6-8\)](#).

Spec block parameters

1. Alarm Severity Profile parameters
Description: 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 than 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.
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

For any specific Profile Type (*pftype*), each applicable specification block parameter will be reported.

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 network element 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 network element 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 are also valid for this command.

RTRV-ASAP-PROF: Retrieve ASAP profile

Related TL1 messages

- [“ED-ASAP-PROF: Edit alarm severity assignment profile” \(6-16\)](#)
- [“ENT-ASAP-PROF: Enter alarm severity assignment profile” \(6-13\)](#)



ENT-ASAP-PROF: Enter alarm severity assignment profile

The ENT-ASAP-PROF command is used to create a new Alarm Severity Assignment Profile (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” \(5-6\)](#).
2. ctag – Correlation Tag
See definition of [“RTRV-HDR: Retrieve header” \(5-6\)](#).
3. pftype – Profile Type
See definition of Input parameters of [“RTRV-ASAP-PROF: Retrieve ASAP profile” \(6-8\)](#).
4. pfname – Profile Name
See definition of Input parameters of [“RTRV-ASAP-PROF: Retrieve ASAP profile” \(6-8\)](#).

Spec block parameters

none

Output format Normal completion response of ENT-ASAP-PROF

The following example shows the successful completion of the ENT-ASAP-PROF command by the network element:

```

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**

This command shall create a new ASAP of ASAP type *pf*type and Profile Name *pf*name. All ASAP parameters defined for the specific *pf*type will have default values; i.e. the values shall be derived from the actual values of the default ASAP (with name 'DEFAULT'). The maximum total number of ASAPs in a Network Element includes the predefined "DEFAULT" ASAPs. (Note: The maximum number of ASAPs is defined per system not per *pf*type.)

The modification shall be 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 network element:

```
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” \(5-6\)](#) command Error responses section. The error responses listed there apply to the ENT-ASAP-PROF command.

Validation rule: Duplicate pfname

The *pf*name is already used for the specified *pf*type.

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

- [“ED-ASAP-PROF: Edit alarm severity assignment profile” \(6-16\)](#)
- [“RTRV-ASAP-PROF: Retrieve ASAP profile” \(6-8\)](#)



ENT-ASAP-PROF notification

Output format See definition of [“REPT DBCHG: Report data base change” \(5-54\)](#).

Syntax: The ENT-ASAP-PROF notification will have following specific syntax:

ENT-ASAP-PROF::*pftype,pfname:spec_block*

Output parameters

Command parameters

1. pftype – Profile Type
See definition of Input parameters of [“RTRV-ASAP-PROF: Retrieve ASAP profile” \(6-8\)](#).
2. pfname – Profile Name
See definition of Input parameters of [“RTRV-ASAP-PROF: Retrieve ASAP profile” \(6-8\)](#).

Spec block parameters

1. Alarm Severity Profile parameters
see definition of Alarm Severity Profile parameters of [“RTRV-ASAP-PROF: Retrieve ASAP profile” \(6-8\)](#).

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,ns
a_vcg_ssf=MN,sa_vcg_plm=MN,nsa_vcg_plm=NA,sa_gfp_lof=CR,nsa_
gfp_lof=MJ,sa_lan_lof=CR,nsa_lan_lof=MJ,sa_lan_anm=MN,nsa_la
n_anm=NA
;
```



ED-ASAP-PROF: Edit alarm severity assignment profile

The ED-ASAP-PROF command is used to change the name or parameter values for an Alarm Severity Assignment Profile (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” \(5-6\)](#).
2. ctag – Correlation Tag
 See definition of [“RTRV-HDR: Retrieve header” \(5-6\)](#).
3. pftype – Profile Type
 See definition of Input parameters of [“RTRV-ASAP-PROF: Retrieve ASAP profile” \(6-8\)](#).
4. pfname – Profile Name
 See definition of Input parameters of [“RTRV-ASAP-PROF: Retrieve ASAP profile” \(6-8\)](#).

Spec block parameters

1. newname – New Profile Name
 Description: 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 section of [“RTRV-ASAP-PROF: Retrieve ASAP profile” \(6-8\)](#).
2. Alarm Severity Profile parameters
 see definition of Alarm Severity Profile parameters of [“RTRV-ASAP-PROF: Retrieve ASAP profile” \(6-8\)](#).

Output format Normal completion response of successful session termination

The following example shows the successful completion of the ED-ASAP-PROF command by the network element:

```
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

Behavior

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 shall be reported via the ED-ASAP-PROF notification.

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 network element 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 network element 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 network element 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” \(5-6\)](#) command Error responses section. The error responses listed there apply to the ED-ASAP-PROF command.

Validation rule: Invalid pftype

The *pftype* has not one of the defined values..

Error Code

IDNV – Input, Data Not Valid, invalid profile type

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 parameter does not exist

An ASAP parameter does not exist for the specified *pftype*.

Error Code

SDNC – Status, Data Not Consistent, invalid ASAP parameter.

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

- [“ENT-ASAP-PROF: Enter alarm severity assignment profile” \(6-13\)](#)
- [“RTRV-ASAP-PROF: Retrieve ASAP profile” \(6-8\)](#)



ED-ASAP-PROF notification

Output format See definition of [“REPT DBCHG: Report data base change” \(5-54\)](#).

Syntax: The ED-ASAP-PROF notification will have following specific syntax:

ED-ASAP-PROF::*pftype,pfname:spec_bloc*

Output parameters

Command parameters

1. pftype – Profile Type
See definition of Input parameters of [“RTRV-ASAP-PROF: Retrieve ASAP profile” \(6-8\)](#).
2. pfname – Profile Name
Description ED-ASAP-PROF notification
This is the profile name. It is the previous profile name in case the profile name was changed with **newname**.
See definition of Input parameters of [“RTRV-ASAP-PROF: Retrieve ASAP profile” \(6-8\)](#).

Spec block parameters

1. newname – New Profile Name
See definition of [“ED-ASAP-PROF: Edit alarm severity assignment profile” \(6-16\)](#).
2. Alarm Severity Profile parameters
See definition of [“ED-ASAP-PROF: Edit alarm severity assignment profile” \(6-16\)](#).

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_lo
a=MN,sa_vcg_ssf=MJ,nsa_vcg_ssf=MN
;
```



Alarms

Overview

Purpose This section comprises messages to handle alarms.

Contents

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RTRV-COND: Retrieve condition	6-31
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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 network element.

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
Description: The 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.
Default: ALL
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” \(5-6\)](#).
3. *ctag* – Correlation Tag
See definition of [“RTRV-HDR: Retrieve header” \(5-6\)](#).
4. *ntfcncde* – notification Code
Description: This is the alarm severity (alarm level) for which the current alarms are requested.
Type: alphanumeric value set

RTRV-ALM: Retrieve alarm

Range: ALL

Requests all alarms

Default: ALL

ntfcncde can be omitted. In this case ALL will be set implicit.

5. **condtype** – Condition Type

Description: This parameter identifies the type of alarm indication being reported.

Type: alphanumeric value set

Range: ALL

Requests all alarms

Default: ALL

condtype can be omitted. In this case ALL will be set implicit.

6. **srveff** – Service Effect

Description: This parameter identifies the service affect of alarms being reported.

Type: alphanumeric value set

Range: ALL

Requests all alarms

Default: ALL

srveff can be omitted. In this case ALL will be set implicit.

Spec block parameters

none

Output format

Normal completion response of successful session termination

The following example shows the successful completion of the RTRV-ALM command by the network element:

```

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.

RTRV-ALM: Retrieve alarm

Applicable output lines are ordered by the value of occurrence date (**ocrdat**) and occurrence time (**ocrtm**), with the most recent alarm listed first.

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
Description: 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
Description: Defines the AID type to which the alarm belongs.
Type: alphanumeric value set
Range:
 - COM: Common. An alarm/event that applies to the whole network element 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.
 - STM16: A facility-related alarm/event for 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.
 - OC48: A facility-related alarm/event at the 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.

RTRV-ALM: Retrieve alarm

- 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.

Refer to Alarm, Event, ASAP Tables for the relation of alarm / entity / *aidtype*.

3. conddescr – Description Of The Condition

Description: 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” \(6-49\)](#).

Default: There is no default value.

4. **condtype** – Condition Type
Description: This parameter identifies the probable cause (type of alarm indication) being reported.
Type: alphanumeric value set
Range: All defined probable causes..
For the values range of **condtype** refer to [“Alarm, event, ASAP tables” \(6-49\)](#).
Default: There is no default value.
5. **ntfcncde** – notification Code
Description: 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: ClearedDefault: There is no default value.
6. **srveff** – Service Effect
Description: 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 conditionDefault: There is no default value.
7. **ocrdat** – Occurrence Date
Description: This 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.
Default: There is no default value.
8. **ocrtm** – Occurrence Time

RTRV-ALM: Retrieve alarm

Description: This 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.

Default: There is no default value.

Spec block parameters

none

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 network element if no *modifier* is specified and all alarms will be retrieved for the whole network element:

RTRV-ALM: Retrieve alarm

The following example shows the successful completion of the RTRV-ALM command by the network element 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 network element if no alarms are raised on the network element:

```
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” \(5-6\)](#) command Error responses section. The error responses listed there apply to the RTRV-ALM command.

Related TL1 messages

- [“ALW-MSG: Allow message” \(5-31\)](#)
- [“ENT-ASAP-PROF: Enter alarm severity assignment profile” \(6-13\)](#)
- [“ED-ASAP-PROF: Edit alarm severity assignment profile” \(6-16\)](#)
- [“RTRV-ASAP-PROF: Retrieve ASAP profile” \(6-8\)](#)
- [“INH-MSG: Inhibit message” \(5-29\)](#)
- [“REPT ALM: Report alarm” \(6-37\)](#)
- [“REPT EVT: Report event” \(6-40\)](#)
- [“RTRV-COND: Retrieve condition” \(6-31\)](#)
- [“RTRV-HDR: Retrieve header” \(5-6\)](#)

RTRV-ALM: Retrieve alarm

References GR-833-CORE, Issue 4, June 2000, OTGR Section 12.3, Network
Maintenance: Network Element and Transport Surveillance Messages



RTRV-COND: Retrieve condition

RTRV-COND command messages can be initiated by the user to retrieve all active alarms of level NA.

Properties Login Privilege: User Privilege Code (UCFC/UCAL): M1
Priority: 1
Abortable: Yes

Input format Command Syntax: RTRV-COND[-*modifier*]:*tid*::*ctag*::[*condtype*],,,;
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
Description: The 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.
Default: ALL
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” \(5-6\)](#).
3. *ctag* – Correlation Tag
See definition of [“RTRV-HDR: Retrieve header” \(5-6\)](#).
4. *condtype* – Condition Type
See definition of *condtype* in the Input parameters section of [“RTRV-ALM: Retrieve alarm” \(6-23\)](#) command.

Spec block parameters

none

RTRV-COND: Retrieve condition

Output format Normal completion response of successful session termination

The following example shows the successful completion of the RTRV-COND command by the network element:

```

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.

Applicable output lines are ordered by the value of occurrence date (**ocrdat**) and occurrence time (**ocrtm**), with the most recent alarm listed first.

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

aid – Access Identifier

Description: 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.

Command parameters

1. aidtype – Access Identifier Type

Description: Defines the AID type to which the alarm belongs.

Type: alphanumeric value set

Range:

- COM: Common. An alarm/event that applies to the whole network element 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.

RTRV-COND: Retrieve condition

- STM16: A facility-related alarm/event for 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.
- OC48: A facility-related alarm/event at the 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.

2. conddescr – Description Of The Condition

RTRV-COND: Retrieve condition

See definition of **conddescr** in the Output parameters section of [“RTRV-ALM: Retrieve alarm” \(6-23\)](#).

3. **condtype** – Condition Type
See definition of **condtype** in the Output parameters section of [“RTRV-ALM: Retrieve alarm” \(6-23\)](#).
4. **ntfcncde** – notification Code
Description: This is the alarm level (severity).
Type: alphanumeric value set
Range:
NA: Warning (ITU) / Not-Alarmed (Telcordia)
Default: There is no default value.
5. **ocrdat** – Occurrence Date
See definition of **ocrdat** in the Output parameters section of [“RTRV-ALM: Retrieve alarm” \(6-23\)](#).
6. **ocrtm** – Occurrence Time
See definition of **ocrtm** in the Output parameters section of [“RTRV-ALM: Retrieve alarm” \(6-23\)](#).
7. **srveff** – Service Affect
Description: This parameter identifies the service affect of alarms being reported.
Type: alphanumeric value set
Range:
 - SA: Service affecting
 - NSA: Non service affecting
 Default: There is no default value.

Spec block parameters

none

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 network element.

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).

RTRV-COND: Retrieve condition

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.

Example input/output

The following example shows the successful completion of the RTRV-COND command by the network element.

```
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 network element 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 network element 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
;
```

RTRV-COND: Retrieve condition

Error responses Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there apply to the RTRV-ALM command.

Related TL1 messages

- [“ALW-MSG: Allow message” \(5-31\)](#)
- [“ENT-ASAP-PROF: Enter alarm severity assignment profile” \(6-13\)](#)
- [“ED-ASAP-PROF: Edit alarm severity assignment profile” \(6-16\)](#)
- [“RTRV-ASAP-PROF: Retrieve ASAP profile” \(6-8\)](#)
- [“INH-MSG: Inhibit message” \(5-29\)](#)
- [“REPT ALM: Report alarm” \(6-37\)](#)
- [“REPT EVT: Report event” \(6-40\)](#)
- [“RTRV-ALM: Retrieve alarm” \(6-23\)](#)
- [“RTRV-HDR: Retrieve header” \(5-6\)](#)

References GR-833-CORE, Issue 4, June 2000, OTGR Section 12.3, Network Maintenance: Network Element and Transport Surveillance Messages



REPT ALM: Report alarm

REPT ALM messages are generated autonomously by the network element 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
 Description: 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.
 Default: none
2. atag – Automatic Tag
 Description: The atag is used for message sequencing. The number is incremented by one for each autonomous message sent by the network element.
 Type: integer (3 digits)
 Range: 000 – 999 Leading zeros are not suppressed.
 Default: none

3. modifier – Message modifier
Refer to the definition of the **aidtype** parameter in the [“RTRV-ALM: Retrieve alarm” \(6-23\)](#) command.
4. aid – Access Identifier
Refer to the definition of the **aid** parameter in the Output parameters section of the [“RTRV-ALM: Retrieve alarm” \(6-23\)](#) command.
5. ntfncnclde – notification Code
Description: 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: ClearedDefault: There is no default value.
6. condtype – Condition Type
Refer to the definition of the **condtype** parameter in the Output parameters section of the [“RTRV-ALM: Retrieve alarm” \(6-23\)](#) command.
7. srveff – Service Effect
Refer to the definition of the **srveff** parameter in the Output parameters section of the [“RTRV-ALM: Retrieve alarm” \(6-23\)](#) command.
8. ocrdat – Occurrence Date
Refer to the definition of the **ocrdat** parameter in the Output parameters section of the [“RTRV-ALM: Retrieve alarm” \(6-23\)](#) command.
9. ocrtm – Occurrence Time
Refer to the definition of the **ocrtm** parameter in the Output parameters section of the [“RTRV-ALM: Retrieve alarm” \(6-23\)](#) command.
10. conddescr – Description of the Condition
Refer to the definition of the **conddescr** parameter in the Output parameters section of the [“RTRV-ALM: Retrieve alarm” \(6-23\)](#) command.

REPT ALM: Report alarm

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” \(5-31\)](#)
- [“ED-ASAP-PROF: Edit alarm severity assignment profile” \(6-16\)](#)
- [“INH-MSG: Inhibit message” \(5-29\)](#)
- [“REPT EVT: Report event” \(6-40\)](#)
- [“RTRV-ALM: Retrieve alarm” \(6-23\)](#)
- [“RTRV-COND: Retrieve condition” \(6-31\)](#)

References

GR-833-CORE, Issue 4, June 2000, OTGR Section 12.3, Network Maintenance: Network Element and Transport Surveillance Messages



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 even if the optional parameter is not supported for a dedicated release.

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 for the RTRV-HDR command.

Output parameters

Command parameters

1. atag – Automatic Tag
Refer to the [“REPT ALM: Report alarm” \(6-37\)](#) message.
2. modifier – Message Modifier
Refer to the definition of the *aidtype* parameter in the [“RTRV-COND: Retrieve condition” \(6-31\)](#) command.
3. aid – Access Identifier
Refer to the definition of the *aid* parameter in the Output parameters section of the [“RTRV-ALM: Retrieve alarm” \(6-23\)](#) command.

4. condeff – Condition Effect

Description: This indicates the effect of the reported event on the network element. It shall be 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.

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

Refer to the definition of the **conddescr** parameter in the Output parameters section of the [“RTRV-ALM: Retrieve alarm” \(6-23\)](#) command.

6. condtype – Condition Type

Refer to the definition of the **condtype** parameter in the Output parameters section of the [“RTRV-ALM: Retrieve alarm” \(6-23\)](#) command.

7. ocrdat – Occurrence Date

Refer to the definition of the **ocrdat** parameter in the Output parameters section of the [“RTRV-ALM: Retrieve alarm” \(6-23\)](#) command.

8. ocrtm – Occurrence Time

Refer to the definition of the **ocrtm** parameter in the Output parameters section of the [“RTRV-ALM: Retrieve alarm” \(6-23\)](#) command.

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.

REPT EVT: Report event

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.

Protection switching messages are provided to the OS using the REPT EVT TL1 message.

The REPT EVT message reports updates of the protection states.

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” \(5-31\)](#)
- [“ED-ASAP-PROF: Edit alarm severity assignment profile” \(6-16\)](#)
- [“INH-MSG: Inhibit message” \(5-29\)](#)
- [“REPT ALM: Report alarm” \(6-37\)](#)
- [“RTRV-COND: Retrieve condition” \(6-31\)](#)

REPT EVT: Report event

References GR-833-CORE, Issue 4, June 2000, OTGR Section 12.3, Network
Maintenance: Network Element and Transport Surveillance Messages



Alarm log

Overview

Purpose This section comprises messages to handle alarm logs.

Contents

RTRV-LOG-ALM: Retrieve log alarm	6-45



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” \(5-6\)](#).
2. *ctag* – Correlation Tag
See definition of [“RTRV-HDR: Retrieve header” \(5-6\)](#).
3. *startdate* – Start Date
Description: 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
Description: 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
Description: Defines the kind of log retrieving.

RTRV-LOG-ALM: Retrieve log alarm

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.

DBSYNC Management system. 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.

Default: BROWSE If the parameter is omitted.

Spec block parameters

none

Output format Normal completion response of successful session termination

The following example shows the successful completion of the RTRV-LOG-ALM command by the network element:

```

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 for the RTRV-HDR command.

Output parameters

Command parameters

1. **aid** – Access Identifier
Refer to the definition of the **aid** parameter in the Output parameters section of the [“RTRV-ALM: Retrieve alarm” \(6-23\)](#) command.
2. **aidtype** – Access Identifier Type

Refer to the definition of the ***aidtype*** parameter in the [“RTRV-COND: Retrieve condition” \(6-31\)](#) command.

3. ntfncde – notification Code
Description: 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: ClearedDefault: There is no default value.
4. condtype – Condition Type
Refer to the definition of the ***condtype*** parameter in the Output parameters section of the [“RTRV-ALM: Retrieve alarm” \(6-23\)](#) command.
5. srveff – Service Effect
Refer to the definition of the ***srveff*** parameter in the Output parameters section of the [“RTRV-ALM: Retrieve alarm” \(6-23\)](#) command.
6. ocrdat – Occurrence Date
Refer to the definition of the ***ocrdat*** parameter in the Output parameters section of the [“RTRV-ALM: Retrieve alarm” \(6-23\)](#) command.
7. ocrtm – Occurrence Time
Refer to the definition of the ***ocrtm*** parameter in the Output parameters section of the [“RTRV-ALM: Retrieve alarm” \(6-23\)](#) command.
8. conddescr – Description of the Condition
Refer to the definition of the ***conddescr*** parameter in the Output parameters section of the [“RTRV-ALM: Retrieve alarm” \(6-23\)](#) command.

Spec block parameters

none

RTRV-LOG-ALM: Retrieve log alarm

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. It is a circular buffer.

TCAs are not stored within the alarm log.

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 network element:

```
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” \(5-6\)](#) command Error responses section. The error responses listed there apply to the RTRV-LOG-ALM command.

Validation rule: no matching log entry

There shall be 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

- [“RTRV-ALM: Retrieve alarm” \(6-23\)](#)
- [“RTRV-LOG-NTFCN: Retrieve notification Log” \(5-50\)](#)

References

GR-833-CORE, Issue 4, June 2000, OTGR Section 12.3, Network Maintenance: Network Element and Transport Surveillance Messages



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 **conddescr**. 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.

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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
Description:

condtype: PROVINVAL sa/nsa: nsa
conddescr: Communication-DCN, DCN, DCN Provisioning Not Valid
ASAP parameter: provinval default severity: MJ
Description:

condtype: ADDROV sa/nsa: nsa
conddescr: Communication-DCN, DCN, Address List Overflow
ASAP parameter: addrov default severity: MJ
Description:

condtype: TUNOV sa/nsa: nsa
conddescr: Communication-DCN, DCN, Tunnels Overflow
ASAP parameter: tunov default severity: MJ
Description:



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
Description:

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
Description:

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
Description:

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 Description:
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 Description:
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 Description:
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

Description:

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

Description:

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

Description:



ASAP Type EQUIP-PROT

Properties of all alarms

modifier/aidtype: EQPT

Alarm duration: persistent

Refer to the *nvmmname* parameter in the Output parameters section of the [“RTRV-EQPT \(slot\): Retrieve Equipment \(slot\)” \(5-82\)](#) command for values of *cpname* as part of *conddescr*.

Refer to the *nvmmqual* parameter in the Output parameters section of the [“RTRV-EQPT \(slot\): Retrieve Equipment \(slot\)” \(5-82\)](#) 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

Description:

condtype: CPTMP

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

Description:

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

Description:

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 Description:
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 Description:
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: ShelfAID Description:
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: ShelfAID

Description:



ASAP Type EQUIP-UNPROT

Properties of all alarms	modifier/aidtype: EQPT Alarm duration: persistent Refer to the <i>nvmname</i> parameter in the Output parameters section of the “RTRV-EQPT (slot): Retrieve Equipment (slot)” (5-82) command for values of <i>cpname</i> as part of <i>conddescr</i>. Refer to the <i>nvmqual</i> parameter in the Output parameters section of the “RTRV-EQPT (slot): Retrieve Equipment (slot)” (5-82) command for values of <i>cpqual</i> as part of <i>conddescr</i>.
condtype: CSDWF	sa/nsa: nsa conddescr: Equipment, {cpname}/{cpqual}, Worker Clock Input Fail ASAP parameter: nsa_csdwf default severity: MN AID: CpAID Description:
condtype: CSDPF	sa/nsa: nsa conddescr: Equipment, {cpname}/{cpqual}, Protection Clock Input Fail ASAP parameter: nsa_csdpf default severity: MN AID: CpAID Description:
condtype: SYNCCLK	sa/nsa: sa conddescr: Equipment, system, NE Clock Failure ASAP parameter: sa_syncclk default severity: CR AID: SystemAID Description:
condtype: CPDEGR	sa/nsa: nsa conddescr: Equipment, {cpname}/{cpqual}, Unit Cooling Degraded ASAP parameter: nsa_cpdegr default severity: MN

AID: CpAID

Description:

condtype: CPCOMF

sa/nsa: nsa

conddescr: Equipment, {cpname}/{cpqual}, Circuit Pack Comm Failure

ASAP parameter: nsa_cpcomf default severity: MN

AID: CpAID

Description:

condtype: ONIF

sa/nsa: nsa

conddescr: Equipment, {cpname}/{cpqual}, ONI Failure

ASAP parameter: nsa_onif default severity: MN

AID: CpAID

Description:

condtype: BPEF

sa/nsa: sa

conddescr: Equipment, shelf, Backplane Read Failure

ASAP parameter: sa_bpef default severity: MJ

AID: ShelfAID

Description:

condtype: PROCROVLD

sa/nsa: nsa

conddescr: Processing Error, {cpname}/{cpqual}, Resource Overload

ASAP parameter: nsa_procrovld default severity: MN

AID: CpAID

Description:

condtype: SYSCOMF

sa/nsa: sa

conddescr: Equipment, system, Comm Channel Failure

ASAP parameter: sa_syscomf default severity: MJ

AID: SystemAID

Description:

condtype: CTLCOMF

sa/nsa: nsa

conddescr: Equipment, {cpname}/{cpqual}, CTL Comm Failure

ASAP parameter: nsa_ctlcomf default severity: MN

AID: CpAID

Description:

condtype: BKUPMEMF

sa/nsa: nsa

conddescr: Equipment, {cpname}/{cpqual}, IDE Flash Card Access Fail

ASAP parameter: nsa_bkupmemp default severity: MJ

AID: CpAID

Description:

condtype: BKUPMEMO

sa/nsa: nsa

conddescr: Processing Error, {cpname}/{cpqual}, NVM Shortage

ASAP parameter: nsa_bkupmemo default severity: MN

AID: CpAID

Description:

condtype: CIPWRDWN

sa/nsa: nsa

conddescr: Equipment, {cpname}/{cpqual}, CICTL Powered Down

ASAP parameter: nsa_cipwrdown default severity: MN

AID: CpAID

Description:

condtype: TIMM

sa/nsa: nsa

conddescr: Equipment, {cpname}/{cpqual}, TI Mismatch

ASAP parameter: nsa_timm default severity: MN

AID: CpAID

Description:

condtype: CIMISS sa/nsa: nsa
conddescr: Equipment, shelf, CICTL not Present
ASAP parameter: nsa_cimiss default severity: MN
AID: ShelfAID
Description:

condtype: CIF sa/nsa: nsa
conddescr: Equipment, ci-ctl, CICTL Failure
ASAP parameter: nsa_cif default severity: MN
AID: CiCtlAID
Description:

condtype: CICOMF sa/nsa: nsa
conddescr: Equipment, ci-ctl, CICTL Comm Failure
ASAP parameter: nsa_cicomf default severity: MN
AID: CiCtlAID
Description:

condtype: FANUNITMISS sa/nsa: sa
conddescr: Equipment, shelf, Fan Unit not Present
ASAP parameter: sa_fanunitmiss default severity: CR
AID: ShelfAID
Description:

condtype: FANUNITCOMF sa/nsa: nsa
conddescr: Equipment, fan, Fan Unit Comm Failure
ASAP parameter: nsa_fanunitcomf default severity: MN
AID: FanAID
Description:

condtype: FANUNITF sa/nsa: sa
conddescr: Equipment, fan, Fan Unit Failure

ASAP parameter: sa_fanunitf default severity: CR

AID: FanAID

Description:

condtype: FANF

sa/nsa: sa

conddescr: Equipment, fan, Fan Failure

ASAP parameter: sa_fanf default severity: MJ

AID: FanAID

Description:

condtype: FEEDAF

sa/nsa: nsa

conddescr: Equipment, fan, Fan Voltage Feed A Failure

ASAP parameter: nsa_feedaf default severity: MN

AID: FanAID

Description:

condtype: FEEDBF

sa/nsa: nsa

conddescr: Equipment, fan, Fan Voltage Feed B Failure

ASAP parameter: nsa_feedbf default severity: MN

AID: FanAID

Description:

condtype: UPMISS

sa/nsa: nsa

conddescr: Equipment, shelf, User Panel not Present

ASAP parameter: nsa_upmiss default severity: MN

AID: ShelfAID

Description:

condtype: UPCOMF

sa/nsa: nsa

conddescr: Equipment, user panel, User Panel Comm Failure

ASAP parameter: nsa_upcomf default severity: MN

AID: UserPanelAID

Description:



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) Description:
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) Description:
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) Description:
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) Description:
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

Description:

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)

Description:

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

Description:

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

Description:

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

Description:

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
Description:

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
Description:

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
Description:

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
Description:

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)

Description:



ASAP Type MSP-APS

Properties of all alarms	modifier/aidtype: OC48, OC192, OC768, STM16, STM64, STM256 AID: OnePlusOne_PrtGrpAID Alarm duration: persistent
condtype: PAMARCH	sa/nsa: nsa conddescr: Communication-Transport, 1+1 MSP-APS prot group, Prot. Arch. Mismatch ASAP parameter: pamarch default severity: MJ Description:
condtype: PAMOPER	sa/nsa: nsa conddescr: Communication-Transport, 1+1 MSP-APS prot group, Prot. Arch. Operation Mismatch ASAP parameter: pamoper default severity: MJ Description:
condtype: PAMMODE	sa/nsa: nsa conddescr: Communication-Transport, 1+1 MSP-APS prot group, Prot. Arch. Mode Mismatch ASAP parameter: pammode default severity: MJ Description:
condtype: PSBUNACC	sa/nsa: nsa conddescr: Communication-Transport, 1+1 MSP-APS prot group, Prot. Switch Byte Unacceptable ASAP parameter: psbunacc default severity: MJ Description:
condtype: PSBINAPPR	sa/nsa: nsa conddescr: Communication-Transport, 1+1 MSP-APS prot group, Prot. Switch Byte Inappropriate ASAP parameter: psbinappr default severity: MJ

Description:

condtype: SCM

sa/nsa: nsa

conddescr: Communication-Transport, 1+1 MSP-APS prot group,
Switch Channel Mismatch

ASAP parameter: scm default severity: MJ

Description:

condtype: FESF

sa/nsa: nsa

conddescr: Communication-Transport, 1+1 MSP-APS prot group, Far
End Signal Fail

ASAP parameter: fesf default severity: MJ

Description:



ASAP Type PATH

Properties of all alarms	modifier/aidtype: STS1, STS3C, STS12C, STS48C, STS192C, VC3, VC4, VC44C, VC416C, VC464C. AID: STS1NumAID 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 Description:
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 Description:
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 Description:
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 Description:

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 Description:
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 Description:
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 Description:
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 Description:
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

Description:

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

Description:



ASAP Type PATHTERM

Properties of all alarms	modifier/aidtype: STS1, VC4 AID: VCGNumAID 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 Description:
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 Description:
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 Description:
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 Description:
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

Description:

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

Description:

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

Description:

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

Description:

condtype: VCLOM

sa/nsa: sa / nsa

conddescr: Communication-Transport, {aidtype} CS, Loss of Multiframe

ASAP parameter: sa_vclop default severity: CR

ASAP parameter: nsa_vclop default severity: MN

Description:

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

Description:



ASAP Type PORT

Properties of all alarms modifier/aidtype: OC48, OC192, OC768, STM16, STM64, STM256
 AID: SPortAID
 Alarm duration: persistent

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
 Description:

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
 Description:

condtype: POSTDCMLOS sa/nsa: sa / nsa
 conddescr: Communication-Transport, {aidtype} port, Post DCM Signal Loss
 ASAP parameter: sa_postdcmls, default severity: CR
 ASAP parameter: nsa_postdcmls, default severity: MN
 Description:

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
 Description:

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 Description:
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 Description:
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 Description:
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 Description:
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 Description:

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
Description:

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
Description:

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
Description:

condtype: LIDRSM sa/nsa: nsa
conddescr: Communication-Transport, {aidtype} port, Protocol Version Mismatch
ASAP parameter: nsa_lidrsm, default severity: MJ
Description:

condtype: LIDMSM sa/nsa: nsa
conddescr: Communication-Transport, {aidtype} port, Protocol Version Mismatch
ASAP parameter: nsa_lidmsm, default severity: MJ
Description:



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

Description:

condtype: FAILTOSW sa/nsa: nsa
conddescr: Communication-Transport, Path prot group, Path Switch Denial

ASAP parameter: psfail default severity: NA

Description:



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 Description:
condtype: SYNCLOSS	sa/nsa: none conddescr: Communication-Synchronisation, system timing, Loss of Synchronisation ASAP parameter: syncloss default severity: MJ modifier/aidtype: SYST AID: SystemAID Description:
condtype: SYNCT4OUT	sa/nsa: none conddescr: Communication-Synchronisation, timing out, T4 quality insufficient ASAP parameter: synct4out default severity: MJ modifier/aidtype: OUTT AID: External_Timing_output_port_AID Description:



Entity – ASAP relation

Introduction This section describes which entity is related to which ASAP.

Entities For description of the entities see in the fragments 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	Tributary (STS1, STS3C, STS12C, STS48C, STS192C, VC3, VC4, VC44C, VC416C, VC464C)	PATH	Tributary (Configuration Management)
Fault Management	Alarm Assignment Profiles	none	none
Fault Management	Alarms	none	none
Fault Management	Alarm Log	none	none

Fragment	Entity	ASAP Type	Entity containing ASAP pointer
Fault Management	MDI	ENV	MDI
Fault Management	MDO	none	none
Transmission Cross-Connect Handling	Crossconnection	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
Synchronization	External Timing Output	TIMING	External Timing Output
Software & Database Management	n.a	none	none

Fragment	Entity	ASAP Type	Entity containing ASAP pointer
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





7 Transmission and cross-connect handling

Overview

- Purpose** The section “Transmission and cross-connect handling” contains the TL1 interface definition for the
- transmission domain
 - UserByte access functionality
 - Gigabit Ethernet Port (GEn) configuration
 - Virtual Concatenation (Group and Tributary) configuration for GEn applications

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Crossconnection

Overview

Purpose	The crossconnection (CRS) commands cover all type of • creating (ENT-CRS), • removing (DLT-CRS), • modifying (ED-CRS) and • retrieving (RTRV-CRS) crossconnections.
Crossconnections 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. These port can be • either SDH/SONET ports belonging to OPn packs, when using crossconnection with OPn and specified via the AID SPortAID. The related tributaries are given via STS1NumAID or • Virtual Concatenation Group ports (VCG ports) – i.e. ports related to physical GEn-ports when using crossconnection involving GEn – and specified via the AID VCGPortAID. The related VCG-tributaries are specified via VCGNumAID If it is not necessary to distinguish between the STS1NumAID and VCGNumAID the general AID GenTribAID is used to cover all cases.
Tributary-rate provisioning versus crossconnection-rate	For fixed-rate provisioned ports the crossconnection-rate (either the SDH-rate or its equivalent SONET-rate) must match with the 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).

Please note that the following features are not part of the current *LambdaUnite™* MSS release and are thus not specified here:

- provisioning of adjunct pathprotected crossconnection (no adjunct related parameter)
- conversion of the crossconnection topology (no TL1 command CNVT-CCT)
- changing working and protection leg for pathprotected crossconnections (no TL1 command OPR-WKGLEG)
- due to MUXnb00834 no adaptive-mode is allowed for both *in_aids* of a path-protected crossconnection

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RTRV-CRS: Retrieve crossconnection

The RTRV-CRS-modifier command can be initiated by a user to retrieve information on existing crossconnections in the network element.

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

Description: The ***modifier*** parameter indicates the crossconnection rate on which the retrieve crossconnection 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 crossconnections 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 ENT-CRS -***modifier*** command.

Example: if a crossconnection 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 crossconnection with the **rate** parameter VC3.

Type: Alphanumeric value set

Range:

- ALL (Note: using the all parameter has no restriction in using ranging of the **in_aid**, thus up to all 4 all-parameter (one for the **modifier**, three for the **in_aid** are allowed)
- SDH **modifier**: VC3, VC4, VC44C, VC416C, VC464C
- SONET **modifier**: STS1, STS3, STS12, STS48, STS192

Default: None

2. tid – Target Identifier

Target Identifier. Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and the description of this parameter.

3. in_aid – Input Access Identifier

Description: Input Access Identifier. Specifies the source of the crossconnection.

In case of a 1way crossconnection the source of a crossconnection is unambiguous. In this case the crossconnection will be retrieved by the RTRV-CRS, which has the identical **in_aid**.

In case of a 2way crossconnection the source is not defined (the source could be the **in_aid** or the **out_aid** of the crossconnection). In this case both aids (**in_aid** or **out_aid**) of the crossconnection can be used as the **in_aid** parameter of the RTRV-CRS command. The RTRV-CRS command shall 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:NEnam:1-1-#-#-1-1-1,1-1-#-#-2-1-1:123456:2way;

RTRV-CRS-VC4:NEnam:1-1-#-#-2-1-1:123457;

M 123457 COMPLD "1-1-#-#-1-1-1,1-1-#-#-2-1-1:vc4..... ;

Type: GenTribAID

Range: The all-parameter shall be 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 val when referring the GEN.

For example the following **in_aids** are valid:

- 1-1-##-all-all-all specifying all tribs and 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 the first port of the (GEn) pack in slot-number=03

Default: None

4. ctag – Correlation Tag

See definition of **ctag** in [“RTRV-HDR: Retrieve header” \(5-6\)](#).

5. ppgname – Path protection group Name

Description: The parameter **ppgname** (Path protection group Name) is a user-defined string that identifies a path protection group. This parameter is applicable to pathprotected crossconnections only and shall be omitted for non pathprotected crossconnections.

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” \(8-12\)](#).

Type For details please refer to parameter **ppgname** in [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Range For details please refer to parameter **ppgname** in [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Default: NULL

Spec block parameters

None

Output format Normal completion message In response to a valid RTRV-CRS-mod command, the following output shall be 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 specified in the Output Parameter section for the RTRV-HDR command.

Output parameters

Command parameters

1. in_aid – Input Access Identifier

Description: The parameter **in_aid** (Input Access Identifier) specifies the tributary which is the source of the crossconnection. In detail:

- In case of a 1way crossconnection this parameter specifies the source of the crossconnection and is identical to the one used as input parameter
- In case of a 2way crossconnection 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 crossconnection” \(7-5\)](#) command).
- In case of a pathprotected crossconnection 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: n.a. (all values shall never occur as part of an output parameter)

Default: None

2. out_aid – Output Identifier

Description: The parameter **out_aid** (Output Access Identifier) specifies the tributary which is the sink of the crossconnection.

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)

Default: None

3. in_aid2 – Input Access Identifier 2

Description: The parameter **in_aid2** (Input Access Identifier 2) is applicable to and is present for pathprotected crossconnections 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 pathprotected crossconnection, while **in_aid2** and **out_aid** specify the second leg.

Type: STS1NumAID.

Note: Using VCGNumAID (when using GEN) is NOT applicable as the GEN can not be the input to a pathprotected crossconnection.

Range: n.a. (all values shall never occur as part of an output parameter)

Default: None

4. rate

Description: The parameter **rate** indicates the crossconnection rate. For a detailed description please refer to the input parameter **modifier**.

Type: Alphanumeric value set

Range:

- VC3
- VC4
- VC44C
- VC416C
- VC464C
- STS1
- STS3
- STS12
- STS48
- STS192

Default: None

Spec block parameters

1. loca – Location-a

Description: This parameter **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 only. The **loca** parameter value is an empty string for ADD and non-BLSR connections.

A 2way crossconnection is considered to be a DROP if the **out_aid** is a non BLSR tributary.

The figure in [“2way scenario” \(7-16\)](#) depicts the 2way scenario (the 3 NEs should be seen as part of an BLSR).

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 pathprotected crossconnections – 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 pathprotected crossconnection 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 pathprotected crossconnection).

Type: TID or empty-string

Range: Please refer to the TID definition in the [“RTRV-HDR: Retrieve header” \(5-6\)](#) description

Default: empty string: ""

Note: In output direction the empty string appears as \".

2. locz – Location-z

Description: 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 crossconnection is considered to be a ADD if the **in_aid** is a non BLSR tributary.

Refer to the figure in [“2way scenario” \(7-16\)](#) for further explanation.

Type: TID or empty-string

Range: Please refer to the TID definition in the [“RTRV-HDR: Retrieve header” \(5-6\)](#) description

Default: empty string: ""

Note: In output direction the empty string appears as \".

3. lpbkstat – Loopback-Status

Description: The parameter **lpbkstat** (Loopback Status) specifies whether a crossconnection loopback exists on the input tributary or the output tributary of the crossconnection.

Type: Alphanumeric value set

Range: YES, NO

Default: NO

4. omode – Output Mode

Description: 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;

omode and adaptive-mode: In case a SONET-port is provisioned to adaptive-mode setting the **omode** to IDLE/UNEQ or AIS will 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 crossconnection, 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 crossconnection-signal will re-appear again.

omode in case of pathprotected crossconnection: In case of a pathprotected crossconnection the **omode** affects the output of the pathselector and is thus not settable 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
- IDLE/UNEQ
- AIS

Default: NORM

5. repleg – Reported Leg Pair

Description: The parameter **repleg** (reported leg-pair) provides compact information about the leg(s) of crossconnections and is derived, as shown in [“Derivation of repleg” \(7-16\)](#), from a combination of the following elementary parameter:

- atomic crossconnection topology
- leg status
- pathprotected group working leg (if applicable i.e. being part of a protection group);

Atomic crossconnection topology

Two atomic crossconnection topologies are supported:

- Point to point: The point to point crossconnection 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.
- pathprotected: The pathprotected crossconnection 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 crossconnection (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 crossconnection rate

Leg status

The leg status indicates whether a leg shall be monitored and reported as a 1way crossconnection or a leg pair i.e. a 2way crossconnection.

- 1-way: The leg status for a pathprotected crossconnection is always defined as 1way.
- 2-way: The leg status for a (non pathprotected) crossconnection is set to 2way if all the following conditions are fulfilled:
 - there are 2 crossconnections in opposite direction between the same tributaries
 - both of these crossconnections 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 crossconnections)

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 crossconnection 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 1way Path Switched Working and 1way Path Switched Protection respectively.

In [“repleg examples” \(7-17\)](#) examples show the **repleg** parameter for several crossconnection configurations including compound crossconnectio.

Type: Alphanumeric value set

Range

- 1WAY
- 2WAY
- 1WAYPSW
- 1WAYPSP

The values 1WAYPAP and 1WAYPAW from are not supported in the initial release.

Default: n/a

6. **rtnomode** – Return Output Mode

Description: The parameter **rtnomode** (Return Output Mode) specifies the output mode for the return direction of the crossconnection.

- for a 2way crossconnection 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 1way crossconnection and pathprotected crossconnection this parameter is omitted.

Type: Alphanumeric value set

Range: NORM, IDLE/UNEQ, AIS

Default: NORM

7. **rtnxcappl** – Return Crossconnection Application

Description: The parameter **rtnxcappl** (return crossconnection application) is a numeric value which indicates the application for which the return crossconnection is used in the context of compound crossconnection topologies.

- for a 1way crossconnection this parameter is not applicable and will thus be omitted.
- for a 2way crossconnection the parameter is present.

Type: same as **xcappl**

Range: same as **xcappl**

Default: The default value is 0.

8. **rtnxcnum** – Return Crossconnection Number

Description: The parameter **rtnxcnum** (return crossconnection number) is a 9 digit number, identifying the crossconnection number for the return direction (destination to source i.e. **out_aid** to **in_aid**) of a 2way crossconnection.

- for a 1way crossconnection this parameter is not applicable and will thus be omitted.
- for a 2way crossconnection the parameter is present.

Type: same as **xcnum**

Range: same as **xcnum**

Default: The default value is 000000000.

9. **xcappl** – Crossconnection Application

RTRV-CRS: Retrieve crossconnection

Description: The parameter ***xcappl*** (crossconnection application) is a numeric value which indicates the application for which the crossconnection is used in the context of compound crossconnection topologies.

The parameter is not further processed in the NE, but only stored (when establishing or modifying the crossconnection) and returned when retrieving the crossconnection.

The numeric values are assigned to appropriate textstrings (see Range below) and the Manager should display these value in case of a [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).

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.

10. xcnnum – Crossconnection Number

Description: The parameter ***xcnum*** (crossconnection number) is a 9 digit number, identifying 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.)

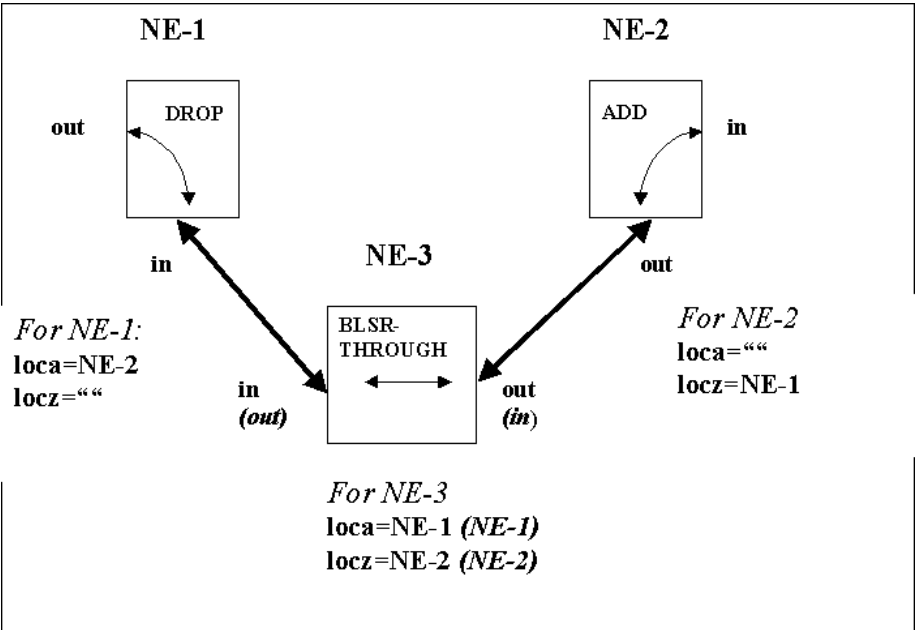
Like the ***xcappl*** parameter the ***xcnum*** parameter is not further processed in the NE, but only stored (when establishing or modifying the crossconnection) and returned when retrieving the crossconnection. It may be used by a manager to characterize and group crossconnections belonging to complex crossconnection topology (e.g. compound crossconnections as used in Ring Interworking scenarios)

Type: numeric value set (9 digit)

Range: 000000000 .. 999999999

Default: The default value is 000000000.

2way scenario

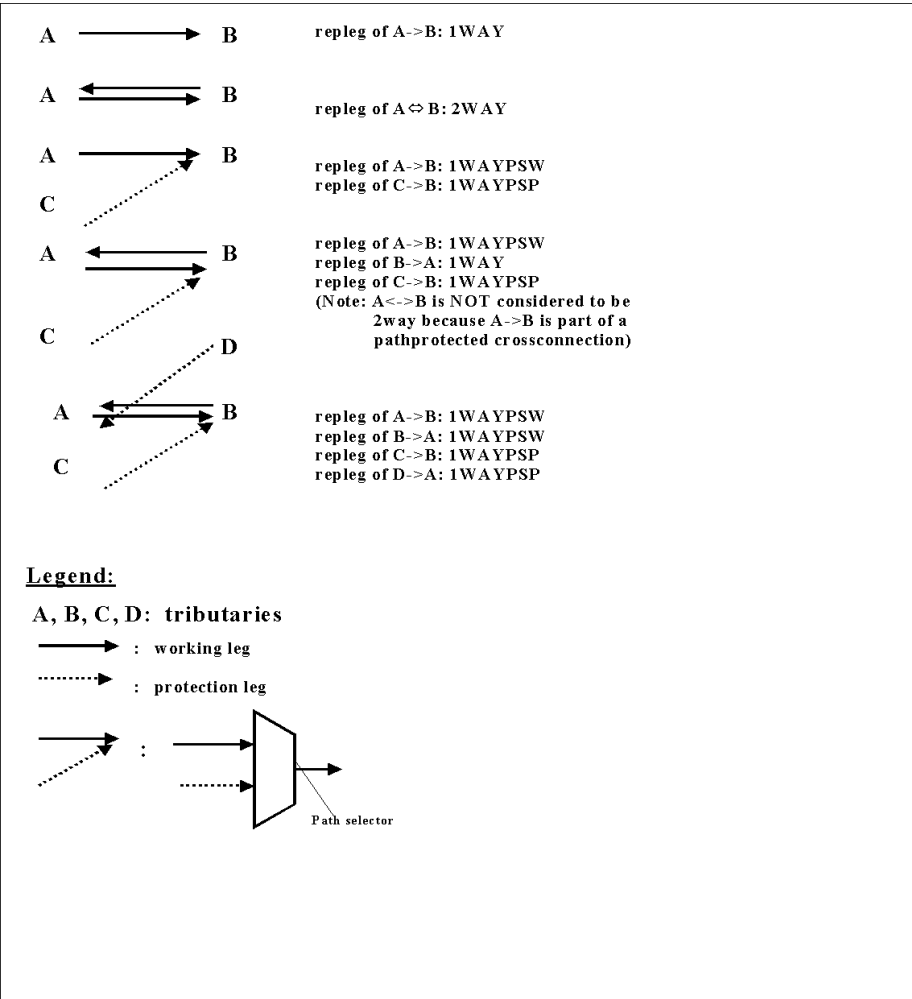


Derivation of repleg

Atomic Crossconnection Topology	Path Protection Leg Role	Leg Status	Reported Legpair (<i>repleg</i>)
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 examples



Detailed behavior
description

The RTRV-CRS command allows the retrieval of existing crossconnection according to the following characteristics:

- rate (via the mandatory **modifier** parameter)
- input tributary (via the optional/mandatory [in case **ppgname** is omitted] **in_aid** parameter)
- path protection group name (via the optional/mandatory [in case **in_aid** is omitted] **ppgname** parameter)

In case of a 1way or 2way crossconnection a single entry will be returned, in case of a pathprotected crossconnection two entries will be returned (one entry for the worker-leg and the second one for the protection-leg) – see also the example-section.

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.

For the rate and input tributary either concrete value or the ranging via `all` (and `val1` for the port-aid in case of using the GEN) can be used.

In case the given set of input parameter does not match with existing crossconnection(s), the command is accepted BUT no information is returned i.e. the output contains the empty string `""`. This case happens if e.g. the rate is specified to `vc4` but the ***in_aid*** refers to a tributary, which does not match with the boundary rules for `vc4` e.g. `1-1-#-#-1-1-2`.

The ***ppgname*** is applicable only for crossconnection which are related to a protection group of ***prototype***=PATHDRI. In case ***in_aid*** is omitted the ***ppgname*** must not be omitted and the command is acting on all protection groups (of ***prototype***=PATHDRI) with the specified ***ppgname***. The use of ***in_aid*** and ***ppgname*** in one command request is not allowed; i.e. their use is mutually exclusive. If no match is found the command will complete but no output is returned (empty string).

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.

Due to the specified retrieval behavior for path-protected XC, it can happen that only one leg composing the path-protected XC will be in the reply.

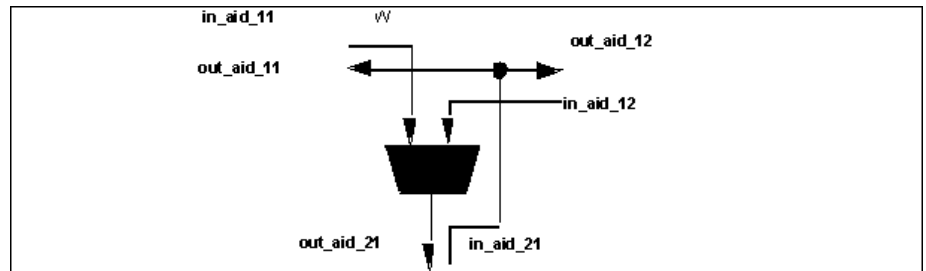
Update affected entities

The RTRV-CRS command does not generate a REPT DBCHG message.

Example input/output

Example 1

Suppose the following compound crossconnection, 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;
```

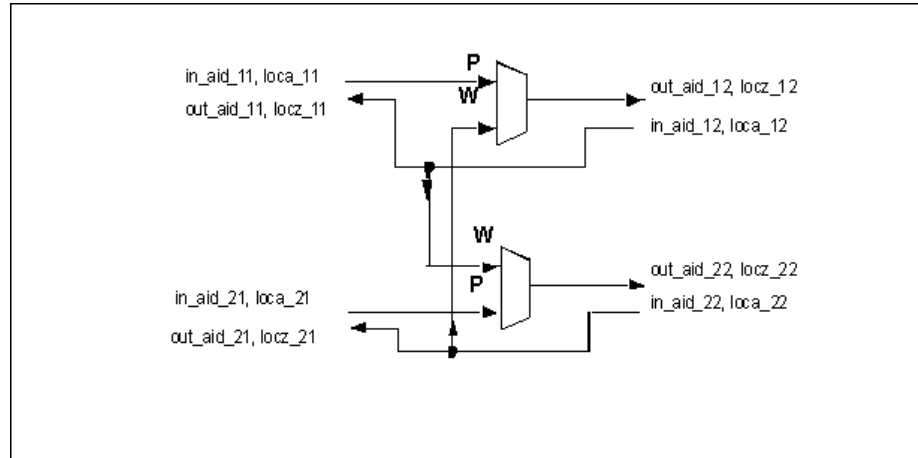
```
in_aid-21,out_aid_11:vc4:omode=NORM,repleg=1WAY,xcappl=20,  
xcnum=123456789;
```

```
in_aid-21,out_aid_12:vc4:omode=NORM,repleg=1WAY,xcappl=20,  
xcnum=123456789;
```

The upper 2 outputs specify the pathprotected crossconnection, consisting of 2 legs. The lower 2 outputs specify the 2 legs of the bridge.

Example 2

Suppose the following compound crossconnection 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 crossconnections do exist, or the input data do not match with existing crossconnections, then the output would be an empty string: "".

Error responses

Validation rule: in_aid or ppgname existence

RTRV command processing shall verify 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 crossconnection” \(7-50\)](#)
- [“ED-CRS: Edit crossconnection” \(7-43\)](#)
- [“ENT-CRS: Enter crossconnection” \(7-22\)](#)

References GR-199-CORE



ENT-CRS: Enter crossconnection

The ENT-CRS-**modifier** command can be initiated by a user to establish a crossconnection between tributaries in the network element.

The **modifier** in the ENT-CRS command indicates the crossconnection 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 crossconnection 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 crossconnection 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 crossconnection.

The number of crossconnections 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 crossconnections.

Physical preconditions prior to establishing a crossconnection

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

Description: The **modifier** parameter indicates the crossconnection rate on which the ENT-CRS command acts on. For detailed description please refer to the [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#) command

Type: Alphanumeric value set

Range:

- VC3
- VC4
- VC44C
- VC416C
- VC464C
- STS1
- STS3
- STS12
- STS48
- STS192

Default: None

2. tid – Target Identifier

Target Identifier. Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and the description of this parameter.

3. in_aid – Input Access Identifier

Description: Input Access Identifier. Specifies the source of the crossconnection. For a detailed description please refer to the **in_aid** input parameter in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).

Type: For a detailed description please refer to the **in_aid** input parameter in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).

Range: No use of the all value within the **in_aid** shall be allowed.

Default: None

4. out_aid – Output Identifier

Description: Output Access Identifier. Specifies the sink of the crossconnection. For a detailed description please refer to the **out_aid** output parameter in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).

Type: For a detailed description please refer to the **out_aid** output parameter in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).

Range: No use of the all value within the **out_aid** shall be allowed.

Default: None

5. ctag – Correlation Tag

See definition of [“RTRV-HDR: Retrieve header” \(5-6\)](#).

6. cct – Crossconnection Topology

Description: The parameter **cct** (crossconnection topology) specifies the topology of the crossconnection to be established via the ENT-CRS command.

The topology defines – the number of legs of the crossconnection – whether both legs belong to the same tributary – whether a path protection is included.

The following values are possible:

- 1WAY: the crossconnection consists of one leg given by the **in_aid** to the **out_aid**
- 2WAY: the crossconnection 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 crossconnection 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
- 1WAYPPROT

Default: 2WAY

7. in_aid2 – Input Access Identifier 2

Description: This parameter is applicable to pathprotected crossconnections 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 pathprotected crossconnection. For non pathprotected crossconnection 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

Note: Using VCGNumAID (when using GEn) is NOT applicable as the GEn can not be the input to a pathprotected crossconnection.

Range: No use of the all value within the ***in_aid2*** shall be allowed.

Default: None (a valid value is needed on case of a pathprotected crossconnection – no default is defined)

Spec block parameters

1. **htmr** – Hold Off Timer
The parameter ***htmr*** (Hold Off Timer) specifies the value of the hold-off timer for automatic protection switching. This parameter is applicable to pathprotected crossconnections only and shall be omitted for non pathprotected crossconnections.
For details please refer to parameter ***htmr*** in [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
2. **loca** – Location-a
For a detailed description please refer to parameter ***loca*** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).
Note that ***loca*** parameter shall be omitted for non-BLSR and BLSR-ADD crossconnection.
3. **loca2** – Location-a-2
The parameter ***loca2*** (location-a-2) specifies the TID associated with ***in_aid2*** of the protection leg of a pathprotected crossconnection.
For the syntax, range and default definition please refer to ***loca*** in the [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#) section.
Please note that ***loca-2*** parameter shall be omitted for non-BLSR crossconnection.
Please further note the remark given in the loca description of the RTRV-CRS section.
4. **locz** – Location-z
For a detailed description please refer to parameter ***locz*** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).
Note that locz parameter shall be omitted for non-BLSR and BLSR-DROP crossconnection.
5. **omode** – Output Mode

For a detailed description please refer to parameter **omode** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).

6. ppgname – Path protection group Name
For a detailed description please refer to parameter **ppgname** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).
7. rme – Revertive Mode Enable
The parameter **rme** (Revertive Mode) specifies whether the path protection operates in revertive-mode (**rme**=ENABLE) or non-revertive-mode (**rme**=DISABLE).
This parameter is applicable to pathprotected crossconnections only and shall be omitted for non pathprotected crossconnections.
For details please refer to parameter **rme** in [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
8. rtnomode – Return Output Mode
The parameter **rtnomode** (return output mode) is only applicable for 2way crossconnection and shall be omitted for 1way and pathprotected crossconnections.
For a detailed description please refer to parameter **rtnomode** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).
Note the default values:
 - For a 1way crossconnection the default value is NOT-APPLICABLE, but the parameter must be omitted in the ENT-CRS command.
 - For a 2way crossconnection the default value is: NORMAL
9. snctype – SNCP Type
The parameter **snctype** (SNCP Type) is used to specify the SNCP mode i.e. the switch criteria used for automatic protection switching. This parameter is applicable to pathprotected crossconnections only and shall be omitted for non pathprotected crossconnections.
For details please refer to parameter **snctype** in [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
10. wtr – Wait To Restore Time
The parameter **wtr** (Wait To Restore Time) specifies the value of the wait-to-restore time for automatic protection switching. This parameter is applicable to pathprotected crossconnections only and shall be omitted for non pathprotected crossconnections.
For details please refer to parameter **wtr** in [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

11. **xcappl** – Crossconnection Application
For a detailed description please refer to parameter **xcappl** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).
12. **xcnum** – Crossconnection Number
For a detailed description please refer to parameter **xcnum** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).

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 specified in the Output Parameter section for the RTRV-HDR command.

Detailed behavior description

Behaviour **cct=1WAY, 2WAY**

Crossconnections 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 crossconnection 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 crossconnection (either crossconnection between VCG-tribs or between VCG-trib and STS1-trib) only the crossconnection 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.

Behaviour cct=1WAYPROT

Path protected crossconnections 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).

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 crossconnection a entity of type crossconnection shall be created with the parameter values as

- specified in the ENT-CRS command.

Additionally when establishing a pathprotected crossconnection 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 pathprotected crossconnection the command shall in addition create 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 crossconnection an ED-CRS notification shall be used to notify the updated **repleg** value.

Updated affected entities: 1way crossconnection, not resulting in a 2 way crossconnection

In case a 1way crossconnection is established where no "equivalent return-leg" (see below) is already existing one instance of type crossconnection shall be created with the entered parameter. This shall be reported by means of an ENT-CRS notification.

An "equivalent return-leg" means: when entering a 1way crossconnection with rate N from in_trib to out_trib a return-leg would be given by

- a 1way crossconnection 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,loca="\",locz="\",repleg=1WAY

Updated affected entities: 1way crossconnection, resulting in a 2way crossconnection

In case a 1way crossconnection is established where an "equivalent return-leg" (see below) is already existing one instance of type crossconnection shall be created with the entered parameter and the repleg-parameter "2way". This shall be 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 1way crossconnection with rate N from in_trib to out_trib a return-leg would be given by

- a 1way crossconnection 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=000000000,rtnxcnum=000000000, 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 2way crossconnection 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** crossconnection is independent from the way it is created (either direct via **cct=2WAY** or via two separated 1way crossconnections) and it thus also contains the **rtnxcappl**, **rtnxcnum**, **rtnomode** parameters

Updated affected entities: 2way crossconnection

In case a 2way crossconnection is established one instance of type crossconnection shall be created with the entered parameter and the **repleg=2WAY**.

This shall be 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=000000000,rtnomode=NORM,locat="\",locz="\",
repleg=2WAY,rtnxcappl=0, rtnxcnum=000000000

Updated affected entities: pathprotected crossconnection

In case a pathprotected crossconnection is established two instances of type crossconnection shall be created (one for each leg) with the entered parameters and **repleg=1WAYPSW** and **repleg=1WAYPSP**, respectively.

Furthermore one instance of type protection group shall be 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 (pathprotected SDH crossconnection 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=000000000,xcappl=0,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=000000000,xcappl=0,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>
```

For details of the CML-Block please refer to the [“ENT-PROTN-GRP notification” \(8-47\)](#) part.

Example input/output

Example 1

A non-BLSR 1-way crossconnection 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-crossconnection 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-ST512:UNITE-NE:1-1-#-#-10-1-13,1-1-#-#-17-1-  
27:123456::2WAY:LOCA=NE-in-RING;
```

```
LT-UNITE 00-11-14 12:00:00  
M 123456 COMPLD  
;
```

Example 3

A SDH pathprotected crossconnection consisting of

- a working leg (1-1-#-#-10-1-1 -> 1-1-#-#-34-1-3) and
- a protection leg (1-1-#-#-11-1-1 -> 1-1-#-#-34-1-3) shall be established. None of the affected tributaries is in an BLSR.

The pathprotection shall be 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-ST512:UNITE-NE:1-1-#-#-10-1-1,1-1-#-#-34-1-3:123456::1WAYP  
PROT,1-1-#-#-11-1-1:ppgname="Pathprot.Gr.Name.1",rme=DISABLE,sncty  
pe=SNCI,htmr=3000,wtr=10;
```

```
LT-UNITE 00-11-14 12:00:00  
M 123456 COMPLD  
;
```

Error responses

Validation rule: Entities must exist

Crossconnection 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: Only those parameter present which are needed

Crossconnection 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 entering a 1way crossconnection the ***rtnomode*** must not be present
- for entering a non pathprotected crossconnection the ***ppgname***, ***htmr***, ***wtr***, ***snctype***, ***rme*** parameter must not be present

Error code: IDNV - Input Data Not Valid, Parameter(s) present which are not allowed

Validation rule: All parameter are specified with allowed values

Crossconnection command processing shall verify that all the input parameter do belong to the set of allowable parameter values for the specified parameter – e.g. – ***omode*** can only have one of the values NORM, IDLE/UNEQ or AID, all other values shall be rejected – ***htmr*** can only have one of the values {0, 1, 2,..., 100, 200 .. 10000}, all other values e.g. 150 shall be rejected

Error code: IDNV - Input Data Not Valid, Parameter(s) out of allowed value range

Validation rule: Port(s) do support the specified rate

Crossconnection command processing shall verify that the specified rate is supported by the port(s) involved in the crossconnection – e.g. an OP2G5-port does not support a rate VC464C/STS192

Error code: IDNV - Input Data Not Valid, Pack does not support the specified rate

Validation rule: Both legs must have same rate

Crossconnection command processing shall verify that each logical AID specified in the command is consistent with the crossconnection rate. Consistency implies the following condition:

The rate of a new crossconnection from an input tributary that is in use for an existing crossconnection must match the rate of that existing crossconnection.

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 exisisting leg

Validation rule: AID boundary and rate consistency

Crossconnection command processing shall verify that each logical AID specified in the command is consistent with the crossconnection 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 $\text{mod}3 + 1$ boundary (1, 4, 7, ...).
- The first STS-1 of an STS-12/VC-4-4c rate crossconnection must be on a $\text{mod}12 + 1$ boundary (1, 13, 25, ...).
- The first STS-1 of an STS-48/VC-4-16c rate crossconnection must be on a $\text{mod}48 + 1$ boundary (1, 49, 97, ...).
- The first STS-1 of an STS-192/VC-4-64c rate crossconnection must be on a $\text{mod}192 + 1$ 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, crossconnection command processing shall verify 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 crossconnection 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 crossconnection 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 if the tributary signal rate is given for the SONET- (STS3/STS12/...) or the SDH-interface standard (VC3/VC4..). As an example: It is possible to enter a crossconnection via ENT-CRS-VC4... between

two tributaries related to tributary signal rates given by VC4/VC4 or by VC4/STS12 or by STS12/STS12; 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 crossconnection perspective.

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: XC pack is (pre-)provisioned

Crossconnection 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

Validation rule: Rate must not exceed half of the port rate (2f-BSLR only)

Crossconnection command processing shall verify that in case of a 2f-BLSR that the crossconnection 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 exceeds half of the port rate

Validation rule: pathprotected crossconnection has unique input AIDs

Crossconnection command processing shall verify that for pathprotected crossconnections 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: pathprotected crossconnection has inputs from ports with same interface standards

Crossconnection command processing shall deny requests to establish pathprotected crossconnections 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 1+1 port protection as in_aid (for pathprotected crossconnection)

Crossconnection command processing shall verify that for pathprotected crossconnections no tributary is used as *in_aid* or *in_aid2* if one of the related ports is a member of a 1+1 multiplex section/line protection group.

Error code: SNVS - Status, Not in Valid State, trib of 1+1 port as input-trib in pathprotected crossconnection

Validation rule: No trib of MS-SPRing/BLSR protection as in_aid (for pathprotected crossconnection)

Crossconnection command processing shall verify that for pathprotected crossconnections no tributary is used as *in_aid* or *in_aid2* if one of the related ports is a member of a 2f/4f MS-SPRing/BLSR protection group.

Error code: SNVS - Status, Not in Valid State, trib of MS-SPRing/BLSR port as input-trib in pathprotected crossconnection

Validation rule: pathprotected crossconnection: both inputs in fixed-mode

Crossconnection command processing shall deny requests to establish pathprotected crossconnections where both ports of the logical input tributaries are not provisioned in fixed-mode. In other words if one or both inputs of a pathprotected crossconnections are in adaptive-mode the command shall be denied.

Error code: SNVS - Status, Not in Valid State, input port(s)for pathprot. crossconnecton in adaptive mode

The above listed validation rule is due to MUXnb00834, which, in short, states that adaptive-mode for pathprotection crossconnection is not supported.

Validation rule: No crossconnection loopback existing

Crossconnection command processing shall deny commands requesting a crossconnection to a tributary with an existing crossconnection 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 crossconnection establishing shall be possible even with a facility loopback present.

Validation rule: Restrict number of crossconnection using same input tributary

Crossconnection command processing shall verify that the number of crossconnections originating from the same tributary is restricted to two.

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

Validation rule: TIDs consistent with existing crossconnection

Crossconnection command processing shall verify that for each leg of the crossconnection for which the logical input AID is used in any pre-existing crossconnection that the source TID is identical to that associated with the pre-existing crossconnection. This hold for BLSR crossconnections where both legs of a bridge must originate from the same NE.

Error code: SNVS - Status, Not in Valid State, TID inconsistent with existing crossconnection.

Validation rule: Output not in use

Crossconnection command processing shall verify that logical output AID is not in use as a destination for an existing crossconnection.

Error code: SNVS - Status, Not in Valid State, Output is already crossconnected

Validation rule: 1+1 line protection access

Crossconnection command processing shall deny commands requesting crossconnections to the protection tributaries of a 1+1 line protected port protection group.

Error code: SNVS - Status, Not in Valid State, Command refers to protection tributaries of a 1+1 protection

Validation rule: BLSR/MS-SPRing protection access

Crossconnection command processing shall deny commands requesting crossconnections to the protection tributaries of a port being a member of a BLSR/MS-SPRing protection group.

Error code: SNVS - Status, Not in Valid State, Command refers to protection tributaries of a BLSR/MS-SPRing protection

Validation rule: SNC Type Compliance

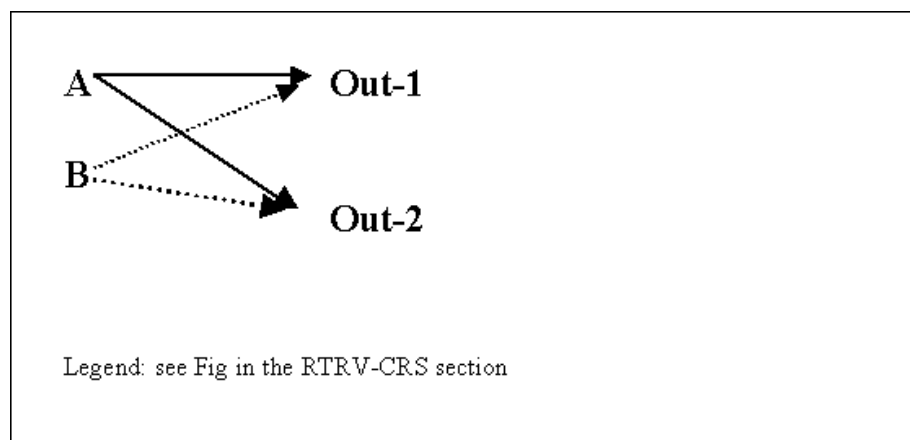
Crossconnection command processing shall verify the following when establishing a pathprotected crossconnection:

If there are any existing path protection groups that are "co-located" to the crossconnection 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 crossconnection C if any of the logical input tributaries of the crossconnections 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 pathprotected crossconnection

As an example consider the figure below: A pathprotected crossconnection A,B → Out-1 may be established with the SNC-Type of e.g. SNCI; If then establishing another pathprotected crossconnection A,B → Out-2, which has a common tributary (here tributary A) with the former pathprotected crossconnection, the SNC-Type of this new one has to be SNCI as well.



Validation rule: Rate consistent with interface standard (for GEn only)

Crossconnection command processing shall verify that for GEn the provisioned interface standard (SDH or SONET) is consistent with the modifier. This means that in case the GEn is provisioned to SDH only a modifier value of STS3 or VC4 shall be allowed, because for SDH the VCG-tribs shall be crossconnected on VC4-level. Similar if the GEn is provisioned to SONET only a modifier value of STS1 or VC3 shall be allowed. Please note, that, like in all other cases, SONET-rates are treated equivalent to SDH-rates.

Error code: IDNC - Input Data Not Consistent, Modifier rate not consistent to interface standard

Validation rule: Same interface standard (for GEn crossconnected to GEn)

Crossconnection command processing shall verify that for crossconnection between two GEns both of these GEns are to be provisioned to the same interface standard (either both SDH or both SONET).

Error code: IDNC - Input Data Not Consistent, Different GEn interface standards

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

Crossconnection command processing shall verify that for pathprotected crossconnection no VCG-trib is used as *in_aid* or *in_aid2*. The case of pathprotected crossconnection 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 crossconnection

Related TL1 messages

- [“DLT-CRS: Delete crossconnection” \(7-50\)](#)
- [“ED-CRS: Edit crossconnection” \(7-43\)](#)
- [“ENT-ROLL: Enter roll” \(7-59\)](#)
- [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#)

Crossconnection
ENT-CRS: Enter crossconnection

Transmission and cross-connect handling

References GR-199-CORE



ENT-CRS notification

Output format The ENT-CRS notification shall use 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**
See definition of input parameter **modifier** in [“ENT-CRS: Enter crossconnection” \(7-22\)](#).
2. **in_aid** – Input Access Identifier
See definition of output parameter **in_aid** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#)
3. **out_aid** – Output Access Identifier
See definition of output parameter **out_aid** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#)
4. **cct** – Crossconnection Topology
See definition of input parameter **cct** in [“ENT-CRS: Enter crossconnection” \(7-22\)](#).
5. **in_aid2** – Second Input Access Identifier
See definition of output parameter **in_aid2** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#)

Spec block parameters

1. **loca** – Location-a
See definition of output parameter **loca** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#)
2. **locz** – Location-z
See definition of output parameter **locz** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#)
3. **omode** – Output Mode
See definition of output parameter **omode** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#)
4. **repleg** – Reported Leg Pair
See definition of output parameter **repleg** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#)
5. **rtnomode** – Return Output Mode

See definition of output parameter ***rtnomode*** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#)

6. **rtnxcappl** – Return Crossconnection Application
See definition of output parameter ***rtnxcappl*** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#)
7. **rtnxcnum** – Return Crossconnection Number
See definition of output parameter ***rtnxcappl*** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#)
8. **xcappl** – Crossconnection Application
See definition of output parameter ***xcappl*** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#)
9. **xcnum** – Crossconnection Number
See definition of output parameter ***xcnum*** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#)

Example output Please refer to the “Detailed behavior description” – part.



ED-CRS: Edit crossconnection

The ED-CRS-modifier command can be initiated by a user to modify the following crossconnection parameters:

- **loca/locz** in specifying the source-/destination TID associated with **in_aid/out_aid**
- **omode** specifying the output-mode of the crossconnection
- **xcappl** specifying the crossconnection application number of the crossconnection
- **xcnum** specifying the crossconnection number of the crossconnection

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

Description: The **modifier** parameter indicates the crossconnection on which the ED-CRS command acts on.

For detailed description please refer to the [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#) command.

Type: Alphanumeric value set

Range:

- VC3
- VC4
- VC44C
- VC416C
- VC464C
- STS1
- STS3
- STS12

- STS48
- STS192

No all value is supported.

Default None

2. tid – Target Identifier
Target Identifier. Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and the description of this parameter.
3. in_aid – Input Access Identifier
See definition of parameter **in_aid** in [“ENT-CRS: Enter crossconnection” \(7-22\)](#).
4. out_aid – Output Access Identifier
See definition of parameter **out_aid** in [“ENT-CRS: Enter crossconnection” \(7-22\)](#).
5. ctag – Correlation Tag
See definition of **ctag** in [“RTRV-HDR: Retrieve header” \(5-6\)](#).

Spec block parameters

1. loca – Location-a
See definition of output parameter **loca** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).
2. locz – Location-z
See definition of output parameter **locz** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).
3. omode – Output Mode
See definition of output parameter **omode** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).
4. xcappl – Crossconnection Application
See definition of output parameter **xcappl** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).
5. xcnum – Crossconnection Number
See definition of output parameter **xcnum** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).

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 for the RTRV-HDR command.

Detailed behavior description

Behavior

A crossconnection can be modified via the ED-CRS command.

The affected parameter, as listed in the *spec_block* parameters part of this command, will be updated in the corresponding crossconnection entity.

For updates in more complex scenarios the following holds: -update of *omode* of one leg for a pathprotected 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 pathprotected 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 1way to 2way or vice versa).

Updated affected entities

Apart from the crossconnection entity no further entities are affected by the ED-CRS command.

Example input/output Example: For an existing non-BLSR 1-way crossconnection 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

Crossconnection 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: Entity (crossconnection) must exist

Crossconnection command processing shall verify that the specified crossconnection exists.

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

Validation rule: Specified rate consistent with the crossconnection rate

Crossconnection command processing shall verify that the specified rate (**modifier** parameter) is compliant with the rate of the existing crossconnection.

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

Validation rule: TID validation

Crossconnection command processing shall verify that the new TID(s) (**loca** and/or **locz**) are compliant with the actual crossconnection configuration according to the following rules:

- **loca** shall be a non-empty string in case the **in_aid** is involved in a BLSR protection group
- **locz** shall be a non-empty string in case the **out_aid** is involved in a BLSR protection group

- **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 crossconnection configuration

Related TL1 messages

- [“DLT-CRS: Delete crossconnection” \(7-50\)](#)
- [“ENT-CRS: Enter crossconnection” \(7-22\)](#)
- [“ENT-ROLL: Enter roll” \(7-59\)](#)
- [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#)

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**
See definition of input parameter **modifier** in [“ED-CRS: Edit crossconnection” \(7-43\)](#).
2. **in_aid** – Input Access Identifier
See definition of input parameter **in_aid** in [“ENT-CRS: Enter crossconnection” \(7-22\)](#).
3. **out_aid** – Output Access Identifier
See definition of output parameter **out_aid** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).
4. **in_aid2** – Input Access Identifier 2
See definition of output parameter **in_aid2** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).

Spec block parameters

1. **loca** – Location-a
See definition of output parameter **loca** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).
2. **locz** – Location-z
See definition of output parameter **locz** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).
3. **omode** – Output Mode
See definition of output parameter **omode** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).
4. **repleg** – Reported Leg Pair
See definition of output parameter **repleg** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).
5. **xcappl** – Crossconnection Application
See definition of output parameter **xcappl** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).
6. **xnum** – Crossconnection Number

See definition of output parameter **xcnum** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).

Note: **rtncappl**, **rtncnum** 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 herefore did use the ENT-CRS notification which is not logical.

Example output Refer to the “Detailed behavior description” of [“ED-CRS: Edit crossconnection” \(7-43\)](#).



DLT-CRS: Delete crossconnection

The DLT-CRS-**modifier** command can be initiated by a user to delete a crossconnection in the network element.

The **modifier** in the DLT-CRS command indicates the crossconnection 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 crossconnection 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

Description: The **modifier** parameter indicates the crossconnection on which the DLT-CRS command acts on.

For detailed description please refer to the [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#) command.

Type: Alphanumeric value set

Range:

- VC3
- VC4
- VC44C
- VC416C
- VC464C
- STS1
- STS3

- STS12
- STS48
- STS192

No use of the all value shall be allowed.

Default: None

2. tid – Target Identifier
Target Identifier. Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and the description of this parameter.
3. in_aid – Input Access Identifier
See definition of parameter **in_aid** in [“ENT-CRS: Enter crossconnection” \(7-22\)](#).
4. out_aid – Output Access Identifier
See definition of parameter **out_aid** in [“ENT-CRS: Enter crossconnection” \(7-22\)](#).
5. ctag – Correlation Tag
See definition of **ctag** in [“RTRV-HDR: Retrieve header” \(5-6\)](#).
6. cct – Crossconnection Topology
The parameter **cct** (crossconnection topology) specifies the topology of the crossconnection to be deleted via the DLT-CRS command.
See definition of parameter **cct** in [“ENT-CRS: Enter crossconnection” \(7-22\)](#).
7. in_aid2 – Input Access Identifier 2
This parameter is applicable to pathprotected crossconnections 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 pathprotected crossconnection.
See definition of parameter **in_aid2** in [“ENT-CRS: Enter crossconnection” \(7-22\)](#).

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 for the RTRV-HDR command.

Detailed behavior description

Behavior

Crossconnection can be deleted via the DLT-CRS command.

Please note that the 2 legs of a 2way crossconnection 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 crossconnection the crossconnection entity shall be deleted as well. This deletion shall be notified via a DLT-CRS notification.

Updated affected entities: General

In case of deleting a pathprotected crossconnection the command shall in addition delete the entity of type protection group being related to that pathprotected crossconnection. This deletion shall be notified via a DLT-PROTN-GRP notification. Please refer to the [“DLT-PROTN-GRP notification” \(8-66\)](#) section for details.

In case the *repleg* state is changed by deleting a crossconnection an ED-CRS notification shall be used to notify the updated *repleg* value.

Updated affected entities: 1way crossconnection, when not part of 2 way crossconnection

In case a 1way crossconnection is deleted where no “equivalent return-leg” (see below) is already existing the affected instance of the crossconnection shall be deleted. This shall be reported by means of an DLT-CRS notification.

An “equivalent return-leg” means: for a 1way crossconnection with rate N from in_trib to out_trib a return-leg would be given by

- a 1way crossconnection 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: 1way crossconnection, when part of a 2way crossconnection

In case a 1way crossconnection is deleted where an "equivalent return-leg" (see below) exists the instance of type crossconnection, which represents the leg as specified in the DLT-CRS command shall be deleted.

This shall be reported by means of an DLT-CRS notification.

Furthermore the altered *repleg* status shall be reported via an ED-CRS notification.

An "equivalent return-leg" means: when entering a 1way crossconnection with rate N from in_trib to out_trib a return-leg would be given by

- a 1way crossconnection 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: 2way crossconnection: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: 2way crossconnection

In case a 2way crossconnection is deleted its related instance of type crossconnection shall be deleted as well.

This shall be 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: pathprotected crossconnection

In case a pathprotected crossconnection is deleted the related instance of type crossconnection shall be deleted as well. This shall be 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 shall be deleted as well.

This shall be 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
```

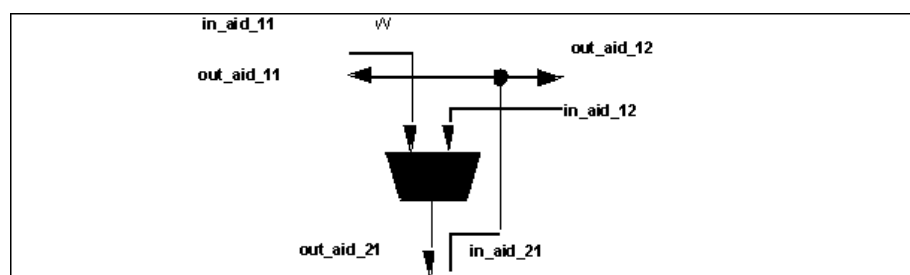
```
DLT-PROTN-GRP:1-1-##-15-1-1:PATHDRI;
```

```
REPT DBCHG
```

```
DLT-CRS-VC3:1-1-##-1-1-1,1-1-##-15-1-1:1WAYPPROT,1-1-##-14-1-1;
```

Example input/output

Example: Suppose the following compound crossconnection as depicted below shall be 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 pathprotected crossconnection, while the following two commands delete the bridge.

Error responses

Validation rule: Valid topology

Crossconnection command processing shall verify that the value of the topology parameter is consistent with the atomic crossconnection topology and the leg status of the existing crossconnection in accordance with the following table. Failure to meet this criteria (Validation Response = Deny) shall result in command rejection.

Error code: SNVS - Status, Not in Valid State, Invalid topology

Topology in Remove Crossconnection Command (TL1-parameter: cc t)	Topology of Existing Atomic Crossconnection (internal parameter: "Atomic crossconnection topology" as described in the RTRV-CRS section in the <i>repleg</i> context)	Leg Status of Existing Atomic Crossconnection (internal parameter: "Leg status" as described in the RTRV-CRS section in the <i>repleg</i> 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
	pathprotected	1-way	Deny
2WAY	point-to-point	1-way	Deny
	point-to-point	2-way	Accept
	pathprotected	1-way	Deny

Topology in Remove Crossconnection Command (TL1-parameter: <i>cc t</i>)	Topology of Existing Atomic Crossconnection (internal parameter: "Atomic crossconnection topology" as described in the RTRV-CRS section in the <i>repleg</i> context)	Leg Status of Existing Atomic Crossconnection (internal parameter: "Leg status" as described in the RTRV-CRS section in the <i>repleg</i> 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)
1WAYPPROT	point-to-point	1-way	Deny
	point-to-point	2-way	Deny
	pathprotected	1-way	Accept

This table should be understood as follows:

- 1. line: suppose a 1-way crossconnection exists with a point-to-point topology – then this crossconnection 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 crossconnection 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 pathprotected crossconnection 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 crossconnection properly the last line has to be considered, where the **cct** is compliant with the atomic crossconnection topology and the leg status.

Validation rule: Entities (tributaries) must exist

Crossconnection 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: Entity (crossconnection) must exist

Crossconnection command processing shall verify that the specified crossconnection exists.

Error code: IENE – Input Entity Not Exists, Specified crossconnection does not exist

Validation rule: Valid rate

Crossconnection command processing shall verify that the specified rate is equivalent to the rate of the existing crossconnection. 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 crossconnection

Validation rule: No crossconnection loopback existing

Crossconnection command processing shall deny commands requesting a crossconnection to a tributary with an existing crossconnection 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 crossconnection deletion shall be possible even with a facility loopback present.

Related TL1 messages

- [“ED-CRS: Edit crossconnection” \(7-43\)](#)
- [“ENT-CRS: Enter crossconnection” \(7-22\)](#)
- [“ENT-ROLL: Enter roll” \(7-59\)](#)
- [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#)

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DLT-CRS notification

Output format The DLT-CRS notification shall use 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**
See definition of input parameter ***modifier*** in [“DLT-CRS: Delete crossconnection” \(7-50\)](#).
2. **in_aid** – Input Access Identifier
See definition of input parameter ***in_aid*** in [“ENT-CRS: Enter crossconnection” \(7-22\)](#).
3. **out_aid** – Output Access Identifier
See definition of output parameter ***out_aid*** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#)
4. **cct** – Crossconnection Topology
See definition of input parameter ***cct*** in [“ENT-CRS: Enter crossconnection” \(7-22\)](#).
5. **in_aid2** – Input Access Identifier 2
See definition of output parameter ***in_aid2*** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#)

Example output Refer to the “Detailed behavior description” in [“DLT-CRS: Delete crossconnection” \(7-50\)](#).



ENT-ROLL: Enter roll

The ENT-ROLL-**modifier** command can be initiated by a user to roll the input of a crossconnection 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 crossconnection) followed by a ENT-CRS (establishing the new crossconnection according to the specified new input-tributary). This also holds for pathprotected crossconnections 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 crossconnection is to be established does not need to be free of alarms/failure conditions – no check in advance will be made. The crossconnection 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 crossconnection 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 crossconnection 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

Description: The modifier parameter indicates the crossconnection on which the ENT-ROLL command acts on. For detailed description please refer to the [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#) command

Type: Alphanumeric value set

Range:

- VC3
- VC4
- VC44C
- VC416C
- VC464C
- STS1
- STS3
- STS12
- STS48
- STS192

No use of the all value shall be allowed.

Default: None

2. tid – Target Identifier
Target Identifier. Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and the description of this parameter.
3. in_aid – Input Access Identifier
Input Access Identifier. Specifies the source of the crossconnection. See definition of parameter **in_aid** in [“ENT-CRS: Enter crossconnection” \(7-22\)](#).
4. out_aid – Output Access Identifier
Output Access Identifier. Specifies the sink of the crossconnection. See definition of parameter **out_aid** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).
5. ctag – Correlation Tag
See definition of **ctag** in [“RTRV-HDR: Retrieve header” \(5-6\)](#).

Spec block parameters

1. newinaid – New Input Access Identifier
Description: The parameter **newinaid** (New Input Access Identifier) specifies the source of the new crossconnection 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 value within the newinaid shall be allowed.

Default: None

2. newloca – New Location-a

The parameter **newloca** (New Location-a) specifies the new source TID if the **newinaid** is in a BLSR protection group. See definition of **loca** parameter in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).

3. newppgname – New Path protection group Name

The parameter **newppgname** (New Path protection group Name) specifies the name of the new path protection group. This parameter is applicable if a leg of a pathprotected crossconnection is rolled – the parameter in this case is optional and if not entered the default is used. For non pathprotected crossconnection this parameter does not apply and shall be omitted.

See definition of **ppgname** parameter in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).

4. xcappl – Crossconnection Application

The parameter **xcappl** (crossconnection application) indicates one of the application that are supported for a compound crossconnection topology. This parameter is optional – if not entered the default is used.

See definition of **xcappl** parameter in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).

5. xcnum – Crossconnection Number

The modifier parameter **xcnum** (crossconnection number) identifies each crossconnection leg in a specific compound crossconnection topology. This parameter is optional – if not entered the default is used.

See definition of **xcnum** parameter in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).

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 for the RTRV-HDR command.

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 exist a (separate) ENT-ROLL notification. Instead a DLT-CRS notification is sent, followed by an ENT-CRS notification. Furthermore additionally an ED-CRS notification shall be triggered by the ENT-ROLL command, when the **repleg** status is altered. Refer also to the section [“DLT-CRS: Delete crossconnection” \(7-50\)](#) and [“ENT-CRS: Enter crossconnection” \(7-22\)](#) behavior.

Transaction Behavior

For the ENT-ROLL command a validation shall be 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 shall be guaranteed that the command either is rejected or succeeds as a whole by executing the deletion- AND the entering-operation.

Updated affected entities: 1way, 2way crossconnection

Refer to the section “Detailed behavior description” of the [“ENT-CRS: Enter crossconnection” \(7-22\)](#) and [“DLT-CRS: Delete crossconnection” \(7-50\)](#) commands for the affected entities.

Updated affected entities: pathprotected crossconnection

If one leg of pathprotected crossconnection is rolled, the following updates shall take place:

1. The pathprotected crossconnection 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 crossconnection legs shall be 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) shall be 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 shall be updated accordingly. These updates shall be 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.

Example input/output

Example 1:

Suppose the following existing non-BLSR 1way vc3-crossconnection

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 crossconnection. 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 1way vc3-crossconnection:

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 pathprotected crossconnection 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 validation 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 analogous 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 crossconnection” \(7-50\)](#)
- [“ED-CRS: Edit crossconnection” \(7-43\)](#)
- [“ENT-CRS: Enter crossconnection” \(7-22\)](#)
- [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#)

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Autonomous notification

TID Change 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.



Tributary

Overview

Purpose This section contains messages related to crossconnections on tributary level.

Contents

RTRV-LPBK Retrieve loopback (here crossconnection loopback)	7-68
OPR-LPBK (here crossconnection loopback)	7-72
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RTRV-LPBK Retrieve loopback (here crossconnection loopback)

The RTRV-LPBK-**modifier** command can be initiated by a user to retrieve information on crossconnection loopback(s) in the network element.

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

Description: The **modifier** parameter indicates the rate of the currently active crossconnection 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 crossconnection loopback rate.

Type: Alphanumeric value set

Range:

- ALL
- VC3
- VC4
- VC44C
- VC416C
- VC464C
- STS1
- STS3
- STS12
- STS48
- STS192

RTRV-LPBK Retrieve loopback (here crossconnection loopback)

Default: None

2. tid – Target Identifier
Target Identifier. Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and the description of this parameter.
3. aid – Access Identifier
Description: Input Access Identifier. Specifies the tributary for which loopback information is requested to be retrieved.
Type: STS1NumAID (when using OPn packs)
Range: The all-parameter shall be 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.
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
Default: None
4. ctag – Correlation Tag
See definition of **ctag** in [“RTRV-HDR: Retrieve header” \(5-6\)](#).

Spec block parameters

None

Output format Normal completion message

In response to a valid RTRV-LPBK-**modifier** command, the following output shall be 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 for the RTRV-HDR command.

Output parameters

RTRV-LPBK Retrieve loopback (here
crossconnection loopback)

Command parameters

1. aid – Access Identifier
Description: Input Access Identifier. Specifies the tributary for which loopback information is retrieved.
Type: STS1NumAID (when using OPn packs)
Range: No all-parameter shall be possible.
Default: None
2. rate
Description: The parameter **rate** indicates the crossconnection rate. For a detailed description please refer to parameter **rate** in [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#).
Type: Alphanumeric value set
Range:
 - VC3
 - VC4
 - VC44C
 - VC416C
 - VC464C
 - STS1
 - STS3
 - STS12
 - STS48
 - STS192Default: None

Spec block parameters

1. crslpbkstat – Crossconnection Loopback Status
Description: This parameter **crslpbkstat** (Crossconnection Loopback Status) specifies the current crossconnection loopback status of the considered tributary **aid**.
The value 'YES' shall be used in case the tributary is loop-backed.
Note that the tributary does not need to be involved in a crossconnection – but can be in loopback also without crossconnection.
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

Default: None

Detailed behavior description

Behavior

The RTRV-LPBK command allows the retrieval of loopback information for tributaries, regardless if they are involved in crossconnections or not. Tributaries which are not involved in a crossconnection loopback shall not be present in the reply output.

Update affected entities

The RTRV-LPBK command does not affect other entities.

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 \(here crossconnection loopback\)” \(7-72\)](#)
- [“RLS-LPBK: Release loopback” \(7-95\)](#)

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OPR-LPBK (here crossconnection 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 crossconnection loopback consists of a crossconnection from an input tributary to an output tributary of the same tributary via the crossconnection fabric. Note that this loopback is possible on any logical tributary whether there is a crossconnection for that tributary or there is no crossconnection for that tributary (in this case the tributary is said to be "idle" – thus the naming crossconnection loopback might be slightly misleading – the naming crossconnection loopback should be understood in the sense that the crossconnection fabric is involved in this command and not in the sense that an existing crossconnection is looped back) After releasing the loopback the former, pre-existing crossconnections (if any) must be automatically re-established.

For setting a loopback on an existing crossconnection 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

Description: The **modifier** parameter indicates the tributary-respectively crossconnection-rate on which the OPR-LPBK command acts on.

For detailed description please refer to the [“RTRV-CRS: Retrieve crossconnection” \(7-5\)](#) command

Type: Alphanumeric value set

Range:

- VC3
- VC4
- VC44C
- VC416C
- VC464C
- STS1
- STS3
- STS12
- STS48
- STS192

No use of the all value shall be allowed.

Default: None

2. tid – Target Identifier

Target Identifier. Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and the description of this parameter.

3. aid – Access Identifier

Access Identifier. Specifies the tributary for which the loopback is requested. See definition of input parameter **aid** in [“RTRV-LPBK Retrieve loopback \(here crossconnection loopback\)” \(7-68\)](#).

4. ctag – Correlation Tag

See definition of **ctag** in [“RTRV-HDR: Retrieve header” \(5-6\)](#).

5. lpbktyp – Loopback Type

Description: The parameter **lpbktyp** (loopback type) specifies the type of loopback to be operated. In case of a tributary loopback (either with or without crossconnection) this parameter shall be set to CRS.

Type: Alphanumeric value string
Range: CRS
Default: None

Spec block parameters

1. **cmdmde** – Command Mode

Description: The parameter **cmdmde** (command mode) specifies the command execution mode. If the tributary is involved in a crossconnection the parameter shall be set to FRCD, else if the tributary is idle (i.e. non crossconnected) **cmdmde** shall be set to NORM.

The difference is mainly that in case of an existing crossconnection (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
- FRCD

Default: NORM

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 for the RTRV-HDR command.

Detailed behavior description

Behavior

Loopback on tributaries can be switched via the OPR-LPBK command. The parameters **crslpbkstat** and **crslpbkrate** of the entity tributary shall be updated: – **crslpbkstat** shall be updated to YES, – **crslpbkrate** shall be updated to the entered value as given by the **modifier** parameter.

This update shall be reported by an ED-**rr** (**rr** being either VC3 or STS1) notification.

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;

Updated affected entities

Apart from the tributary entity no further entities are affected by the OPR-LPBK command.

Example input/output

Example 1:

Suppose the following aid 1-1-#-#-1-1-4 is in_aid of a crossconnection.

The following command will set a loopback for that tributary.

```
OPR-LPBK-VC4:UNITE-NE:1-1-#-#-1-1-4:123456:,,,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 crossconnected.

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 shall verify that the specified rate is equivalent to the rate of the existing crossconnection. 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 crossconnection

Validation rule: Valid loopback type

Loopback command processing shall verify 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 shall verify that the loopback command can not be applied to an already existing loopback.

Error code: SAOP - Status already operated, loopback already exists

Validation rule: AID boundary and rate consistency

Loopback command processing shall verify 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 crossconnection must be on a $\text{mod}3 + 1$ boundary (1, 4, 7, ...).
- The first STS-1 of an STS-12/VC-4-4c rate crossconnection must be on a $\text{mod}12 + 1$ boundary (1, 13, 25, ...).
- The first STS-1 of an STS-48/VC-4-16c rate crossconnection must be on a $\text{mod}48 + 1$ boundary (1, 49, 97, ...).
- The first STS-1 of an STS-192/VC-4-64c rate crossconnection must be on a $\text{mod}192 + 1$ 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 shall verify 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 crossconnection non-/existence

Loopback command processing shall verify that

- in case no crossconnection exists the **cmdmde** must be NORM
- in case a crossconnection exists the **cmdmde** must be FRCD.

In the other cases

- no crossconnection and **cmdmde**=FRCD and
- crossconnection and **cmdmde**=NORM a rejection shall take place.

Error code: IDNC - Input Data Not Consistent, crossconnection-existence not consistent with cmdmde-value

Related TL1 messages

- [“RLS-LPBK: Release loopback” \(7-95\)](#)
- [“RTRV-LPBK: Retrieve loopback \(here facility loopback\)” \(7-84\)](#)

References GR-199-CORE



OPR-LPBK notification (here crossconnection 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.



RLS-LPBK: Release 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
 See definition of parameter **modifier** in [“OPR-LPBK: Operate loopback” \(7-89\)](#).
2. tid – Target Identifier
 Target Identifier. Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and the description of this parameter.
3. aid – Access Identifier
 See definition of parameter **aid** in [“OPR-LPBK: Operate loopback” \(7-89\)](#).
4. ctag – Correlation Tag
 See definition of **ctag** in [“RTRV-HDR: Retrieve header” \(5-6\)](#).

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 for the RTRV-HDR command.

Detailed behavior description

Behavior

Existing loopback on tributaries can be released via the RLS-LPBK command. The attribute *crslpbkstat* of the entity tributary shall be updated: *crslpbkstat* shall be updated to NO.

This update shall be reported by an ED-*rr* (*rr* being either VC3 or STS1) notification.

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 shall verify 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 crossconnection

Validation rule: Loopback must exist

Loopback command processing shall verify 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” \(7-89\)](#)
- [“RTRV-LPBK: Retrieve loopback \(here facility loopback\)” \(7-84\)](#)

References GR-199-CORE



RLS-LPBK notification (here crossconnection 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.



Port

Overview

Purpose This section contains messages related to crossconnections on port level.

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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 network element. 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 shall be lit.

Properties Login Privilege: User Privilege Code (UCFC/UCAL): T1
 Priority: 1
 Abortable: Yes

Input format Command Syntax: RTRV-LPBK-**modifier**:tid:aic:ctag;

Input parameters

Command parameters

1. modifier

Description: The **modifier** 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 tributray loopback command this parameter is retained.)

Type: Alphanumeric value set

Range:

- ALL
- STM16
- STM64
- STM256
- OC48
- OC192
- OC768

Default: None

2. tid – Target Identifier

RTRV-LPBK: Retrieve loopback (here facility loopback)

Target Identifier. Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and the description of this parameter.

3. aid – Access Identifier

Description: Input Access Identifier. Specifies the port for which loopback information is requested to be retrieved.

Type: SPortAID (when using OPn packs)

Range: The all-parameter shall be 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

Default: None

4. ctag – Correlation Tag

See definition of **ctag** in [“RTRV-HDR: Retrieve header” \(5-6\)](#).

Spec Block Parameters

None.

Output format

Normal completion message

In response to a valid RTRV-LPBK command, the following output shall be 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 for the RTRV-HDR command.

Output parameters

Command parameters

1. aid – Access Identifier

Description: Access Identifier of the port for which the loopback state is returned.

Type: SPortAID (when using OPn packs)

RTRV-LPBK: Retrieve loopback (here facility loopback)

Range: No all is allowed.

Default: None

2. rate

Description: The rate parameter indicates the port **rate**.

Type: Alphanumeric value set

Range:

- STM16
- STM64
- STM256
- OC48
- OC192
- OC768

Default: None

Spec block parameters

1. lpbk – Loopback

Description: The parameter **lpbk** (Loopback) 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 exististing 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: NO

2. fsflpbkstat – Far-Side-Facility-Loopback-Status

Description: The parameter **fsflpbkstat** (far-side facility loopback status) 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.

RTRV-LPBK: Retrieve loopback (here facility loopback)

If *fsflpbkstat*=YES then the port is (far-side) loop-backed. If *fsflpbkstat*=NO then there is no (far-side) loopback exististing 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: NO

Detailed behavior description

Behavior

The RTRV-LPBK command allows the retrieval of near-side and far-side loopback information for ports.

Update affected entities

No other entities are affected by this command.

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

Validation rule: Modifier consistent with given port-rate

Loopback command processing shall verify that the **modifier** parameter is consistent with the rate of the port (given by the input **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.

RTRV-LPBK: Retrieve loopback (here facility loopback)

Validation rule: Modifier consistent with given port's interface standard

Loopback command processing shall verify 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: IDNC - Input Data Not Consistent, modifier is inconsistent with existing interface standard.

Related TL1 messages

- [“OPR-LPBK: Operate loopback” \(7-89\)](#)
- [“RLS-LPBK: Release loopback” \(7-95\)](#)

References GR-199-CORE



OPR-LPBK: Operate loopback

The OPR-LPBK command can be initiated by a user to establish a loopback on an OPn port in the network element.

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 crossconnections loopbacks or crossconnections, i.e. facility loopbacks are assumed to precede over already existing crossconnection loopbacks. When a facility loopback is released the previously existing crossconnection 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 OutofService (**servicecond** = OUTOFSERVICE) – this can be achieved 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**
 Description: The **modifier** parameter indicates the port rate on which the OPR-LPBK command acts on.
 Type: Alphanumeric value set
 Range:
 - STM16
 - STM64
 - STM256
 - OC48

- OC192
 - OC768
- No use of the all value shall be allowed.
Default: None
2. tid – Target Identifier
Target Identifier. Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and the description of this parameter.
 3. aid – Access Identifier
Access Identifier. Specifies the port for which the loopback is requested. See definition of output parameter **aid** in RTRV-LPBK.
 4. ctag – Correlation Tag
See definition of **ctag** in [“RTRV-HDR: Retrieve header” \(5-6\)](#).
 5. lpbktyp – Loopback Type
Description: The parameter **lpbktyp** (loopback type) 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
 - FSFDefault: None

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 for the RTRV-HDR command.

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 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 OPn port (**rr** specifying the affected port, i.e. OC<M>/ STM<N>).

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

Provisioning 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) 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 shall verify 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 shall verify 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 shall verify 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: IDNC - Input Data Not Consistent, modifier is inconsistent with existing interface standard.

Validation rule: Loopback must not already exist

Loopback command processing shall verify that the loopback command can not be applied to an already existing loopback. The

request to establish a near-side (far-side) loopback shall 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: No change of loopback allowed

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);

Error code: SNVS – Status, Not in Valid State, Trial to change loopback type

Related TL1 messages

- [“RLS-LPBK: Release loopback” \(7-95\)](#)
- [“RTRV-LPBK: Retrieve loopback \(here facility loopback\)” \(7-84\)](#)

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 port (***rr*** specifying the affected port i.e. OC<M>/STM<N>).



RLS-LPBK: Release loopback

The RLS-LPBK-**modifier** command can be initiated by a user to release an existing loopback on an OPn or GEN port in the network element.

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**
The **modifier** parameter indicates port rate on which the RLS-LPBK command acts on. See definition of parameter **modifier** in [“OPR-LPBK: Operate loopback” \(7-89\)](#).
2. **tid** – Target Identifier
Target Identifier. Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and the description of this parameter.
3. **aid** – Access Identifier
Access Identifier. Specifies the port for which the releasing of the loopback is requested. See definition of parameter **aid** in OPR-LPBK.
4. **ctag** – Correlation Tag
See definition of **ctag** in [“RTRV-HDR: Retrieve header” \(5-6\)](#).

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 for the RTRV-HDR command.

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 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 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;

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) notifications.

Example input/output Please refer to the "Detailed behaviour description" section for this command.

Error responses

Validation rule: Loopback must exist

Loopback command processing shall verify 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 shall be rejected.

Error code: SNVS - Status, Not in Valid State, loopback does not exist.

Validation rule: modifier consistent with given port-rate

Loopback command processing shall verify 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 shall verify 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: IDNC - Input Data Not Consistent, modifier is inconsistent with existing interface standard.

Related TL1 messages

- [“OPR-LPBK: Operate loopback” \(7-89\)](#)
- [“RTRV-LPBK: Retrieve loopback \(here facility loopback\)” \(7-84\)](#)

References GR-199-CORE



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>) for an OPn port.



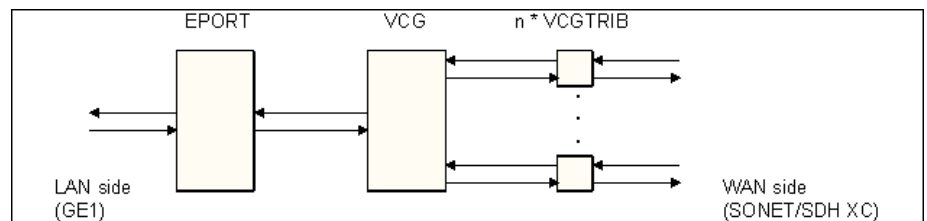
Ethernet port

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 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

[RTRV-EPORT: Retrieve Ethernet port](#)

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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**;

Input parameters

Command parameters

1. modifier
Description: The modifier shall specify the type of the Ethernet port at the LAN side of the unit.
Type: alphanumeric value set
Range: 1GE
Default: None
2. tid – Target Identifier
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
3. aid – Access Identifier
Description: The access identifier shall specify 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_UnivSlotAIDshall be accepted.
Default: None
4. ctag – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

Output format Normal completion message

RTRV-EPORT: Retrieve Ethernet port

After receiving the RTRV-EPORT command, the following normal completion response shall be 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 for the RTRV-HDR command.

Output parameters

Command parameters

1. aid – Access Identifier
Description: The access identifier shall specify the Ethernet port to be operated on.
Type: AID
Range: EPortAID as defined in AID structure with the exception of the value all.
Default: None
2. modifier
Description: The modifier shall specify the type of the Ethernet port at the LAN side of the unit.
Type: alphanumeric value set
Range: 1GE
Default: None

Spec block parameters

1. enetpn – Ethernet Alarm Severity Assignment Profile Name
Description: The parameter **enetpn** 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

Detailed behavior
description

None

RTRV-EPORT: Retrieve Ethernet port

Example input/output

```

RTRV-EPORT-1GE:LT-UNITE:1-1-#-#-1-1:123456;
LT-UNITE 00-11-11 11:11:00
M 123456 COMPLD
"1-1-#-#-1-1,1GE::anegst= UNAVAILABLE,dftpri=LOW,dftvlan=UNAVAILABLE"
"1-1-#-#-1-1,1GE::epmode=AUTO,fcmd=AUTO,enetpn=DEFAULT "
"1-1-#-#-1-1,1GE::fcmdo=UNAVAILABLE,fsflpbkstat=NO,rflttst= UNAVAILABLE "
"1-1-#-#-1-1,1GE::servcond=INSERVICE,vvidls=-1"
;

```

Error responses

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there apply to the RTRV-EPORT command.

Validation rule:

There is no special validation rule.

Related TL1 messages

- [“RTRV-LPBK: Retrieve loopback \(here facility loopback\)” \(7-84\)](#)
- [“OPR-LPBK: Operate loopback” \(7-89\)](#)
- [“RLS-LPBK: Release loopback” \(7-95\)](#)



ENT-EPORT notification

Output format The ENT-EPORT notification shall use the general format of a REPT DBCHG Report Database Change notification.

Syntax: The ENT-EPORT notification shall have following specific syntax: ENT-EPORT-modifier:*aid::spec_block*;

Output parameters

Command parameters

1. aid – Access Identifier
See definition at [“RTRV-EPORT: Retrieve Ethernet port” \(7-101\)](#),
Output parameters.

Spec block parameters

1. enetpn – Ethernet Alarm Severity Assignment Profile
See definition at [“RTRV-EPORT: Retrieve Ethernet port” \(7-101\)](#),
Output parameters.

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::anegst=NAV,dftprio=LOW,dftvlan=UNAVAILABLE,enetpn=DEFAULT,epmode=AUTO,fcmd=AUT
0,fslpbkstat=NO,servcond=INSERVICE,vvidls=-1"
;
```



ED-EPORT notification

Output parameters

Command parameters

1. aid – Access Identifier
See definition at [“RTRV-EPORT: Retrieve Ethernet port” \(7-101\)](#),
Output parameters.

Spec block parameters

1. enetpn – Ethernet Alarm Severity Assignment Profile
See definition at [“RTRV-EPORT: Retrieve Ethernet port” \(7-101\)](#),
Output parameters.



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 shall be reported via the ENT-EPORT notification.

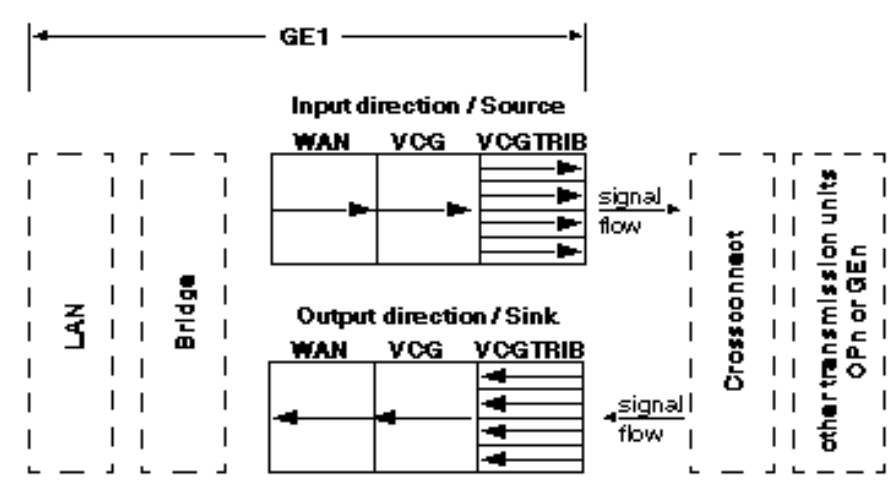


Virtual concatenation group

Overview

- Purpose** For an overview of the GE1 related entities EPORT, VCG and VCGTRIB see [“ENT-EQPT \(slot\): Enter Equipment \(slot\)” \(5-88\)](#).
- 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 → VCG → VCGTRIB → Crossconnect
- As those tributaries have termination function this is also often called source.
- Output direction**
- Crossconnect → VCGTRIB → VCG → WAN

As those tributaries have termination function this is also often called sink.



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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*;

Input parameters

Command parameters

1. **tid** – Target Identifier
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. **aid** – Access Identifier
Description: The access identifier shall specify 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_UnivSlotAIDshall be accepted.
Default: None
3. **ctag** – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

Output format Normal completion message

If the network element fully complies with the RTRV-VCG request, the following normal completion response shall be 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>
  ...
  ...
"aid::spec_block"
  <1 or more of the line above>
"tribaid:mfiv,MFIV"
  <several lines, one for each tribaid belonging to aid>
;
```

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
Description: The access identifier shall specify 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
Default: None
2. tribaid – Tributary Access Identifier
Description: 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
Default: None

Spec block parameters

1. enetpn – Ethernet Alarm Severity Assignment Profile Name
Description: The parameter *enetpn* 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

**Detailed behavior
description**

The RTRV-VCG does not generate a REPT DBCHG message. The
command shall retrieve all VCG parameters as described in section
Output parameters.

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:istd=SONET,enetpn=asap123,inputsig=211,unequiposig=211,htmr=0,lcasmd=ENABL  
E,vmode=NMON,wtr=5"  
"1-1-#-#-02-v3-1:125,MFIV"  
.  
. for all 21 VCG members  
.  
"1-1-#-#-02-v3-21:250,MFIV"  
;
```

Error responses

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error
responses section. The error responses listed there apply to the
RTRV-VCG command, too.

Validation rule

There is no special rule.

Related TL1 messages



ENT-VCG notification

Output format The ENT-VCG notification shall use the general format of a REPT DBCHG Report Database Change notification.

Syntax: The ENT-VCG notification shall have following specific syntax: ENT-VCG:*aid::spec_block*;

Output parameters

Command parameters

1. aid – Access Identifier
See definition at [“RTRV-VCG: Retrieve virtual concatenation group” \(7-109\)](#), Output parameters.

Spec block parameters

1. enetpn – Ethernet Alarm Severity Assignment Profile
See definition at [“RTRV-VCG: Retrieve virtual concatenation group” \(7-109\)](#), Output parameters.



ED-VCG

Detailed behaviour description

Group Notification for VCG Tributaries

Refer to the Detailed Behavior of [“ENT-EQPT \(slot\): Enter Equipment \(slot\)” \(5-88\)](#) command for details on grouped notifications for VCG tributaries.



ED-VCG notification

Output parameters

Command parameters

1. aid – Access Identifier
See definition at [“RTRV-VCG: Retrieve virtual concatenation group” \(7-109\)](#), Output parameters.

Spec block parameters

1. enetpn – Ethernet Alarm Severity Assignment Profile
See definition at [“RTRV-VCG: Retrieve virtual concatenation group” \(7-109\)](#), Output parameters.



Autonomous notifications

**GE1 circuit pack is
auto-provisioned**

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 Virtual Concatenation Groups of the circuit pack.

This change shall be reported via the ENT-VCG 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 \(slot\)” \(5-88\)](#).
- 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.

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RTRV-VCGTRIB: Retrieve virtual concatenation group tributary

The RTRV-VCGTRIB command retrieves the attributes of a VCG tributary.

Properties Login Privilege: User Privilege Code (UCFC/UCAL): P1
Priority: 1
Abortable: Yes

Input format Command Syntax: RTRV-VCGTRIB-*modifier:tid:aid:ctag*;

Input parameters

Command parameters

1. modifier
Description: The modifier shall specify the type of the tributary.
Type: alphanumeric value set
Range:
 - ALL
 - VCDefault: None
2. tid – Target Identifier
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
3. aid – Access Identifier
Description: The access identifier shall specify 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_UnivSlotAIDshall be accepted.
Default: None
4. ctag – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

Output format Normal completion message

If the network element fully complies with the RTRV-VCGTRIB request, the following normal completion response shall be returned:

```
sid date time
M ctag COMPLD
  "aid::spec_block set1"
  <1 or more of the line above>
  "aid,aidtype::spec_block set2"
  <1 or more of the line above>
  ...
  ...
  "aid::spec_block set1"
  <1 or more of the line above>
  "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 for the RTRV-HDR command.

Output parameters

Command parameters

1. aid – Access Identifier
Description: The access identifier shall specify the VCG tributary whose attributes are reported.
Type: AID
Range: VCGNumAID as defined in AID structure with exception of value all.
Default: None

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. ptpn – Path Terminating ASA Profile Name
Description: The parameter **ptpn** 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

Detailed behavior description

Behavior

The RTRV-VCGTRIB does not generate a REPT DBCHG message. The command shall retrieve all port parameter as described in section Output parameters.

Dependencies

brstintvl and *brstthr* are only meaningful if *sdfsmode* is set to BURST. *degthr* and *dexcth* are only meaningful if *sdfsmode* is set to POISSON.

Parameters which are not meaningful at the moment shall be 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",dexcth=-3,hptimais=ENABLE,exphptrc=890000000000000000000000
00000,hptimmon=DISABLE,inmbs=DISABLE,inmbst=NA,outmbs=DISABLE,outm
bst=NA,ptpn=DEFAULT,ptrc=00,ptrcrfmt=1,ptrcst=NORMAL,ptrcwfmt=1,rs
iglb=1B,sdfsmode=BURST,tmonmd=NMON,trailst=NORM,trc=00,tslmon=ENA
BLE"
;
```

Error responses

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there apply to the RTRV-VCGTRIB command, too.

Validation rule

There is no special rule.

Related TL1 messages

None.



ENT-VCGTRIB notification

Output format The ENT-VCGTRIB notification shall use the general format of a REPT DBCHG Report Database Change notification.

Syntax: The ENT-VCGTRIB notification shall have following specific syntax: ENT-VCGTRIB-modifier:**aid::spec_block**;

Output parameters

Command parameters

1. aid – Access Identifier
See definition at [“RTRV-VCGTRIB: Retrieve virtual concatenation group tributary” \(7-117\)](#), Output parameters.
2. modifier
Description: The **modifier** shall specify the type of the tributary.
Type: alphanumeric value set
Range: VC
Default: None

Spec block parameters

1. feppm – Far End Path PM Enable
2. aid – Access Identifier
See definition at [“RTRV-VCGTRIB: Retrieve virtual concatenation group tributary” \(7-117\)](#), Output parameters.
3. ptpn – Path Terminating ASA Profile Name
See definition at [“RTRV-VCGTRIB: Retrieve virtual concatenation group tributary” \(7-117\)](#), Output parameters.

Example Output

```
LT-UNITE 00-11-11 11:11:00
A 001 REPT DBCHG
  "TIME=11-10-30,DATE=00-11-11:ENT-VCGTRIB-STTS:1-1-#-#-2-V1-4::
brstintvl=7,brstthr=30,crslbkstat=NO,degthr=-6,dexcthr=-
3,hptimais=DISABLE,exphptrc=89000000000000000000000000000000,hptimmon=DISAB
LE,inmbs=DISABLE,inmbst=NAV,outmbs=DISABLE,outmbst=NAV,ptpn=DEFAULT,ptrcrfm
t=1,ptrcwfmt=1,sdsfmode=BURST,tmonmd=NMON,trc=00,tslmmon=ENABLE"
;
```



Autonomous notifications

**GE1 Circuit Pack is
Auto-provisioned**

If a GE1 circuit pack is auto-provisioned 7 VC4 VCGTRIB instances will be created (independent 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 Notification for VCG Tributaries

Reference VCG Tributary Autonomous Notifications Group
Notifications for VCG Tributaries: Refer to the Detailed Behavior of the [“ENT-EQPT \(slot\): Enter Equipment \(slot\)” \(5-88\)](#) (slot) command for details on grouped notifications for VCG tributaries.





8 Protection

Overview

Purpose This section contains the TL1 interface definition for the domain “protection”.

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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.

Two operation modes can be distinguished for a 4-fibre MS-SPRing/BLSR protection group: 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. 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.

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 *LambdaUnite*[™] MSS 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 the of protection group (conversion from 1-side node to 2-side node and vice versa) with the ED-PROTN-GRP.

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Introduction to protection groups

General information

The following section presents an 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

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	

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: 1+1 Equipment Protection group is created/deleted as part of equipment provisioning.

1+1 multiplex section/line protection group

Entity table for 1+1 multiplex 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 ED DLT	ENT ED 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 ENTED	ENT ED	user	
wtr – Wait To Restore Time	RTRV ED	ENT ED	user	
protocol – APS Protocol	RTRV ENT ED	ENT ED	user	
dcclmsprotmd – DCC Line/MS Protection Mode	RTRV ED	ENT ED	user	
dcctrsprotmd – 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	
wapsprotn – Incoming West APS Protection Path	RTRV		state	

Attribute	Opr	Not	Class	Note
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	
eapssnid – Incoming East APS Destination Node Id	RTRV		state	
wapssnid – 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).

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)
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.



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::prototype*;

1+1 multiplex section/line protection group

Command Syntax: RTRV-PROTN-GRP:*tid:aid:ctag::prototype*;

2-/4-fibre MS-SPRing/BLSR protection group

Command Syntax: RTRV-PROTN-GRP:*tid:[aid]:ctag::prototype,[rid]*;

Path protection group

Command Syntax: RTRV-PROTN-GRP:*tid:[aid]:ctag::prototype, , [ppgname]*;

The second comma in front of *ppgname* is needed since *rid* is omitted.

Important! The TL1 command RTRV-PROTN-PPG which retrieves all used path protection group names is not supported. Therefore it's 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 \(Path protection group\)” \(8-14\)](#)). 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
See definition in input parameters section in [“RTRV-HDR: Retrieve header” \(5-6\)](#).
2. aid – Access Identifier
Description: The parameter shall specify the aid of 1+1 equipment protection group.
Type: AID
Range: bay-shelf-eall (range over SwitchAndTmgProtGrpAID) or SwitchAndTmgProtGrpAID (for one protection group instance)
Default: No default
3. ctag – Correlation Tag
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
4. prototype – Protection Type
Description: The parameter shall specify EQPTSWFBR for retrieving information for 1+1 equipment protection group.
Type: alphanumeric value set
Range: EQPTSWFBR
Default: None

Command parameters (1+1 multiplex section/line protection group)

1. tid – Target Identifier
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
2. aid – Access Identifier
Description: The parameter shall specify the aid of a 1+1 multiplex section/line protection group 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 SPortAID (not ranged)
Default: No default

3. ctag – Correlation Tag
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
4. prototype – Protection Type
Description: The parameter shall specify 1+1 for retrieving information for a multiplex section/line protection group.
Type: value set
Range: 1+1
Default: None

Command parameters (2-/4-fibre MS-SPRing/BLSR protection group)

1. tid – Target Identifier
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
2. aid – Access Identifier
Description: The parameter shall specify 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 TwoFibre_ProtGrpAID (not ranged) or SPortAID (not ranged)
Default: No default
3. ctag – Correlation Tag
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
4. prototype – Protection Type
Description: The parameter shall specify the protection group type for which the information is retrieved.
Type: alphanumeric value set
Range: 2F
Default: None
5. rid – Ring Identification
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
Option: If **aid** is specified, then **rid** can be omitted.

Command parameters (Path protection group)

1. tid – Target Identifier

See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).

2. aid – Access Identifier
Description: The parameter shall specify 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)
Default: No default
3. ctag – Correlation Tag
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
4. prototype – Protection Type
Description: The parameter shall specify the protection group type for which the information is retrieved.
Type: alphanumeric value set
Range: PATHDRI
Default: None
5. ppgname – Path protection group Name
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
Option: If **aid** is specified, then **ppgname** can be omitted. 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.

Spec block parameters

None.

Output format Normal completion message – with general protection group information

After receiving the RTRV-PROTN-GRP command, the following normal completion response shall be returned in case of EQPTSWFBR, 1+1, 2F, 4F protection groups :

```
sid date time
M ctag COMPLD
  "aid:[spec_block]"
  ...
  "aid:[spec_block]"
;
```

Normal completion message – with path protection group information

After receiving the RTRV-PROTN-GRP command, the following normal completion response shall be 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

Normal completion message – empty reply

If no protection group entity exists matching the specified values of the input parameters **aid**, **rid**, **ppgname** then the following response is returned:

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

Output parameters

Command parameters (1+1 Equipment protection group)

1. aid – Access Identifier
Description: The parameter shall specify the AID of the 1+1 switch protection equipment group.
Type: AID
Range: SwitchAndTmgProtGrpAID
Default: No default

Command parameters (1+1 multiplex section/line protection group)

1. aid – Access Identifier
Description: The parameter shall specify the AID of the 1+1 multiplex section/line protection group.
Type: AID
Range: OnePlusOne_ProtGrpAID
Default: No default

Command parameters (2-fibre MS-SPRing/BLSR protection group)

1. aid – Access Identifier
Description: The parameter shall specify the AID of the 2 fibre MS-SPRing/BLSR protection group.
Type: AID
Range: TwoFibre_ProtGrpAID
Default: No default

Command parameters (Path protection group)

1. aid – Access Identifier
Description: The parameter shall specify the AID of the path protection group.
Type: AID
Range: Path_ProtGrpAID
Default: No default
2. outtribaid – Output Tributary Access Identifier
Description: The parameter shall specify 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: GenTribAID
Default: No default

Spec block parameters (1+1 Equipment protection group)

1. actunit – Active Unit State
Description: The parameter shall specify which unit is currently selected within the protection group as active unit.
The value WKG shall specify that the worker unit is active.
The value PROTN shall specify that the protection unit is active.
Type: alphanumeric value set
Range: WKG, PROTN
Default: The first provisioned/auto-created circuit pack shall be the default active unit.
2. protn – Protection Unit
Description: The parameter shall specify the protection circuit pack AID being a member of the 1+1 equipment protection group.
Type: AID
Range: CpAID
Default: CpAID related to slot 10
3. protnsiglvl – Protection Fault Status
Description: The parameter shall specify the current fault status w.r.t. the protection unit as used by the protection state machine.
The value EF (Equipment Failed) shall be used if an equipment defect used as switch criteria is currently present for the protection unit.
The value NONE shall be used if no such defect is currently present.
Type: alphanumeric value set
Range: EF,NONE
Default: NONE
4. prototype – Protection Type
Description: The parameter shall specify the type of the protection group.
The value for the 1+1 switch protection equipment group shall be EQPTSWFBR (Equipment Switch Fabric).
Type: alphanumeric value set
Range: EQPTSWFBR
Default: EQPTSWFBR
5. swreq – Switch Request State
Description: The parameter shall specify the current switch request state of the protection state machine.

The value EQPTFAILED (Equipment Failed) shall be used if an equipment failed condition is the current state.

The value FS (Forced Switch) shall be used if a forced switch is the current state.

The value MS (Manual Switch) shall be used if a manual switch is the current state.

The value NR (No Request) shall be used if no request is the current state.

Type: alphanumeric value set

Range: EQPTFAILED,FS,MS,NR

Default: NR

6. wkg – Worker Unit

Description: The parameter shall specify the worker circuit pack AID being a member of the 1+1 equipment protection group.

Type: AID

Range: CpAID

Default CpAID related to slot 9

7. wkgsiglvl – Worker Fault Status

Description: The parameter shall specify the current fault status w.r.t. worker unit as used by the protection state machine.

The value EF (Equipment Failed) shall be used if an equipment defect used as switch criteria is currently present for the worker unit.

The value NONE shall be used if no such defect is currently present.

Type: alphanumeric value set

Range: EF,NONE

Default: NONE

Spec block parameters (1+1 multiplex section/line protection group)

1. actunit – Active Unit State

Description: The parameter shall specify which port is currently selected within the protection group as active port

The value WKG shall specify that the worker port is active.

The value PROTN shall specify that the protection port is active.

Type: alphanumeric value set

Range: WKG, PROTN

Default: WKG

2. actunitfe – Far-End Incoming Requested Selection

Description: The parameter shall be derived from the incoming K1 [5..8] overhead byte.

The value WKG shall be used if accepted K byte value is equal to 0. The value PRTON shall be used if the accepted K byte value is equal to 1

The value UNAVAILABLE shall be used if an SF condition is active for the protection line.

The value INV (InValid) shall be used in all other cases.

Type: alphanumeric value set

Range: WKG, PROTN, UNAVAILABLE, INV

Default: WKG

3. actunitne – Near-End Outgoing Requested Selection

Description: The parameter shall be derived from the sent K1 [5..8] overhead byte.

The value WKG shall be used if sent K byte value is equal to 0. The value PRTON shall be 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

Description: The parameter shall be derived from the incoming K1 [1..4] overhead byte.

It shall indicate 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
- 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. apout – Near-End Outgoing APS
Description: The parameter shall be derived from the sent K1 [1..4] overhead byte.
It shall indicate 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
- 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
Description: The parameter shall specify 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. pgrate – protection group Rate
Description: 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, STM16, STM64

Default: The default value shall be the interface rate of the worker port.

8. protn – Protection Unit

Description: The parameter shall specify the protection port AID being a member of the 1+1 line/MS protection group.

Type: AID

Range: SPortAID

Default: None

9. protnsiglvl – Protection Fault Status

Description: The parameter shall specify the current fault status w.r.t. port as used by the protection state machine.

The value SF (Signal Fail) shall be used if a defect defined as signal fail condition is currently present for the protection port.

The value SD (Signal Degrade) shall be used if a defect defined as signal degraded condition is currently present for the protection port.

The value NONE shall be used if no such defect is currently present.

Type: alphanumeric value set

Range: SF, SD, NONE

Default: NONE

10. prototype – Protection Type

Description: The parameter shall specify the type of the protection group. The value for the 1+1 line/MS protection group shall be 1+1.

Type: value set

Range: 1+1

Default: 1+1

11. swreq – Switch Request State

Description: The parameter shall specify the current switch request state of the protection state machine.

It shall have the following values:

It shall indicate the type of request as follows:

- DNR: Do Not Revert
- FS: Forced Switch
- LO: Lockout of Protection
- MS: Manual Switch
- SF: Signal Fail

- SD: Signal Degrade
 - WTR: Wait to restore (only used if protection group is revertive)
 - FOP: Failure Of Protocol
 - NR: No Request
- Type: alphanumeric value set
Range: DNR, FS, LO , MS, SF, SD, WTR, FOP, NR
Default: NR

12. wkg – Worker Unit

Description: The parameter shall specify the worker port AID being a member of the 1+1 line/MS protection group.
Type: AID
Range: SPortAID
Default: None

13. wkgsiglvl – Worker Fault Status

Description: The parameter shall specify the current fault status w.r.t. port as used by the protection state machine.
The value SF (Signal Fail) shall be used if a defect defined as signal fail condition is currently present for the worker port.
The value SD (Signal Degrade) shall be used if a defect defined as signal degraded condition is currently present for the worker port.
The value NONE shall be used if no such defect is currently present.
Type: alphanumeric value set
Range: SF, SD, NONE
Default: NONE

Spec block parameters (2-fibre MS-SPRing/BLSR protection group)

1. blsrpn – MSSPRING-BLSR ASAP Pointer

Description: The parameter shall specify 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

2. eapschst – Incoming East APS Channel Status

Description: The parameter shall be derived from the incoming K2 [6..8] overhead byte of the east port.

It shall indicate 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

3. eapsgnid – Incoming East APS Destination Node Id
Description: The parameter shall be derived from the incoming K1 [5..8] overhead byte of the east port. It shall specify the node ID for which the K1 byte is destined.
The value UNAVAILABLE shall be used in case of an pending SF condition.
Type: alphanumeric value set
Range: 0-15 or UNAVAILABLE
Default: 0
4. eapspntr – Incoming East APS Protection Path
Description: The parameter shall be derived from the incoming K2 overhead byte of the east port.
It shall indicate the protection path as follows:
 - 0: short path code (S)
 - 1: long path code (L)The value UNAVAILABLE shall be used in case of an pending SF condition.
Type: alphanumeric value set
Range: 0, 1, UNAVAILABLE
Default: 0
5. eapssnid – Incoming East APS Source Node Id
Description: The parameter shall be derived from the incoming K2 [1..4] overhead byte of the east port. It shall specify the node ID which sourced the K1 byte.

The value UNAVAILABLE shall be used in case of an pending SF condition.

Type: alphanumeric string

Range: 0-15 or UNAVAILABLE

Default: 0

6. eapssw – Incoming East APS Switch Priority

Description: The parameter shall be derived from the incoming K1 [1..4] overhead byte of the east port.

It shall indicate 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 shall be used in case of an pending SF condition.

Some of the values should only occur for a 4-fibre protection group. Nevertheless they are listed within this section since it may happen, that the incoming Kbyte may contain a value which is only defined for the 4-fibre protection group.

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

7. east – East Port

Description: The parameter shall specify 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

Default: None

8. elprotnsw – East Last protection switch Attempt

Description: The parameter shall specify, whether the last switch
request for the east side succeeded or not.

The values shall 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

9. eswreq – East Switch Request State

Description: The parameter shall specify 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 outgoing K1 bytes. For all other cases, the
value shall be 'NR'.

It shall 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
- RRS: Reverse Request – Span
- RRR: Reverse Request – Ring
- NR: No Request

Type: alphanumeric value set

Range LPS, FSR, SFR, SDR, MSR, WTR, RRS, RRR, NR

Default: NR

10. pgrate – protection group Rate

Description: 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, STM16, STM64

Default: The default value shall be the interface rate of the east port.

11. prototype – Protection Type

Description: The parameter shall specify 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: 2F

12. rid – Ring Identification

Description: 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

Default: empty string

13. ringndst – Ring Node APS State

Description: The parameter shall specify 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

14. wapschst – Incoming West APS Channel Status

Description: The parameter shall be derived from the incoming K2 [6..8] overhead byte of the west port.

It shall indicate 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

15. wapsdnid – Incoming West APS Destination Node Id

Description: The parameter shall be derived from the incoming K1 [5..8] overhead byte of the west port. It shall specify the node ID for which the K1 byte is destined. The value UNAVAILABLE shall be used in case of an pending SF condition.

Type: alphanumeric string

Range: 0-15 or UNAVAILABLE

Default: 0

16. wapsprotn – Incoming West APS Protection Path

Description: The parameter shall be derived from the incoming K2 overhead byte of the west port.

It shall indicate the protection path as follows:

- 0: short path code (S)
- 1: long path code (L)

The value UNAVAILABLE shall be used in case of an pending SF condition.

Type: alphanumeric value set

Range: 0, 1, UNAVAILABLE

Default: 0

17. wapssnid – Incoming West APS Source Node Id

Description: The parameter shall be derived from the incoming K2 [1..4] overhead byte of the west port. It shall specify the node ID which sourced the K1 byte. The value UNAVAILABLE shall be used in case of an pending SF condition.

Type: alphanumeric string

Range: 0-15 or UNAVAILABLE

Default: 0

18. wapssw – Incoming West APS Switch Priority

Description: The parameter shall be derived from the incoming K1 [1..4] overhead byte of the west port.

It shall indicate 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 shall be used in case of an pending SF condition.

Some of the values should only occur for a 4-fibre protection group. Nevertheless they are listed within this section since it may happen, that the incoming Kbyte may contain a value which is only defined for the 4-fibre protection group.

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

19. west – West Port

Description: The parameter shall specify 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

20. wlprotnsw – West Last protection switch Attempt

Description: The parameter shall specify, whether the last switch
request for the west side succeeded or not.
The values shall 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

21. wswreq – West Switch Request State

Description: The parameter shall specify the active switch request
state of the protection state machine for the west side. If the west
side is an associated side of a switching node, the value shall be
derived from the outgoing K1 bytes. For all other cases, the
value shall be 'NR'.

It shall 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
- RRS: Reverse Request – Span

- RRR: Reverse Request -Ring
 - NR: No Request
- Type: alphanumeric value set
Range LPS, FSR, SFR, SDR, MSR, WTR, RRS, RRR, NR
Default: NR

22. wtr – Wait To Restore Time

Description: The parameter shall specify the wait to restore time for ring 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

Spec block parameters (Path protection group)

1. dripathpn – SNCP-UPSR ASAP Pointer

Description: The parameter shall specify 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

Description: The parameter shall specify 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

Default: None

3. ppgname – Path protection group Name

Description: 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.

Type: text string

Range: 1 to 24 characters

Default: empty string

4. protn – Protection Tributary
Description: The parameter shall specify the protection input tributary AID being a member of the path protection group.
Type: AID
Range: STS1NumAID
Default: None
5. protype – Protection Type
Description: The parameter shall specify the type of the protection group. The value for the path protection group shall be PATHDRI.
Type: alphanumeric value set
Range: PATHDRI
Default: PATHDRI
6. rme – Protection Reversion
Description: The parameter shall specify, whether revertive or non-revertive mode is used as operation mode of the protection group.
The value ENABLE shall be used if the protection operates in revertive mode.
The value DISABLE shall be used if the protection operates in non-revertive mode.
Type: alphanumeric value set
Range: ENABLE, DISABLE
Default: None
7. snctype – SNC Protection Type
Description: The parameter shall specify the type of the path protection w.r.t. switch criterias used by the protection state machine.
The value SNCI (Inherent) shall be used if server signal fail is used as switch criteria.
The value SNCN (Non-Intrusive) shall be used if server signal fail and defects supervised by a non-intrusive path monitor are used as switch criteria
The value NAs shall be used if one of the tributary inputs is related to a port operating in SONET mode.
Type: alphanumeric value set
Range: SNCI, SNCN, NA
Default: None
8. wkg – Worker Tributary

Description: The parameter shall specify the worker input tributary AID being a member of the path protection group.

Type: AID

Range: STS1NumAID

Default: None

9. wtr – Wait To Restore Time

Description: 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

Default: None

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

Description: The parameter shall specify which input tributary is currently selected within the protection group as active input. The value WKG shall specify that the worker tributary is active. The value PROTN shall specify that the protection tributary is active.

Type: alphanumeric value set

Range: WKG, PROTN

Default: WKG

2. actunitaid – Active Unit State AID

Description: The parameter shall specify 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

Default: AID of the worker tributary

3. cst – Constituent Signal Type

Description: The parameter shall specify the rate of the constituent signal within the path protection group.

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.

4. protnsiglvl – Protection Fault Status

Description: The parameter shall specify the current fault status w.r.t. tributary as used by the protection state machine.
The value SF (Signal Fail) shall be used if a defect defined as signal fail condition is currently present for the protection tributary.

The value SD (Signal Degrade) shall be used if a defect defined as signal degrade condition is currently present for the protection tributary.

The value NONE shall be used if no such defect is currently present.

Type: alphanumeric value set

Range: SF, SD, NONE

Default: NONE

5. swreq – Switch Request State

Description: The parameter shall specify the current switch request state of the protection state machines.

It shall 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

Description: The parameter shall specify the current fault status w.r.t. tributary as used by the protection state machine.

The value SF (Signal Fail) shall be used if a defect defined as signal fail condition is currently present for the worker tributary.
The value SD (Signal Degrade) shall be used if a defect defined as signal degrade condition is currently present for the worker tributary.

The value NONE shall be used if no such defect is currently present.

Type: alphanumeric value set

Range: SF,SD,NONE

Default: NONE

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:prototype=EQPTSWFBR,wkg=1-1-#-#-xcw-cp,protn=1-1-#-#-xcp-cp,actunit=  
WKG,protnsiglvl=NONE,wkgsiglvl=NONE,swreq=NR"  
;
```

1+1 multiplex section/line protection group

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:prototype=1+1,wkg=1-1-#-#-13-1,protn=1-1-#-#-14-1,wtr=5,apspn=DEFAULT,  
dclmsprotmd=DISABLE,dccsrprotmd=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"  
;
```

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:prototype=2F,east=1-1-#-#-13-1,west=1-1-#-#-14-1,rid=\"denver\",wtr=5,  
blsrpn=DEFAULT,eswreq=NR,wsreq=NR,pgrate=OC192,eapschst=IDLE,eapsnid=0,  
eapsprotn=0,eapssnid=0,eapssw=NR,elprotnsw=SUCCESS,ringndst=IDLE,wapschst=IDLE,  
wapsnid=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:prototype=PATHDRI,wkg=1-1-#-#-08-1-25,protn=1-1-#-  
#-06-1-  
1,ppgname=\"group018\",htmr=100,wtr=5,dripathp=path2,rme=DISABLE,snc  
type=NA"  
  "1-1-#-#-10-1-25,CML:cst=STS12C,swreq=NR,actunit=WKG,actuni  
taid=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.

Note: This is for a future release.

```
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:  
prototype=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,actuni  
taid=1-1-#-#-08-1-25,wkgsiglvl=NONE,protnsiglvl=NONE"  
    "1-1-#-#-10-1-26,CML:cst=STS1,swreq=NR,actunit=PROTN,actu  
nitaaid=1-1-#-#-06-1-2,wkgsiglvl=SF,protnsiglvl=NONE"  
    "1-1-#-#-10-1-27,CML:cst=STS1,swreq=NR,actunit=WKG,actuni  
taid=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,actuni  
taid=1-1-#-#-08-1-32,wkgsiglvl=NONE,protnsiglvl=NONE"  
    "1-1-#-#-10-1-33,CML:cst=STS1,swreq=NR,actunit=WKG,actuni  
taid=1-1-#-#-08-1-33,wkgsiglvl=NONE,protnsiglvl=NONE"  
    "1-1-#-#-10-1-34,CML:cst=STS1,swreq=NR,actunit=WKG,actuni  
taid=1-1-#-#-08-1-34,wkgsiglvl=NONE,protnsiglvl=NONE"  
    "1-1-#-#-10-1-35,CML:cst=STS1,swreq=NR,actunit=PROTN,actu  
nitaaid=1-1-#-#-06-1-11,wkgsiglvl=NONE,protnsiglvl=NONE"  
    "1-1-#-#-10-1-36,CML:cst=STS1,swreq=NR,actunit=WKG,actuni  
taid=1-1-#-#-08-1-36,wkgsiglvl=NONE,protnsiglvl=NONE"  
;
```

Error responses (general)

Validation rule: consistent aid and prototype

If a range is specified for *aid* and *prototype* is not consistent with that AID (for example, an AID of 1-1-fall and a prototype value of 2F), then the following error response is returned.

Error code: IDNV - Input, Data Not Valid, inconsistent aid and prototype

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

Related TL1 messages

- [“ENT-PROTN-GRP: Enter protection group” \(8-39\)](#)
- [“ED-PROTN-GRP: Edit protection group” \(8-51\)](#)
- [“DLT-PROTN-GRP: Delete protection group” \(8-61\)](#)
- [“OPR-PROTNSW: Operate protection switch” \(8-68\)](#)
- [“RLS-PROTNSW: Release protection switch” \(8-80\)](#)



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:

- 1+1 equipment protection (created as part of slot assignment or pack auto-creation)
- path protection group (created as part of ENT-CRS for path-protected XC)

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 (1+1 multiplex section/line protection group)

1. tid – Target Identifier
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
2. ctag – Correlation Tag
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
3. protype – Protection Type
See definition in input parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Command parameters (2-/4-fibre MS-SPRing/BLSR protection group)

1. tid – Target Identifier
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
2. ctag – Correlation Tag
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
3. protype – Protection Type
See definition in input parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Spec block parameters (1+1 multiplex section/line protection group)

1. pgid – protection group Id
Description: 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 .. 239
Default: None.
2. protn – Protection Unit

See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

3. wkg – Worker Unit

See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Spec block parameters (2-fibre MS-SPRing/BLSR protection group)

1. east – East Port

See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

2. pgid – protection group Id

See definition in 1+1 ENT-PROTN-GRP.

3. rid – Ring Identification

See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

4. west – West Port

See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Output format

Normal completion message

After receiving the ENT-PROTN-GRP command, the following normal completion response shall be returned:

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

Output parameters

See [“RTRV-HDR: Retrieve header” \(5-6\)](#) command OUTPUT PARAMETERS section for a normal completion response.

Detailed behavior description

BEHAVIOUR – 1+1, 2F protection group

The command shall establish/create a protection group of type as specified by means of parameter *prototype*. If prototype equals '1+1', then one instance of 1+1 MS/line protection group will be created. If prototype equals '2F', then one instance of type 2-fibre MS-SPRing/BLSR 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.

Tributary impact due to 1+1 protection group / BEHAVIOUR – 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
- A set of DLT-STS1 notifications if the protection port is an SONET 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.

The notifications for the affected tributaries shall be a group notification. See definition in detailed behaviour description section of [“ENT-EQPT \(slot\): Enter Equipment \(slot\)” \(5-88\)](#).

BEHAVIOUR - PM impact due to tributary deletion

PM monitoring for the deleted tributaries shall be stopped and current and history bins shall be deleted.

Example input/output

1+1 multiplex section/line protection group

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  
;
```

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: port is only in one group

Each port shall be not 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: 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.

Supported Port Rates – Value Range

See value range definition for the attribute *pgrate* in the [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#) output section w.r.t. supported port rates for the different protection types.

Validation rule: common port 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 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

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: 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* shall not be 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.

**Error responses (1+1
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 not be assigned to a timing reference.

Error code: SNVS - Status, Not in Valid State, other port of protection unit is assigned to a line timing reference.

**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

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: trib bandwidth is not greater as service bandwidth

The service bandwidth shall be greater as the provisioned tributary rates (input or output) for all ports; i.e. VC-4-16c/STS-48c shall not be provisioned as tributary rate for STM-16/OC-48 ports or VC-4-64c/STS-192c shall not be provisioned as tributary rate for STM-64/OC-192 ports

Error code: SNVS - Status, Not in Valid State, tributary rate not supported for protection with this port rate.

Related TL1 messages

- [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#)
- [“ENT-CRS: Enter crossconnection” \(7-22\)](#)

ENT-PROTN-GRP: Enter protection group

- [“ED-PROTN-GRP: Edit protection group” \(8-51\)](#)
- [“DLT-PROTN-GRP: Delete protection group” \(8-61\)](#)
- [“OPR-PROTNSW: Operate protection switch” \(8-68\)](#)
- [“RLS-PROTNSW: Release protection switch” \(8-80\)](#)



ENT-PROTN-GRP notification

Output format The ENT-PROTN-GRP notification shall use the general format of a REPT DBCHG Report Database Change notification.

The following syntax shall be used for 1+1 equipment, 1+1 multiplex section/line, 2-/4-fibre MS-SPRing/BLSR, path protection group.

Syntax: ENT-PROTN-GRP:*aid:prototype:spec_block*;

Output parameters

Command parameters (1+1 Equipment protection group)

1. aid – Access Identifier
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
2. prototype – Protection Type
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Command parameters (1+1 multiplex section/line protection group)

1. aid – Access Identifier
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
2. prototype – Protection Type
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Command parameters (2-fibre MS-SPRing/BLSR protection group)

1. aid – Access Identifier
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
2. prototype – Protection Type
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Command parameters (Path protection group)

1. aid – Access Identifier

See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

2. protype – Protection Type
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Spec block parameters (1+1 Equipment protection group)

1. protn – Protection Unit
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
2. wkg – Worker Unit
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Spec block parameters (1+1 multiplex section/line protection group)

1. apspn – MSP-APS ASAP Pointer
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
2. protn – Protection Unit
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
3. wkg – Worker Unit
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Spec block parameters (2-fibre MS-SPRing/BLSR protection group)

1. blsrpn – MSSPRING-BLSR ASAP Pointer
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
2. east – East Port
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
3. rid – Ring Identification
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
4. west – West Port
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
5. wtr – Wait To Restore Time

See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Spec block parameters (Path protection group)

1. dripathpn – SNCP-UPSR ASAP Pointer
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
2. htmr – Hold-Off Time
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
3. ppgname – Path protection group Name
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
4. protn – Protection Tributary
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
5. rme – Protection Reversion
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
6. snctype – SNC Protection Type
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
7. wkg – Worker Tributary
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
8. wtr – Wait To Restore Time
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

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"
;
```

1+1 multiplex section/line protection group

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:1-1-001:1+1:wkg=1-1-#-#-13-
1,protn=1-1-#-#-14-1,wtr=5,apspn=DEFAULT,
dcclmsprotmd=DISABLE,dccsrprotmd=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"
;
```

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:wkg=1-
1-#-#-08-1-25,protn=1-1-#-#-06-1-
1,ppgname=\"group018\",htmr=100,wtr=5,dripathp=path2,rme=DISABLE,snctype=NA"
;
```



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

1+1 multiplex section/line protection group

Command Syntax: ED-PROTN-GRP:*tid:aid:ctag::prototype:spec_block*;

2-/4-fibre MS-SPRing/BLSR protection group

Command Syntax: ED-PROTN-GRP:*tid:[aid]:ctag::prototype,[rid]:spec_block*;

Path protection group

Command Syntax: ED-PROTN-GRP:*tid:[aid]:ctag::prototype,[ppgname]:spec_block*;

Important! The use of *ppgname* as input parameter with alias function is not yet supported. Address path protected crossconnections individually via *Navis*[®] Optical EMS/ *WaveStar*[®] CIT GUI using their AIDs.

Input parameters

Command parameters (1+1 multiplex section/line protection group)

1. tid – Target Identifier
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
2. aid – Access Identifier
Description: The parameter shall specify the aid of a 1+1 multiplex section/line protection group or an port aid being a member of the group.

Type: AID

Range: OnePlusOne_ProtGrpAID (not ranged) or SPortAID (not ranged)

Default: No default

3. ctag – Correlation Tag
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
4. prototype – Protection Type
See definition in input parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Command parameters (2-/4-fibre MS-SPRing/BLSR protection group)

1. tid – Target Identifier
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
2. aid – Access Identifier
Description: The parameter shall specify 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 SPortAID (not ranged)
Default: No default
3. ctag – Correlation Tag
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
4. prototype – Protection Type
See definition in input parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
5. rid – Ring Identification
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
Option: If **aid** is specified, then **rid** can be omitted.

Command parameters (Path protection group)

1. tid – Target Identifier

See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).

2. aid – Access Identifier
Description: The parameter shall specify 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: Path_ProtGrpAID or STS1NumAID
Default: No default
3. ctag – Correlation Tag
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
4. prototype – Protection Type
See definition in input parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
5. ppgname – Path protection group Name
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
Option: If **aid** is specified, then **ppgname** can be omitted. If an input value is specified for **ppgname** and none is specified for **aid**, then 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**.

Spec block parameters (1+1 multiplex section/line protection group)

1. apspn – MSP-APS ASAP Pointer
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Spec block parameters (2-/4-fibre MS-SPRing/BLSR protection group)

1. blsrpn – MSSPRING-BLSR ASAP Pointer
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
2. newrid – New Ring Identification

See definition of parameter **rid** [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

3. wtr – Wait To Restore Time
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Spec block parameters (Path protection group)

1. dripathpn – SNCP-UPSR ASAP Pointer
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
2. htmr – Hold-Off Time
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
3. newppgname – New Path protection group Name
See definition of parameter **ppgname** [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
4. rme – Protection Reversion
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
5. snctype – SNC Protection Type
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
6. wtr – Wait To Restore Time
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Output format Normal completion message

After receiving the ED-PROTN-GRP command, the following normal completion response shall be returned:

```
sid date time
M ctag COMPLD
z
```

Output parameters See [“RTRV-HDR: Retrieve header” \(5-6\)](#) command OUTPUT PARAMETERS section for a normal completion response.

**Detailed behavior
description**

The command shall modify 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*** shall cause an update of the attribute ***rid***. The command parameter ***newppgname*** shall cause an update of the attribute ***ppgname***.

The update of the attributes is reported by means of an ED-PROTN-GRP notification.

Path protection group

The command shall modify 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 An update for the attribute ***snctype*** shall cause 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 shall be reported by means of additional ED-PROTN-GRP notifications.

Example input/output

1+1 multiplex section/line protection group

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  
;
```

Path Protection Group

The following example assigns a holdoff time of 100 msec 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  
;
```

Error responses (2-fibre MS-SPRing/BLSR protection group)

Validation rule: unique rid

The specified **newrid** 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: 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

- [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#)
- [“ENT-PROTN-GRP: Enter protection group” \(8-39\)](#)
- [“DLT-PROTN-GRP: Delete protection group” \(8-61\)](#)
- [“OPR-PROTNSW: Operate protection switch” \(8-68\)](#)
- [“RLS-PROTNSW: Release protection switch” \(8-80\)](#)



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 shall be used for 1+1 multiplex section/line, 2-/4-fibre MS-SPRing/BLSR, path protection group.

Syntax: ED-PROTN-GRP:*aid:prototype:spec_block*;

Output parameters

Command parameters (1+1 multiplex section/line protection group)

1. aid – Access Identifier
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
2. prototype – Protection Type
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Command parameters (2-fibre MS-SPRing/BLSR protection group)

1. aid – Access Identifier
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
2. prototype – Protection Type
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Command parameters (Path protection group)

1. aid – Access Identifier
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
2. prototype – Protection Type
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Spec block parameters (1+1 multiplex section/line protection group)

1. apspn – MSP-APS ASAP Pointer
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Spec block parameters (2-fibre MS-SPRing/BLSR protection group)

1. blsrpn – MSSPRING-BLSR ASAP Pointer
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
2. newrid – New Ring Identification
See definition of *rid* [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
3. wtr – Wait To Restore Time
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Spec block parameters (Path protection group)

1. dripathpn – SNCP-UPSR ASAP Pointer
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
2. htmr – Hold-Off Time
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
3. newppgname – New Path Protection Group Name
See definition of *ppgname* [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
4. protn - Protection Tributary
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
5. rme – Protection Reversion
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
6. snctype – SNC Protection Type
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
7. wkg – Worker Tributary
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
8. wtr – Wait To Restore Time
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Example output

1+1 multiplex section/line protection group

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:1-1-0001:1+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=10"
;
```

Path Protection Group

The following example reports the modification of holdoff 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=\"dallas3\",htmr=10"
;
```



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:

- 1+1 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

1+1 multiplex section/line protection group

Command Syntax: DLT-PROTN-GRP:*tid:aid:ctag::prototype*;

2-/4-fibre MS-SPRing/BLSR protection group

Command Syntax: DLT-PROTN-GRP:*tid:[aid]:ctag::prototype, [rid]*;

Input parameters

Command parameters (1+1 multiplex section/line protection group)

1. tid – Target Identifier
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
2. aid – Access Identifier
Description: The parameter shall specify the aid of a 1+1 multiplex section/line protection group or an port aid being a member of the group.
Type: AID
Range: OnePlusOne_ProtGrpAID (not ranged) or SPortAID (not ranged)
Default: No default
3. ctag – Correlation Tag

See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).

4. **prototype** – Protection Type
See definition in input parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Command parameters (2-/4-fibre MS-SPRing/BLSR protection group)

1. **tid** – Target Identifier
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
2. **aid** – Access Identifier
Description: The parameter shall specify 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 SPortAID (not ranged)
Default: No default
3. **ctag** – Correlation Tag
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
4. **prototype** – Protection Type
See definition in input parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
5. **rid** – Ring Identification
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
Option: If **aid** is specified, then **rid** can be omitted.

Output format Normal completion message

After receiving the DLT-PROTN-GRP command, the following normal completion response shall be returned:

```
sid date time
M ctag COMPLD
:
```

Output parameters See [“RTRV-HDR: Retrieve header” \(5-6\)](#) command OUTPUT PARAMETERS section for a normal completion response.

**Detailed behavior
description**

BEHAVIOUR 1+1, 2F protection group

The command shall remove/delete the protection group of type as specified by means of parameter prototype. If **prototype** equals '1+1', then one instance of 1+1 MS/line protection group shall be deleted. If **prototype** equals '2F', then one instance of type 2-fibre MS-SPRing/BLSR protection group shall be deleted.

The deletion of the protection group shall be reported by means of an DLT-PROTN-GRP notification.

1+1 Multiplex Section/Line Protection Group - Tributary impact due to 1+1 protection group

Tributaries related to the protection port of the protection group shall be created with default values.

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 \(slot\): Enter Equipment \(slot\)” \(5-88\)](#).

BEHAVIOUR - port impact due to 1+1 protection group

Tributaries signal rates of the protection port shall be set to default values (parameters inputsig, unequiposig). 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> shall be derived from the port rate.

Example input/output

1+1 multiplex section/line protection group

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  
z
```

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  
z
```

Error responses (general)

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

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

**Error responses (2-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

Related TL1 messages

- [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#)
- [“ED-PROTN-GRP: Edit protection group” \(8-51\)](#)
- [“ENT-PROTN-GRP: Enter protection group” \(8-39\)](#)
- [“DLT-CRS: Delete crossconnection” \(7-50\)](#)
- [“OPR-PROTNSW: Operate protection switch” \(8-68\)](#)
- [“RLS-PROTNSW: Release protection switch” \(8-80\)](#)



DLT-PROTN-GRP notification

Output format The DLT-PROTN-GRP notification shall use the general format of a REPT DBCHG Report Database Change notification.

Command Syntax: DLT-PROTN-GRP:*aid:prototype*;

Output parameters

Command parameters (1+1 equipment protection group)

1. aid – Access Identifier
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
2. prototype – Protection Type
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Command parameters (1+1 multiplex section/line protection group)

1. aid – Access Identifier
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
2. prototype – Protection Type
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Command parameters (2-fibre MS-SPRing/BLSR protection group)

1. aid – Access Identifier
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
2. prototype – Protection Type
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Command parameters (Path protection group)

1. aid – Access Identifier
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
2. prototype – Protection Type
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

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"
;
```

1+1 multiplex section/line protection group

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"
;
```

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"
;
```



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::prototype:spec_block*;

1+1 multiplex section/line protection group

Command Syntax: OPR-PROTNSW:*tid:aid:ctag::prototype:spec_block*;

2-/4-fibre MS-SPRing/BLSR protection group

Command Syntax: OPR-PROTNSW:*tid:[aid]:ctag::prototype,[rid]:spec_block*;

Path protection group

Command Syntax: OPR-PROTNSW:*tid:[aid]:ctag::prototype,[ppgname]:spec_block*;

Important! The use of *ppgname* as input parameter with alias function is not yet supported. Address path protected crossconnections individually via Navis[®] Optical EMS/ WaveStar[®] CIT GUI using their AIDs.

Input parameters

Command parameters (1+1 equipment protection group)

1. tid – Target Identifier
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
2. aid – Access Identifier
See definition in input parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
3. ctag – Correlation Tag

See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).

4. prototype – Protection Type
See definition in input parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Command parameters (1+1 multiplex section/line protection group)

1. tid – Target Identifier
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
2. aid – Access Identifier
Description: The parameter shall specify the aid of a 1+1 multiplex section/line protection group or an port aid being a member of the group.
Type: AID
Range: OnePlusOne_ProtGrpAID (not ranged) or SPortAID (not ranged)
Default: No default
3. ctag – Correlation Tag
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
4. prototype – Protection Type
See definition in input parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Command parameters (2-/4-fibre MS-SPRing/BLSR protection group)

1. tid – Target Identifier
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
2. aid – Access Identifier
Description: The parameter shall specify 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 SPortAID (not ranged)
Default: No default
3. ctag – Correlation Tag

See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).

4. **prototype** – Protection Type
See definition in input parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
5. **rid** – Ring Identification
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
Option: If **aid** is specified, then **rid** can be omitted.

Command parameters (Path protection group)

1. **tid** – Target Identifier
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
2. **aid** – Access Identifier
Description: The parameter shall specify a path protection group aid or an input tributary aid being a member of the group in combination with **ppgname**.
Type: AID
Range: Path_ProtGrpAID (not ranged) or **bay-shelf-#-#-all-all-all** (ranged over input STS1NumAID) or STS1NumAID (not ranged)
Default: No default
Option: If ppgname is specified, then **aid** can be omitted or used as an input tributary aid.
3. **prototype** – Protection Type
See definition in input parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
4. **ppgname** – Path protection group Name
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
Option: If **aid** is specified, then **ppgname** can be omitted. 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**; i.e. the NE sends a COMPL but no switching will take place.

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

Description: The parameter shall specify 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 shall be supported:

- WKG: Worker
- PROTN: Protection

Type: alphanumeric value set

Range: WKG, PROTN

Default: None

2. **sc** – Switch Command

Description: The parameter shall specify the switch command to be executed by the protection state machine.

The following values shall be supported:

- FRCD: Forced Switch
- MAN: Manual Switch

Type: alphanumeric value set

Range: FRCD, MAN

Default: None

Spec block parameters (1+1 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

Description: The parameter shall specify the destination of the switch command; i.e. to which side the switch command shall be applied to.

The following values shall be supported:

- WKG: Worker
- PROTN: Protection

Type: alphanumeric value set

Range: WKG, PROTN

Default: None

2. **sc** – Switch Command

Description: The parameter shall specify the switch command to be executed by the protection state machine.

The following values shall be supported:

- FRCD: Forced Switch
- MAN: Manual Switch

Type: alphanumeric value set

Range: LOCKOUT, FRCD, MAN

Default: None

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

Description: The parameter shall specify the destination of the switch command. The following values shall be supported:

PROTN: Protection

Type: alphanumeric value set

Range: PROTN

Default: None

2. *destside* – Destination Side

Description: The parameter shall specify the destination side to which the switch command shall be applied; i.e.

- it shall be EAST for the east ring side
- it shall be WEST for the west ring side

Type: alphanumeric value set

Range: EAST, WEST

Default: None

3. *sc* – Switch Command

Description: The parameter shall specify the switch command to be executed by the protection state machine.

The following values shall be supported:

- LOCKOUT: Lockout
- FRCD: Forced Switch
- MAN: Manual Switch

Type: alphanumeric value set

Range: LOCKOUT, FRCD, MAN

Default: None

4. *swtype* – Switch Type

Description: The parameter shall specify what type of protection switching is used for the MS-SPRing/BLSR protection group. The value RING shall be used for loopback switching. The value SPAN shall be used in case of span switching.

Type: alphanumeric value set

Range: RING, SPAN

Default: None

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

Description: The parameter shall specify the destination of the switch command; i.e. to which side the switch command shall applied to.

The following values shall be supported:

- WKG: Worker
- PROTN: Protection

Type: alphanumeric value set

Range: WKG, PROTN

Default: None

2. sc – Switch Command

Description: The parameter shall specify the switch command to be executed by the protection state machine.

The following values shall be supported:

- FRCD: Forced Switch
- MAN: Manual Switch

Type: alphanumeric value set

Range: LOCKOUT, FRCD, MAN

Default: None

Output format Normal completion message

After receiving the OPR-PROTNSW command, the following normal completion response shall be returned:

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

**Detailed behavior
description**

The command shall switch the identified protection group. The switch command shall be processed according to the state machine behavior for the different protection group types. As consequence, the values of the following attributes of the statemachine may be updated:

EQPTSWFBR: *actunit*, *swreq*

1+1: *actunit*, *swreq*

2F: *eswreq*, *wswreq*

4F: *eactunit*, *eswreq*, *wactunit*, *wswreq*,

PATHDRI: *actunit*, *actunitaid*, *swreq*

The update of the attributes shall be reported by means of a protection switch notification for the corresponding protection group type.

Identification of path protection groups

A set of path protection groups shall be identified by a path protection group name (*ppgname*). If an input tributary AID (*aid*) is specified in addition to the *ppgname*, then the command shall operate on the subset of protection groups that share both of these parameters. Specifying the destination parameter (*dest*) as WKG (PROTN) shall cause all members of the *aid*, *ppgname* set to switch to working (protection).

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)

aid	ppgname	dest (note 2)	comment
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 shall show 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

Allowed/Supported switch commands for 2-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 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

Case	sc	dest	destside	swtype
MS-R	MAN	not used/ omitted	EAST or WEST	RING

Allowed/Supported switch commands for path protection group

The following table shall show the allowed/supported value combinations for the parameters **sc**, **dest** w.r.t. OPR-PROTNSW for path protection groups.

sc	dest	value constraint for rme
LOCKOUT	PROTN	revertive mode only
FRCD	WKG	non-revertive mode only
FRCD	PROTN	revertive or non-revertive mode
MAN	WKG	non-revertive mode only
MAN	PROTN	revertive or non-revertive mode

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  
;
```

1+1 multiplex section/line protection group

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  
;
```

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  
;
```

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  
;
```

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 prototype

The specified *aid* shall be consistent with the specified *prototype*.

Error code: IDNV - Input, Data Not Valid, inconsistent aid and prototype

**Error responses (1+1
Equipment 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: 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: 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

Related TL1 messages

- [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#)
- [“ED-PROTN-GRP: Edit protection group” \(8-51\)](#)
- [“ENT-PROTN-GRP: Enter protection group” \(8-39\)](#)
- [“ENT-CRS: Enter crossconnection” \(7-22\)](#)
- [“RLS-PROTNSW: Release protection switch” \(8-80\)](#)



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::prototype:spec_block*;

1+1 multiplex section/line protection group

Command Syntax: RLS-PROTNSW:*tid:aid:ctag::prototype:spec_block*;

2-/4-fibre MS-SPRing/BLSR protection group

Command Syntax: RLS-PROTNSW:*tid:[aid]:ctag::prototype,[rid]:spec_block*;

Path protection group

Command Syntax: RLS-PROTNSW:*tid:[aid]:ctag::prototype,[ppgname]:spec_block*;

Important! The use of *ppgname* as input parameter with alias function is not yet supported. Address path protected crossconnections individually via Navis[®] Optical EMS/ WaveStar[®] CIT GUI using their AIDs.

Input parameters

Command parameters (1+1 equipment protection group)

1. tid – Target Identifier
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
2. aid – Access Identifier
See definition in input parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

3. ctag – Correlation Tag
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
4. prototype – Protection Type
See definition in input parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Command parameters (1+1 multiplex section/line protection group)

1. tid – Target Identifier
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
2. aid – Access Identifier
Description: The parameter shall specify the aid of a 1+1 multiplex section/line protection group or an port aid being a member of the group.
Type: AID
Range: OnePlusOne_ProtGrpAID (not ranged) or SPortAID (not ranged)
Default: No default
3. ctag – Correlation Tag
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
4. prototype – Protection Type
See definition in input parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

Command parameters (2-/4-fibre MS-SPRing/BLSR protection group)

1. tid – Target Identifier
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
2. aid – Access Identifier
Description: The parameter shall specify 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 SPortAID (not ranged)
Default: No default

3. ctag – Correlation Tag
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
4. prototype – Protection Type
See definition in input parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
5. rid – Ring Identification
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
Option: If **aid** is specified, then **rid** can be omitted.

Command parameters (Path protection group)

1. tid – Target Identifier
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
2. aid – Access Identifier
See definition in input parameters section in [“OPR-PROTNSW: Operate protection switch” \(8-68\)](#).
3. prototype – Protection Type
See definition in input parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
4. ppgname – Path protection group Name
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
Option: If **aid** is specified, then **ppgname** can be omitted. 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**.

Spec block parameters (1+1 Equipment, 1+1 multiplex section/line, Path protection group)

1. sc – Switch Command
Description: The parameter shall specify the clear command to be executed by the protection state machine.
Type: alphanumeric value set
Range: CLEAR
Default: CLEAR

Option: If the parameter is omitted the default switch command will be executed.

Spec block parameters (Path protection group)

1. destside – Destination Side

Description: The parameter shall specify the destination side to which the switch command shall be applied; i.e.

- it shall be EAST for the east ring side
- it shall be WEST for the west ring side

Type: alphanumeric value set

Range: EAST, WEST

Default: None

2. sc – Switch Command

Description: The parameter shall specify the clear command to be executed by the protection state machine.

Type: alphanumeric value set

Range: CLEAR

Default: CLEAR

Option: If the parameter is omitted the default switch command will be executed.

Output format Normal completion message

After receiving the RLS-PROTNSW command, the following normal completion response shall be returned:

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

Detailed behavior description

The command shall clear the protection switch of the identified protection groups. The clear command shall be processed according to the state machine behavior for the different protection group types. As consequence, the values of the following attributes of the statemachine may be updated:

EQPTSWFBR: **actunit**, **swreq**

1+1: **actunit**, **swreq**

2F: **eswreq**, **wswreq**

4F: **eactunit**, **eswreq**, **wactunit**, **wswreq**,

PATHDRI: **actunit**, **actunitaid**, **swreq**

The update of the attributes shall be reported by means of a protection switch notification for the corresponding protection group type.

Identification of path protection groups

A set of path protection groups shall be identified by a path protection group name (**ppgname**). If an input tributary AID (**aid**) is specified in addition to the **ppgname**, then the command shall operate on the subset of protection groups that share both of these parameters.

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)
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  
:
```

1+1 multiplex section/line protection group

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  
;
```

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  
;
```

Error responses (general)

Validation rule: consistent aid and rid

The specified **aid** shall be consistent with the specified **prototype**.

Error code: IDNV - Input, Data Not Valid, inconsistent aid and prototype

Error responses (1+1 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: 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

**Error responses (Path
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

Related TL1 messages

- [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#)
- [“ED-PROTN-GRP: Edit protection group” \(8-51\)](#)
- [“ENT-PROTN-GRP: Enter protection group” \(8-39\)](#)
- [“ENT-CRS: Enter crossconnection” \(7-22\)](#)
- [“OPR-PROTNSW: Operate protection switch” \(8-68\)](#)



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.

Properties	NA
Input format	NA
Input parameters	NA
Output format	General 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
Description: The parameter shall specify the message sequence number. The number shall be incremented by one for each autonomous message generated by the NE. Leading zeros shall no be suppressed.
Type: numeric string
Range: 000 .. 999
Default: No default
2. actid - Active Identifier
Description: The parameter shall specify the circuit pack AID which is active within the 1+1 equipment protection group.
Type: AID
Range: CpAID
Default: None.
3. stbyid - Standby Identifier

Description: The parameter shall specify the circuit pack AID which is standby (non-active) within the 1+1 equipment protection group.
Type: AID
Range: CpAID
Default: None.

Spec block parameters

NA

Detailed behavior description

NA

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"
;
```

Error responses NA

Related TL1 messages

- [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#)
- [“OPR-PROTNSW: Operate protection switch” \(8-68\)](#)
- [“RLS-PROTNSW: Release protection switch” \(8-80\)](#)

References GR-833-CORE



Protection switch notification

Output format The protection switch notification shall use the general format of a REPT EVT notification.

The protection switch notification shall use the general format of a REPT SW notification for reporting of state changes for **actunit** attribute changes for 1+1 equipment protection group.

General

The following syntax shall be used for 1+1 equipment, 1+1 multiplex section/line, 2-/4-fibre MS-SPRing/BLSR, path protection group.

Command Syntax: REPT EVT **modifier**
aid:condtype,condeff,ocrdat,ocrtm:conddescr;

1+1 equipment protection group

The following syntax shall be used in addition to REPT EVT for 1+1 equipment protection group.

Command Syntax: REPT SW **actid, stbyid;**

REPT SW shall be generated if the **actunit** (active unit state) attribute is changed due to an automatic switch or a switch command. REPT EVT shall be generated if **swreq** (switch request state) attribute is changed due to an automatic switch or a switch command.

Note: If **actunit** and **swreq** is changed due to an automatic switch or a switch command, one REPT SW and one REPT EVT shall be generated.

Output parameters

Command parameters (1+1 equipment protection group, REPT EVT)

1. **modifier** – Modifier
 Description: The parameter shall specify the value 'COM' as an event that applies to the whole network element.
 Type: alphanumeric value set
 Range: COM
 Default: None
2. **aid** – Access Identifier
 See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
3. **condtype** – Condition Type

Description: The parameter shall specify/identify the type of event indication being reported. The value GP (General Purpose) shall be used for all 1+1 equipment protection switch events.

Type: alphanumeric value set

Range: GP

Default: None

4. condeff – Condition Effect

Description: 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

Default: None

5. ocrdat – Occurrence Date

Description: 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.

Default: None

6. ocrtm – Occurrence Time

Description: 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.

Default: None

7. conddescr – Condition Description

Description: The parameter shall provide additional information w.r.t. the protection event.

The string value shall depend on the actual switch request state as follows

- **swreq: conddescr**
- 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 Description

Default: None

Initial PROTNSW

The system shall evaluate the current fault information at the protection group creation time. Based on that, the system shall calculate and report the switch request state. The value will be either 'NR' or 'EQPTFAILED'.

Command parameters (1+1 equipment protection group, REPT SW)

1. actid – Active Unit AID

Description: The parameter shall specify the circuit pack AID of the newly selected/active unit within the protection group

Type: AID

Range: circuit pack AID

Default: None

Initial PROTNSW

The system shall evaluate the current fault information and the current active unit at the protection group creation time. Based on that, the system shall calculate and report the selected active unit.

2. stbyid – Standby Unit AID

Description: The parameter shall specify the circuit pack AID of the standby unit within the protection group

Type: AID

Range: circuit pack AID

Default: None

Initial PROTNSW

The system shall evaluate the current fault information and the current active unit at the protection group creation time. Based on that, the system shall calculate and report the standby unit.

Command parameters (1+1 multiplex section/line protection group, REPT EVT)

1. modifier – Modifier

See definition of parameter *pgrate* [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

2. aid – Access Identifier

Description: The parameter shall specify for the port AID being a member of the protection group.

It shall be derived from the active unit state in case of revertive operation mode as follows: previous value of **actunit**, current value of **actunit**, **aid** value

- a. WKG, WKG, worker port aid
- b. WKG, PROTN, worker port aid
- c. PROTN, WKG, worker port aid
- d. PROTN, PROTN, protection port aid

It shall be derived from the active unit state in case of non-revertive operation mode as follows: previous value of **actunit**, current value of **actunit**, **aid** value

- a. WKG, WKG, worker port aid
- b. WKG, PROTN, worker port aid
- c. PROTN, WKG, protection port aid
- d. PROTN, PROTN, protection port aid

Type: AID

Range: SPortAID

Default: None

Initial PROTNSW

The worker port AID shall be used in the initial protection switch notification.

3. condtype – Condition Type

Description: The parameter shall identify the type of event indication being reported. The value GP (General Purpose) shall be 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 shall be used: The value WKSWPR-2 shall be used if service is switched to the protection section/line. The value WKSWBK shall be used if service is switched to the worker section/line.

If active unit has changed and operation mode is non-revertive, the value PS shall be used.

Type: alphanumeric value set

Range: GP, WKSWPR-2, WKSWBK, PS

Default: None

Initial PROTNSW

The value 'GP' shall be used in the initial protection switch notification.

4. condeff – Condition Effect

See definition of [“REPT EVT: Report event” \(6-40\)](#).

5. ocrdat – Occurrence Date

See definition of [“REPT EVT: Report event” \(6-40\)](#).

6. ocrtm – Occurrence Time

See definition of [“REPT EVT: Report event” \(6-40\)](#).

7. conddescr – Condition Description

Description: The parameter shall provide additional information w.r.t. the protection event. The string value shall depend on the actual switch request state as follows **swreq: conddescr**

- LO: \”Protection switch, {rr} port, Lockout switch,, 1+1”\
- FS: \”Protection switch, {rr} port, Forced switch,, 1+1”\
- FOP: \”Protection switch, {rr} port, FOP,, 1+1”\
- SF: \”Protection switch, {rr} port, SF,, 1+1”\
- SD: \”Protection switch, {rr} port, SD,, 1+1”\
- MS: \”Protection switch, {rr} port, Manual switch,, 1+1”\
- WTR: \”Protection switch, {rr} port, WTR,, 1+1”\
- DNR: \”Protection switch, {rr} port, DNR,, 1+1”\
- NR: \”Protection switch, {rr} port, No request,, 1+1”\

The value for variable **rr** shall be derived from the port rate within the protection group.

rr Value Range

See value range definition for the attribute **pgrate** in the [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#) output section w.r.t. supported port rates for the different protection types.

Type: inner string

Range: See Description

Default: None

Initial PROTN SW

The value 'NR' shall be used for **swreq** in the initial protection switch notification.

Command parameters (2-fibre MS-SPRing/BLSR protection group)

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

See definition of parameter *pgrate* [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).

2. aid – Access Identifier
Description: The parameter shall specify 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
Default: None
3. condtype – Condition Type
Description: The parameter shall identify the type of event indication being reported. The value WKSWPR-2 shall be used if service is switched to the protection route. The value WKSWBK shall be used if service is switched to the worker route. The value GP (General Purpose) shall be used if the active route has not changed.
Type: alphanumeric value set
Range: GP, WKSWPR-2, WKSWBK
Default: None
Initial PROTN SW
The value 'WKSWBK' shall be used in the initial protection switch notification.
4. condeff – Condition Effect
See definition of [“REPT EVT: Report event” \(6-40\)](#).
5. ocrdat – Occurrence Date
See definition of [“REPT EVT: Report event” \(6-40\)](#).
6. ocrtm – Occurrence Time
See definition of [“REPT EVT: Report event” \(6-40\)](#).
7. conddescr – Condition Description
Description: The parameter shall provide additional information w.r.t. the protection event. The string value shall depend on the actual swreq as follows: *swreq: conddescr*
 - 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** shall be derived from the port rate within the protection group.

rr Value Range

See value range definition for the attribute **pgrate** in the [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#) output section w.r.t. supported port rates for the different protection types.

Type: inner string

Range: See Description

Default: None

Initial PROTN SW

The value 'NR' shall be used for **swreq** in the initial protection switch notification.

Command parameters (Path protection group, REPT EVT)

1. modifier – Modifier
See definition of parameter **cst** in output parameters section in [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
2. aid – Access Identifier
Description: The parameter shall specify 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: GenTribAID
Default: None
3. condtype – Condition Type

Description: The parameter shall identify the type of event indication being reported. The value GP (General Purpose) shall be used if the active unit state has not changed.

If active unit state has changed, the following values shall be used: The value WKSWPR-2 shall be used if service is switched to the protection tributary. The value WKSWBK shall be used if service is switched to the worker tributary.

Type: alphanumeric value set

Range: GP, WKSWPR-2, WKSWBK

Default: None

Initial PROTNSW

The value 'GP' shall be used in the initial protection switch notification.

4. condeff – Condition Effect

See definition of [“REPT EVT: Report event” \(6-40\)](#).

5. ocrdat – Occurrence Date

See definition of [“REPT EVT: Report event” \(6-40\)](#).

6. ocrtm – Occurrence Time

See definition of [“REPT EVT: Report event” \(6-40\)](#).

7. conddescr – Condition Description

Description: The parameter shall provide additional information w.r.t. the protection event. The string value shall depend 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** shall be derived from the constituent signal type; i.e. it shall have the following values: STS1, STS3C, STS12C, STS48C, STS192C, VC3, VC4, VC44C, VC416C, VC464C.

Type: inner string

Range: See Description

Default: None

Initial PROTNSW

The value 'NR' shall be used for *swreq* in the initial protection switch notification.

Example output

1+1 Equipment Protection Group

The following example reports a manual switch to protection circuit pack for 1+1 equipment protection group:

```
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\\" "
;
```

1+1 multiplex section/line protection group

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\\" "
;
```

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\\" "
;
```

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:WKS WPR-2,TC,01-10,08-12-00:\ "Protection Switch, STS1 CS,
SF\ " "
;
```



Autonomous notifications

1+1 equipment protection group

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 shall be created. This entity creation shall be reported by means of ENT-PROTN-GRP notification.

Protection switch

A protection switch notification (i.e. protection state change) shall be 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.

1+1 Multiplex Section/Line Protection Group

Protection switch

A protection switch notification (i.e. protection state change) shall be 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.

2-/4-fibre MS-SPRing/BLSR protection group

Protection switch

A protection switch notification (i.e. protection state change) shall be 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) shall be 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

RTRV-LOG-PROTNSW: Retrieve log protection switch	8-102
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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” \(5-6\)](#).
2. ctag – Correlation Tag
See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
3. startdate – Start Date
Description: The parameter shall specify 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.
Default: None
4. starttime – Start Time

Description: The parameter shall specify 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.

Default: None

5. **replytype** – Type of Reply

Description: The parameter shall specify, how the entries in the reply are determined. The value BROWSE shall be used in case of user browsing. The value DBSYNC shall be used in case of data synchronisation 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.

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 Normal completion message

The returned log entries shall be ordered ascending according to their timestamp. After receiving the RTRV-LOG-PROTNSW command, the following normal completion response shall be 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
See definition [“REPT EVT: Report event” \(6-40\)](#). [“REPT SW: Report switch” \(8-87\)](#) for the different protection switch notifications.
2. aidtype – Access Identifier Type
See definition of parameter **modifier** [“REPT EVT: Report event” \(6-40\)](#).for the different protection switch notifications.
3. condtype – Condition Type
See definition [“REPT EVT: Report event” \(6-40\)](#) for the different protection switch notifications.
4. condeff – Condition Effect
See definition [“REPT EVT: Report event” \(6-40\)](#).
 - a. orcdte – Occurrence Date
See definition [“REPT EVT: Report event” \(6-40\)](#), [“REPT SW: Report switch” \(8-87\)](#).
 - b. orctime – Occurrence Time
See definition [“REPT EVT: Report event” \(6-40\)](#), [“REPT SW: Report switch” \(8-87\)](#).
5. conddescr – Condition Description
See definition of parameter [“REPT EVT: Report event” \(6-40\)](#) for the different protection switch notifications.

Spec block parameters

None

Detailed behavior description

If both **startdate** and **starttime** are omitted, the entire log shall be retrieved. Both **startdate** and **starttime** must be specified, or both must be omitted. If **replytype** is specified, then **startdate** and **starttime** shall be present.

The log shall show 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 shall be reported in the retrieve log reply. But w.r.t. to log capacity, this shall be counted as only one event.

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\\"" ;
```

1+1 multiplex section/line protection group

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\\"" ;
```

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\\"" ;
```

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,INHWP,SC,11-09,12-00-00,,,:\"Protection switch,output  
reference,Lockout\" "  
;
```

Error responses

Validation rule: matching log entry

There shall be 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” \(6-40\)](#)
- [“REPT SW: Report switch” \(8-87\)](#)
- [“RTRV-LOG-ALM: Retrieve log alarm” \(6-45\)](#)
- [“RTRV-LOG-NTFCN: Retrieve notification Log” \(5-50\)](#)

References

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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 Each 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 will be discovered automatically by the NEs. Therefore only a retrieve command is applicable for a ring map entity.

The ring map consists of:

- the nodes within the ring
- the links connecting the nodes

Contents

RTRV-MAP-RING: Retrieve map ring	8-110

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” \(5-6\)](#).
2. aid – Access Identifier
 Description: The parameter shall specify 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 SPortAID (not ranged)
 Default: No default
3. ctag – Correlation Tag
 See definition in input parameters section [“RTRV-HDR: Retrieve header” \(5-6\)](#).
4. rid – Ring Identification
 See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
 Option: If *aid* is specified, then *rid* can be omitted.
5. mapsrc – Map source

Description: The parameter shall specify, how the ring map is derived. The value DCCEI shall be used if the ring map is derived via the DCF function. The value NVMRING shall be used if the ring map is derived from non-volatile memory as used by the MS-SPRing/BLSR protection group.

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

Default: DCCEI

Output format Normal completion message

After receiving the RTRV-MAP-RING command, the following normal completion response shall be 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
Description: The parameter shall specify the aid of 2F-/4F MS-SPRing/BLSR protection.
Type: AID
Range: TwoFibre_ProtGrpAID
Default: No default
2. rid – Ring Identification
See definition in output parameters section [“RTRV-PROTN-GRP: Retrieve protection group” \(8-12\)](#).
3. localnid – Local Node ID
Description: The parameter shall specify 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

Default: None

Spec block parameters

1. **nid** – Node ID
 Description: The parameter shall specify 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
 Default: None
2. **linkId** – Link Identifier
 Description: The parameter shall specify a link connecting two NEs within the ring. It shall have the following format:
linkid="{nename,[port],direction},{nename,[port],direction}"
 The first value set of **nename, port, direction** shall correspond to the NE as indicated by parameter **nid**.
 The second value set of **nename, port, direction** shall correspond to the NE reachable via the link.
 Type: inner string
 Range: see parameter description for **nename, port, direction**
 Default: None.
3. **nename** – NE Name
 See definition of parameter **tid** [“RTRV-HDR: Retrieve header” \(5-6\)](#).
4. **port** – port AID
 Description: The parameter shall specify 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
 Default: None
 Option: The parameter may be omitted if unknown due to link failure.
5. **direction** – Direction
 Description: The parameter shall specify the side role of the corresponding port within the protection group. The value E shall be used for the east side. The value W shall be used for the west side.
 Type: alphanumeric value set
 Range: E, W

RTRV-MAP-RING: Retrieve map ring

Default: None

Option: The parameter may be omitted if unknown due to link failure.

6. continuity – Link Continuity Status

Description: The parameter shall specify the link continuity status of a port. The following values shall be 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

Default: None

7. net – Network Entity Title

Description: The parameter shall specify 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

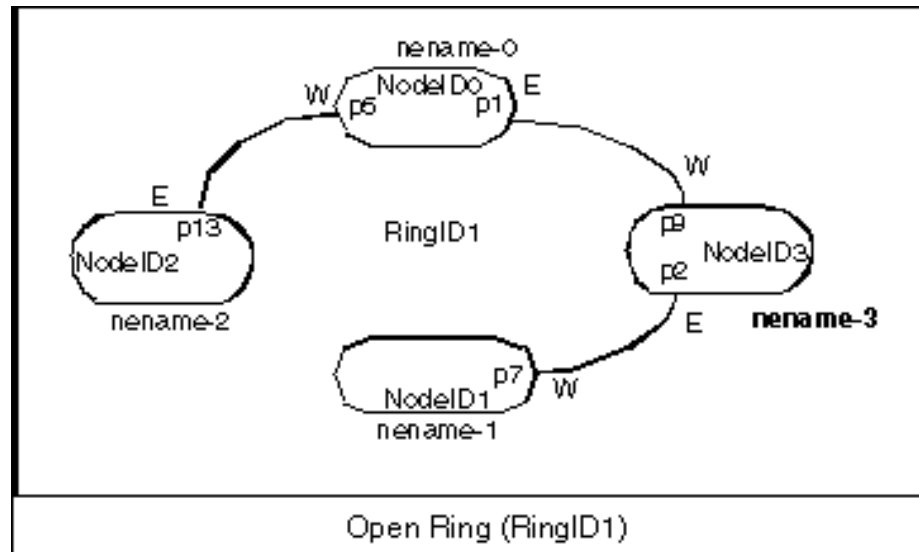
Range: 40 characters

Default: None

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.

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=39840F8000000000000000000000000000000000000000000000000a100"
    "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=39840F8000000000000000000000000000000000000000000000000a300"
    "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=39840F8000000000000000000000000000000000000000000000000a000"
    "1-1-f01:\\"RingID1\\",1:nid=2,linkid=\\"{nename-2,,},
    {nename-1,,}\\",continuity=OPEN,
net=39840F8000000000000000000000000000000000000000000000000a200-
```



Error responses	None

- “RTRV-MAP-NEIGHBOR: Retrieve map neighbor” (12-62)
- “RTRV-MAP-NETWORK: Retrieve network map” (12-67)

References GR-199-CORE



9 Performance monitoring

Overview

Purpose This section contains the TL1 interface definition for the domain “performance monitoring”.

Contents

PM parameters	9-2
RTRV-PM: Retrieve performance monitoring	9-6



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

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	Severly Errored Second Section	SECTION-LINE
SEFS-S	Severly 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	Severly Errored Second Line	SECTION-LINE
UASL	Unavailable Second Line	SECTION-LINE
FECC-L	Foward 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	Severly 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	Severly 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	Severly Errored Path Line Far End	PATH
UAS-PFE	Unavailable Second Path Far End	PATH
FC-PFE	Failure Count Path Far End	None
PPJC-PGEN	Positive Pointer Justification Count Path Generated	PATH
NPJC-PGEN	Negative Pointer Justification Count Path Generated	PATH
PPJC-PDET	Positive Pointer Justification Count Path Detected	PATH
NPJC-PDET	Negative Pointer Justification Count Path Detected	PATH

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 Severly 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 Severly 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

Short Name	Long Name	Profile Type
MS-F-SES	MS Far End Severly Errored Second	RS-MS
MS-F-BBE	MS Far End Background Block Error	RS-MS
MS-F-UAS	MS Far Unavailable Second	RS-MS
VC-N-ES	VC Near Unavailable Second	HOVC
VC-N-SES	VC Near End Errored Second	HOVC
VC-N-BBE	VC Near End Severly 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 Severly Errored Second	HOVC
VC-F-BBE	VC Far End Background Block Error	HOVC
VC-F-UAS	VC Far Unavailable Second	HOVC
PJCPOS	Pointer Justification Count Positive	HOVC
PJCNEG	Pointer Justification Count Negative	HOVC

**Ethernet PM Parameter
Table**

Short Name	Long Name	Profile Type
CBR	Count (number) of Bytes (octets) Received	None
CBS	Count (number) of Bytes (octets) Sent	None
PDE	number of Errored Packets Dropped	ENET

Note: Ethernet PM Parameter are not supported by Release 2.0.

**Details for PM parameters
with no Thresholding**

Below those PM parameters are described which do not support thresholding.

SONET PM parameters

1. qhaissl
Description: 15-minute AISS-L bin for OC-n.
Type: integer
Range: 0-900
Default: None
2. dayaissl
Description: Day AISS-L bin for OC-n.

- Type: integer
Range: 0-86400
Default: None
3. qhlosss
Description: 15-minute LOSS-S bin for OC-n.
Type: integer
Range: 0-900
Default: None
4. daylosss
Description: Day LOSS-S bin for OC-n.
Type: integer
Range: 0-86400
Default: None
5. qhfcl
Description: 15-minute FC-L and FC-LFE bin for OC-n lines
Type: integer
Range: 0-900
Default: None
6. dayfcl
Description: Day FC-L and FC-LFE bin for OC-n lines
Type: integer
Range: 0-86400
Default: None
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
Default: None
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
Default: None



RTRV-PM: Retrieve performance monitoring

The RTRV-PM command is initiated by a user to request the network element 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**, **[mondatt]**, **[montm]**;

Input parameters

Command parameters

1. modifier
 Description: Modifier 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, OC48, OC192, OC768.
 The following values are for SDH only: VC3, VC4, VC44C, VC416C, VC464C, STM16, STM64, STM256
 Default: None
2. tid – Target Identifier
 See definition in [“RTRV-HDR: Retrieve header” \(5-6\)](#).
3. aid – Access Identifier
 Description: Access identifier.
 Type: AID
 Range: For STM<N> and OC<N> modifiers only: SPortAID
 For VC3, VC4, VC44C, VC416C, VC464C, STS1, STS3C, STS12C, STS48C and STS192C modifiers only: STS1NumAID.
 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)

Default: None

4. ctag – Correlation Tag

See definition in [“RTRV-HDR: Retrieve header” \(5-6\)](#).

5. montype – Monitored parameter type

Description: 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> modifiers only: 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 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 only: 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 also are for STM64 and STM256 modifiers only: MS-N-FECC

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

Description: This 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

Description: Location for which the PM data is monitored. The parameter value shall only be 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

Description: 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

Default: None

9. mondat – Monitored Date

Description: 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) shall be optional and may be omitted.
- ALL: Current and previous day

Default: Current date

10. montm – Monitored Time

Description: This specifies the beginning time of day of the requested PM period that was set by ***tmper*** parameter. The user shall be 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 ***mondatt*** 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 ***mondatt*** 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 shall be 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 ***mondatt*** 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.

Spec block parameters

NA

Output format**Normal completion message**

If the network element 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,[mondatt],[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: For STM<N> and OC<N> modifiers only: SPortAID
For VC3, VC4, VC44C, VC416C, VC464C, STS1, STS3C, STS12C, STS48C and STS192C modifiers only: STS1NumAID.
Default: None
2. montype – Monitored Parameter Type
See montype in the input parameters section.
3. monval – Monitored Value
Description: This 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)

Default: None

4. validity – validity indicator

Description: This indicates the validity of the PM data.

Type: integer

Range: 1 Non valid is coded by means of omitting the parameter.

Default: None

5. locn – Location

Description: 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.

Default: None

6. tmper – Time Period

See in the input parameters section.

7. mondat – Monitored Date

Description: The 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

8. montm – Monitored Time

Description: The parameter specifies the beginning time of day for the reported pm register. The parameter shall be 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.

Default: None

Example input/output The following example shows the successful completion of a RTRV-PM command by the network element 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” \(5-6\)](#) 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.

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 None.

References GR-833-CORE





10 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 syncrtc in RTRV-EQPT and ED-EQPT determines whether the system synchronization characteristic, and therewith the network element, is in SDH or in SONET mode.

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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” \(5-6\)](#).
2. *aid* – access identifier
 Description: The AID shall be 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 shall be 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” \(5-6\)](#).

Output format

Normal completion message

After receiving the RTRV-SYCN command, the following normal completion response shall be returned:

```

sid date time
ctag COMPLD
"aid:spec_block"
...
"aid:spec_block"

```

Output parameters

Command parameters

1. aid – access identifier
Description: The AID shall specify 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
Description: This parameter shall display 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 shall be returned.
Type: AID
Range: External_timing_ref_AID, Line_timing_ref_AID

Default: EXTREF1

b. `clkmod` – clock mode

Description: This parameter shall specify the provisioned operational mode of the system timing.

In the `clkmod == FREE-RUNNING` mode the system clock process uses the internal oscillator as reference. In the `clkmod == 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

Description: This parameter shall specify the state of the system clock. The range is depending on the system synchronization characteristic.

NORMAL: This operational mode shall indicate either the network element derives timing from the internal oscillator when `clkmod == FREE-RUNNING`, or the system timing is locked to a timing reference signal when `clkmod == LOCKED` and the reference is derived from one of the timing input signals. Refer to ***clkmod*** parameter.

AUTONOMOUS-HOLDOVER: This state shall indicate 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 shall indicate 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 `clkmod == 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

Description: The System Timing Reference Switch Request State shall be a state of the system timing.

The value FORCED means, the system shall enter 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 shall enter 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 shall enter 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

Description: This parameter shall provide 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

Description: This parameter shall 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
Description: This parameter shall indicate the overall system timing quality level status. If the system configured as SONET then the SONET related values shall be indicated and if the system configured as SDH the SDH related values shall be 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
Description: This parameter shall specify 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
Description: This parameter shall specify 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: 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

Description: 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 shall be in warm-up state. DNU/DUS shall be 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

Description: This parameter shall display the current selected timing reference of the timing link switch for the external output.

Type: AID

Range: Line_timing_ref_AID

Default: LINE1

b. orefswr_stat – output timing reference switch request status

Description: This parameter shall indicate the output timing reference switch request state.

The value MANUAL means, a manual switch shall be active to the external timing output. The value FORCED means, a forced switch shall be 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

Description: This parameter shall specify 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

Description: This parameter shall display 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 shall be valid only. In case of invalid SSM, the value DNU or DUS shall be 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

Description: This parameter shall indicate the synchronization messaging quality level status for the specified timing reference.

The parameter shall describe the validity of the incoming quality level and shall 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 (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

Description: This parameter shall define 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. 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

Description: This parameter shall display the timing reference lockout state to the specified timing reference. It shall be 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

Description: The Assigned Timing Reference Signal Status shall be 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
Description: This parameter shall indicate 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
Description: This parameter shall define 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 shall be 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” \(10-3\)](#) section System Timing of this parameter.
- j. tpmode – timing port mode monitoring
Description: This parameter shall specify the monitoring status of the timing port. If the timing port is in the MONITORED mode and the reference is in FAILED status alarms shall be 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

Description: This parameter shall indicate the QL value for the timing port. The value range depends on the system synchronization characteristic.

The parameter shall describe the incoming SSM and shall take 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.

1. tref_aid – timing reference assigned port AID

Description: This parameter shall specify the port AID of the assigned timing reference AID.

The parameter shall be 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 than one reference from a unit. It is not possible to un-assign units from which a reference is assigned to a timing port. It shall be also not possible to assign a reference from a protection port in a protection group. The value NOT-CONNECTED means no reference shall be 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

Description: This parameter shall specify the format of the external timing input.

The value range depends on the system synchronization characteristic. The external timing input format shall be settable at both external timing inputs individually. The reference shall be 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

Description: This parameter shall define the external input Sa bit location. It shall be 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 shall be retrievable, but it has no impact on the ports transmission behavior.

The location of the Sa bit shall be settable 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

Description: This parameter shall specify if the SSM mode is supported or not on the external timing input port.

The parameter shall be 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 shall be retrievable, but it has no impact on the ports transmission behavior. The parameter shall be adjustable individually to both external timing input ports.

Type: Alphanumeric value set

Range: SUPPORTED, NOT-SUPPORTED

Default: SUPPORTED

5. External Timing Output

a. ext_equ – cable equalization

Description: This parameter shall specify the timing output cable equalization to adjust the specified timing reference output signal power. This parameter shall be valid only for DS1 (SONET).

This parameter shall be 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

Description: This parameter shall specify 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

Description: This parameter shall define the external output Sa bit location. This parameter shall be only valid for external timing output format “2Mbit/s framed”; i.e. for ports with format unequal to “2Mbit/s framed” the parameter value shall be 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

Description: This parameter shall indicate the external output signal status.

The value NORMAL shall indicate when the output timing signal is enabled and providing a correctly synchronized output timing signal. The value DISABLED shall indicate when the output timing signal has been disabled by means of user provisioning. The value UNACCEPTABLE shall indicate 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

Description: This parameter shall specify 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

Description: This parameter shall specify 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
 Description: This parameter shall specify which value will be send when the signal level is below the quality acceptance level or when **frcdus** is enabled. The parameter shall be 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 shall be retrievable, but it has no impact on the ports transmission behavior.
 The value AISMODE means AIS shall be inserted in the external timing output signal. The value QLMODE means DUS shall be inserted in the external timing output signal.
 Type: Alphanumeric value set
 Range: AISMODE, QLMODE
 Default: QLMODE
- h. frcdus – forced DNU/DUS
 Description: This parameter shall specify the synchronization messaging forced DNU/DUS enable or disable for the timing output port. DUS applies to SONET and DNU applies to SDH. This shall be 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 shall be 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
 Description: This parameter shall indicate 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
Description: This parameter shall indicate 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
Description: 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
Description: This parameter shall specify 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 shall be selectable for both external timing outputs individually. The loop operation is only functional if SSM is supported.
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” \(10-3\)](#) 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” \(10-3\)](#) 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, ingl=SSUT, ingl_stat=NOT-SUPPORTED"
"EXTREF2:tref_aid=EXTTMG1, syncref_pri=3, ref_stat=NORMAL,
ref_lock=NO-LOCKOUT, ingl=SSUT, ingl_stat=NOT-SUPPORTED"
;
```

Error responses See definition in [“RTRV-HDR: Retrieve header” \(5-6\)](#) command error responses section for general validation rules.

Related TL1 messages

- [“SET-SYNCN: Set synchronization” \(10-19\)](#)
 - [“OPR-SYNCNSW: Operate synchronization switch” \(10-32\)](#)
 - [“RLS-SYNCNSW: Release synchronization switch” \(10-38\)](#)
-

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” \(5-6\)](#).
2. *aid* – access identifier
 Description: 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
 Default: Not applicable.
3. *ctag* – correlation tag
 See definition of *ctag* – **correlation tag** in [“RTRV-HDR: Retrieve header” \(5-6\)](#).

Spec block parameters

1. System Timing
 - a. *clkmod* – clock mode

- See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section System Timing of this parameter.
- b. syncmsg – system synchronization status messaging mode
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section System Timing of this parameter.
 - c. timing – ASAP name
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section System Timing of this parameter.
 - d. wtr – wait to restore
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section System Timing of this parameter.
2. Assigned Timing Reference
- a. extout_pri – timing output reference priority
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section Assigned Timing Reference of this parameter.
 - b. ql_prov – quality provisioned
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section Assigned Timing Reference of this parameter.
 - c. syncref_pri – system timing reference priority
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section Assigned Timing Reference of this parameter.
 - d. timing – ASAP name
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section System Timing of this parameter.
 - e. tpmode – timing port mode monitoring
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section Assigned Timing Reference of this parameter.
 - f. tref_aid – timing reference assigned port AID
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section Assigned Timing Reference of this parameter.
3. External Timing Input
- a. ext_if – external input signal format
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Input of this parameter.
 - b. ext_isa – external input sa bit location

See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Input of this parameter.

- c. ext_issm – external input ssm support
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Input of this parameter.

4. External Timing Output

- a. ext_equ – cable equalization
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Output of this parameter.
- b. ext_of – external output signal format
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Output of this parameter.
- c. ext_osa – external output sa bit location
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Output of this parameter.
- d. extout_en – external output enabling/disabling
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Output of this parameter.
- e. extout_prov – external timing output selection
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Output of this parameter.
- f. extout_ssm – external timing output AIS mode
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Output of this parameter.
- g. frcdus – forced DNU/DUS
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Output of this parameter.
- h. loopdelay – timing regenerator loop delay
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Output of this parameter.
- i. qlout_tais – acceptance quality level for output threshold AIS
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Output of this parameter.
- j. regen_loop – timing regenerator loop
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Output of this parameter.
- k. timing – ASAP name

See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section System Timing of this parameter.

Output format Normal completion message

After receiving the SET-SYNCN command, the following normal completion response shall be returned:

```

      sid date time
M  ctag COMPLD
z

```

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 None.

Detailed behavior description

After successful receiving the SET-SYNCN command a REPT DBCHG database change notification shall be returned. This notification consists the same parameter as per delivered by the command. notifications shall be 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 shall be returned.

If the system receives a SET-SYNCN command with changing of the active timing reference, a REPT EVT report event notification shall be returned.

It shall be 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 shall be 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 shall be possible to provision the automatic reference selection process to use the incoming QLs in QL-enabled mode. The input with the highest quality level shall be selected. If there is more than one input with the same highest quality level, then the input with the highest port priority shall be selected. In QL-disabled mode the reference selection is working by priority provisioning. It shall be 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 shall be 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.

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
z
```

The following is an example of the SET-SYNCN command for Assigned Timing Reference:

```
SET-SYNCN:LT-UNITE:extref1:123456:::tref_aid=EXTREF0,
q1_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:extmag1:123456:::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:extmag0_out:123456:::ext_of=2MHZ,extout_en=ENABLE;

LT-UNITE 00-11-14 12:00:00
M 123456 COMPLD
;
```

Error responses See definition in [“RTRV-HDR: Retrieve header” \(5-6\)](#) command error responses section for general validation rules.

Validation rule: Timing reference already assigned

If a timing reference already assigned to a timing port or circuit pack the system shall respond 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 shall respond with:

Error code: SDNC - Status, Data Not Consistent, other port already assigned

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 shall respond 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

If a timing reference shall be assigned from a protection port in a protection group the system shall respond with:

Error code: SDNC - Status, Data Not Consistent, reference in protection group

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 shall respond 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 shall respond with:

Error code: SDNC - Status, Data Not Consistent, quality evaluation disabled

Validation rule: SSM not supported

SSM support shall be rejected for invalid input or output format types 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 shall respond 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 shall be rejected for invalid input or output format types and the system shall respond 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 shall be rejected and the system shall respond 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 shall respond 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 shall respond with:

Error code: IDNV - Input, Data Not Valid, cable equalization not supported

Validation rule: Timing clock mode inconsistent

If the network element receives a command with FREE-RUNNING provisioning while the clock mode switch request state is forced holdover, the following error response shall be 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 shall respond with:

Error code: IDNV - Input, Data Not Valid, no regen loop with SETG as timing output

Validation rule: Regenerator loops with SETG as timing output

If the timing regenerator loop is set to enabled (set to another value as disabled) and the output timing source selection is provisioned to SETG, then the system shall respond with:

Error code: IDNV - Input, Data Not Valid, no regen loop with SETG as timing output

Related TL1 messages

- [“RTRV-SYCN: Retrieve synchronization” \(10-3\)](#)
- [“OPR-SYCN: Operate synchronization switch” \(10-32\)](#)
- [“RLS-SYCN: Release synchronization switch” \(10-38\)](#)

References GR-833-CORE



SET-SYNCN notification

Output format The SET-SYNCN notification shall use the general format of a REPT DBCHG Report Database Change notification.

Syntax: The SET-SYNCN notification shall have following specific syntax: SET-SYNCN:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – access identifier
See definition in [“SET-SYNCN: Set synchronization” \(10-19\)](#) of aid – access identifier

Spec block parameters

1. System Timing
 - a. clkmod – clock mode
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section System Timing of this parameter.
 - b. syncmsg – system synchronization status messaging mode
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section System Timing of this parameter.
 - c. timing – ASAP name
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section System Timing of this parameter.
 - d. wtr – wait to restore
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section System Timing of this parameter.
2. Assigned Timing Reference
 - a. extout_pri – timing output reference priority
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section Assigned Timing Reference of this parameter.
 - b. ql_prov – quality provisioned
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section Assigned Timing Reference of this parameter.
 - c. syncref_pri – system timing reference priority
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section Assigned Timing Reference of this parameter.
 - d. timing – ASAP name

See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section System Timing of this parameter.

- e. tpmode – timing port mode monitoring
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section Assigned Timing Reference of this parameter.
- f. tref_aid – timing reference assigned port AID
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section Assigned Timing Reference of this parameter.

3. External Timing Input

- a. ext_if – external input signal format
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Input of this parameter.
- b. ext_isa – external input sa bit location
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Input of this parameter.
- c. ext_issm – external input ssm support
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Input of this parameter.

4. External Timing Output

- a. ext_equ – cable equalization
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Output of this parameter.
- b. ext_of – external output signal format
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Output of this parameter.
- c. ext_osa – external output sa bit location
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Output of this parameter.
- d. extout_en – external output enabling/disabling
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Output of this parameter.
- e. extout_prov – external timing output selection
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Output of this parameter.
- f. extout_ssm – external timing output AIS mode
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Output of this parameter.

- g. frcdus – forced DNU/DUS
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Output of this parameter.
- h. loopdelay – timing regenerator loop delay
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Output of this parameter.
- i. qlout_tais – acceptance quality level for output threshold AIS
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Output of this parameter.
- j. regen_loop – timing regenerator loop
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section External Timing Output of this parameter.
- k. timing – ASAP name
See definition in [“RTRV-SYNCN: Retrieve synchronization” \(10-3\)](#) section System Timing of this parameter.

Example output The following is an example of the SET-SYNCN notification for System Timing:

```
LT-UNITE 00-11-16 12:00:00
& 000 REPT DBCHG
  "TIME=12-00-00,DATE=00-11-16:SET-SYNCN:SYSTEM::wtr=2MIN"
z
```

The following is an example of the SET-SYNCN notification for Assigned Timing Reference:

```
LT-UNITE 00-11-16 12:00:00
& 000 REPT DBCHG
  "TIME=12-00-00,DATE=00-11-16:SET-SYNCN:LINE2::ql_prev=PRC"
z
```

The following is an example of the SET-SYNCN notification for External Timing Input:

```
LT-UNITE 00-11-16 12:00:00
& 000 REPT DBCHG
  "TIME=12-00-00,DATE=00-11-16:SET-SYNCN:EXTTMG0::ext_isa=SA5,
ext_if=2MBIT-FRAMED"
z
```

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_sn=AI SMODE"
;
```



OPR-SYNCNSW: Operate synchronization switch

The OPR-SYNCNSW command can be initiated by user to request the network element 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
 Description: The *modifier* parameter shall indicate 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” \(5-6\)](#).
3. ctag – correlation tag
 See definition of *ctag* – *correlation tag* in [“RTRV-HDR: Retrieve header” \(5-6\)](#).
4. sc – switch command

Description: This parameter shall define 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 shall be initiated. It forces selection of the specified reference determined by the **dest** parameter. MAN – A manual switch shall be 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 shall be 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 shall be initiated. It forces selection of the specified reference determined by the **dest** parameter. MAN – A manual switch for the external timing output shall be 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

Description: This parameter shall specify 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 Normal completion message

After receiving the OPR-SYNCNSW command, the following normal completion response shall be returned:

```

sid date time
M ctag COMPLD
z

```

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

Behavior

The OPR-SYNCNSW command generates no REPT DBCHG Report Database Change notification. The OPR-SYNCNSW command shall return 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 shall be 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 shall be 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 shall be 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 shall be 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::PRCD;
      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
z
```

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
z
```

Error responses See definition in [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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 shall respond 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 shall respond 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 shall respond 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 shall respond 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 shall respond 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 shall respond 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 shall respond 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 shall respond with:

Error code: SNVS - Status, Not in Valid State, request not practicable

Related TL1 messages

- [“RLS-SYNCNSW: Release synchronization switch” \(10-38\)](#)
- [“SET-SYNCN: Set synchronization” \(10-19\)](#)
- [“RTRV-SYCN: Retrieve synchronization” \(10-3\)](#)

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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
See definition of *modifier* – *modifier* in [“OPR-SYNCNSW: Operate synchronization switch ” \(10-32\)](#).
2. *tid* – target identifier
See definition of *tid* – *target identifier* in [“RTRV-HDR: Retrieve header” \(5-6\)](#).
3. *ctag* – correlation tag
See definition of *ctag* – *correlation tag* in [“RTRV-HDR: Retrieve header” \(5-6\)](#).
4. *dest* – destination
See definition of *dest* – *destination* in [“OPR-SYNCNSW: Operate synchronization switch ” \(10-32\)](#).

When the parameter *dest* is omitted with *modifier* REF or OUTREF the system clears a manual or forced timing reference or external output timing switch request state.

Output format Normal completion message

After receiving the RLS-SYNCNSW command, the following normal completion response shall be returned:

	<i>sid</i> <i>date</i> <i>time</i>
M	<i>ctag</i> 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

Behavior

The RLS-SYNCNSW command generates no REPT DBCHG Report Database Change notification. The RLS-SYNCNSW command shall return 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 shall remove any active external request and does not affect the state of the automatic protection switching based on synchronization reference failure. The following parameter shall be 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 shall remove 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 shall invoke 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 shall be 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 shall be 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” \(5-6\)](#) command error responses section for general validation rules and in [“OPR-SYNCNSW: Operate synchronization switch ” \(10-32\)](#) command error responses section for specific validation rules.

Related TL1 messages

- [“OPR-SYNCNSW: Operate synchronization switch” \(10-32\)](#)
- [“SET-SYCN: Set synchronization” \(10-19\)](#)
- [“RTRV-SYCN: Retrieve synchronization” \(10-3\)](#)

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Protection switch notification

Output format The protection switch notification shall use the general format of a REPT EVT Report Event notification.

Syntax: The REPT EVT notification shall have 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
Description: This parameter shall indicate on which entity the report event belongs.
Type: Alphanumeric value set
Range: SYST (means System Timing)
Default: none
 - b. aid – access identifier
Description: This parameter shall indicate on which AID the report event belongs.
Type: Alphanumeric value set
Range: SYSTEM
Default: none
 - c. condtype – condition type
Description: The parameter condtype shall identify the type of event being reported.
Type: alphanumeric value set
Range: See [Table 10-1, “Range of condtype \(clock mode protection type\)” \(10-43\)](#).
Default: none
 - d. conddescr – description of the condition
Description: The parameter conddescr shall be a textual description of the condition.
Type: inner string
Range: See [Table 10-2, “Range of conddescr \(clock mode protection type\)” \(10-44\)](#).

Default: none

2. Timing Reference Protection Type

a. modifier – message modifier

See definition in Protection notification section System Timing, Clock Mode Protection Type of this parameter.

b. aid – access identifier

Description: This parameter shall indicate 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

Default: none

c. condtype – condition type

Description: The parameter condtype shall identify the type of event being reported.

Type: alphanumeric value set

Range: See [Table 10-3, “Range of condtype \(timing reference protection type\)” \(10-44\)](#).

Default: none

d. conddescr – description of the condition

Description: The parameter conddescr shall be a textual description of the condition.

Type: inner string

Range: See [Table 10-4, “Range of conddescr \(timing reference protection type\)” \(10-44\)](#).

Default: none

Table 10-1 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 10-2 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 10-3 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 10-4 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**

Description: This parameter shall indicate on which entity the report event belongs.

Type: Alphanumeric value set

Range: OUTT (means Output Timing)

Default: none

b. aid – access identifier

Description: This parameter shall indicate 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

Default: none

c. condtype – condition type

Description: The parameter condtype shall identify the type of event being reported.

Type: alphanumeric value set

Range: See [Table 10-5, “Range of condtype \(Output timing reference protection type\)” \(10-45\)](#).

Default: none

d. conddescr – description of the condition

Description: The parameter conddescr shall be a textual description of the condition.

Type: inner string

Range: See [Table 10-6, “Range of conddescr \(Output timing reference protection type\)” \(10-45\)](#).

Default: none

Table 10-5 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 10-6 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:INHSPWR,SC,11-09,12-00-00,,,:\"Protection switch,output
reference,Lockout\""
```



Autonomous notifications

System initialization with default values

After first system initialization for all parameters the described default values shall be valid and no timing reference shall be assigned. No database change notification will be returned during database auto creation.

System initialization after system synchronization characteristic change

It shall be possible to change the system synchronization characteristic later on. For this case, the system shall behave as a new created node. All assigned timing references shall be un-assigned before and after changing in the MCOND state the system shall 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 shall switch 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 shall switch back to the locked state autonomously. The following parameter shall be affected by the autonomous clock mode switch: clkmod_stat = [AUTONOMOUS-HOLDOVER, NORMAL]

Autonomous reference switch for System Timing

The autonomous reference switching shall be initiated by the failure of a reference. The autonomous reference switching shall also result after a SSM change of the active reference or of any of the standby references. The choice for the next active timing reference shall primarily depend 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 shall support non-revertive switching. The autonomous reference switch shall return a protection switch notification for System Timing. The following parameter shall be 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 shall be 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 shall 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 shall support non-revertive switching. The autonomous reference switch shall return a protection switch notification for Output Timing. The following parameter shall be affected by the autonomous timing reference switch: active_oref_stat = Line_timing_ref_AID

Synchronization instances

The following instances shall be 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





11 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 Network Element, 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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RTRV-PRMTR-DATA: Retrieve parameter data

The RTRV-PRMTR-DATA command retrieves information about the databases being in Non Volatile Memory (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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. *ctag* – Correlation Tag
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
3. *amount* – Amount Of Data To Return
 Description: This ***amount*** input parameter specifies whether the current generic or previous generic or both shall be returned. If a value is omitted, then the current (active) generic shall be returned.
 Type: alphanumeric value set
 Range: CURRENT, PREVIOUS, ALL
 Default: CURRENT

Output format Normal completion message

The following normal completion response shall be 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” \(5-6\)](#) 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:

nvm – Non Volatile Memory Identifier

Description: The parameter shall specify 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 shall be reported except for **amount** having been specified to ALL.

Spec block parameters

Description: This parameter block shall provide information about the stored database. It contains the parameters **release**, **size**, **backuptime**, **restoretime**, **backupfile**, **restorefile**, **priorbackuptime**, **priorbackupfile**, **priorrestoretime**, **priorrestorefile**, **state** and **tid**.

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 shall be omitted (initialized to a blank field) for NVM-A:

backuptime, **restoretime**, **backupfile**, **restorefile**, **priorbackuptime**, **priorrestoretime**, **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

Description: The **release** parameter represents the release number contained in the file.

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.

Default: n. a.

2. size – Size Of Allocated NVM

Description: The size 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 999999999

Default: In case the software generic on the NVM is empty, the value 0 shall be reported.

3. backuptime

Description: 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 network element shall update **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 shall be 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.

Default: n. a.

4. restoretime

Description: 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) shall not be 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.

Default: n. a.

5. backupfile

Description: This parameter indicates the remote location where the last backup is stored.

Omitted if never backed up.

The network element will update **backupfile** before the file transfer starts.

Thus, both the source (current NVM) and the destination (Navis[®] Optical EMS or WaveStar[®] CIT) shall have the same value for **backupfile**.

Type: text string

Range: **backupfile** has one of the following formats:

- **"CIT,filename"**
- **"EMS,filename"**

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 filesystem, forward slashes (/) should be used. Because a (\) is interpreted as the escape character, it will be represented in the RTRV-PRMTR-DATA output as a double backslash (\\).

Default: None

6. restorefile

Description: 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) shall not be modified.

restorefile shall be updated whether or not the file transfer was successful.

Type: text string

Range: **restorefile** has one of the following formats:

- **"CIT,filename"**
- **"EMS,filename"**

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 filesystem, forward slashes (/) should be used. Because a (\) is interpreted as the escape character, it will be represented in the RTRV-PRMTR-DATA output as a double backslash (\\).

Default: None

7. priorbackuptime

Description: 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

Description: This parameter reflects 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.

Default: n. a.

9. priorbackupfile

Description: 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"**

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 filesystem, forward slashes (/) should be used. Because a (\) is interpreted as the escape character, it will be represented in the RTRV-PRMTR-DATA output as a double backslash (\\).

Default: None

10. priorrestorefile

Description: This parameter reflects the remote location where the next-to-last restore came from.

It is omitted, if there is no next-to-last restore.

Type: text string

Range: **priorrestorefile** has one of the following formats:

- **"CIT,filename"**
- **"EMS,filename"**

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 filesystem, forward slashes (/) should be used. Because a (\) is interpreted as the escape character, it will be represented in the RTRV-PRMTR-DATA output as a double backslash (\\).

Default: None

11. state – State of the Database

Description: The parameter describes the state of the database 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): Backup or restore in progress.
- INPROGRESS (previous): Restore is in progress.
- PREVIOUS (previous): A previously active database.
- 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. 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.

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, RUNNING

Default: INITIAL

12. tid – target identifier

Description: This parameter gives the TID that was stored in this NVM.

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” \(5-6\)](#) for allowable tid values and details

13. serialnumber – serial number

Description: 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.

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 *WaveStar* 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,ba
ckupfile=\"CIT,\\data\\00_11_01B\",priorbackuptime=00-11-01 08-00-00,pri
orbackupfile=\"CIT,\\data\\00_11_01A\",state=running,tid=LT-
UNITE,serialnumber=01NB12345678"
;
```

Error responses

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command’s error responses section. The error responses listed there apply also to the RTRV-PRMTR-DATA command.

Related TL1 messages

- [“RTRV-PRMTR-DATA: Retrieve parameter data” \(11-3\)](#)
- [“APPLY: Apply software generic” \(11-29\)](#)
- [“CPY-MEM: Copy memory” \(11-18\)](#)
- [“RTRV-PRMTR-SFTWR: Retrieve parameter software” \(11-12\)](#)

Additional notes

None.

RTRV-PRMTR-DATA: Retrieve parameter
data

Software & database management

References None.



RTRV-PRMTR-SFTWR: Retrieve parameter software

The RTRV-PRMTR-SFTWR command retrieves information about the software generics being in Non Volatile Memory. 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
3. amount – Amount Of Data To Return
 Refer to the [“RTRV-PRMTR-DATA: Retrieve parameter data” \(11-3\)](#) command for the input parameter syntax and description of this parameter.

Output format Normal completion message

If the network element fully complies with the RTRV-PRMTR-SFTWR command and the **amount** request is specified to all, then the following normal completion response shall be returned:

```

sid date time
ctag COMPLD
"nvm:spec_block"
...
...
"nvm:spec_block"
;
```

Output parameters

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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:

nvm – non volatile memory identifier

Description: The parameter shall specify the version of non volatile memory 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

Description: This parameter block shall provide information about the stored software. It contains the parameters **release, size, supplier, type, delivered, installed, path, state**.

1. release – Release Number

Description: The release parameter represents the software release number contained in the file.

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. size – Program Size

Description: The size parameter indicates the software generic size in bytes.

- Type: numeric string
Range: 0 to 999999999
Default: In case the software generic on the NVM is empty, the value 0 shall be reported.
3. supplier
Description: This parameter provides the supplier of generic.
Type: value set
Range: 0 to 128 characters
Default: Lucent
4. type – System Type
Description: This parameter specifies the type of system.
Type: value set
Range: WaveStar_UNITE
Default: WaveStar_UNITE
5. delivered
Description: This parameter reflects 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
6. installed
Description: This parameter reflects 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
7. path

Description: This parameter gives the source of the download and has one of the following formats:

- *"CIT,psel,ssel,tsel,nsap,filename"*
- *"EMS,psel,ssel,tsel,nsap,filename"*
- "LUCENT"

"LUCENT" occurs in the current NVM for the initial factory-delivered generic. It indicates the generic was shipped from 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 filesystem, 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 WaveStar[®] CIT is used to enter a file name for download backup, or restore, the craft is not required to enter a double backslash; the WaveStar CIT software will enter the extra backslash into the TL1 CPY-MEM command.

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"*
- "LUCENT"

Default: n.a.

8. state

Description: The 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): Backup or restore in progress.
- INPROGRESS (previous): Restore is in progress.
- PREVIOUS (previous): A previously active database.
- RUNNING (current): The currently active database.

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.

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, 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 *WaveStar* 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,01,01,03,39840F80000000000000000000000008006A11234500,\\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,01,01,02,39840F80000000000000000000000008006A1118500,/unite/generic/1_2_03.pgm\\,state=previous|
;
```

Error responses Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command error responses section. The error responses listed there also apply to the RTRV-PRMTR-SFTWR command.

Related TL1 messages

- [“RTRV-PRMTR-SFTWR: Retrieve parameter software” \(11-12\)](#)
- [“APPLY: Apply software generic” \(11-29\)](#)
- [“CPY-MEM: Copy memory” \(11-18\)](#)
- [“RTRV-PRMTR-DATA: Retrieve parameter data” \(11-3\)](#)

Additional notes None.

References None.



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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.

3. from – from memory type

Description: 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 (WaveStar[®] CIT)
- "EMS,*psel*,*ssel*,*tsel*,*nsap*" , EMS means Element Management System (Navis[®] Optical EMS)
sel, *ssel*, *tsel*, and *nsap* are part of the from (and to) parameter and specify NSAP and selectors of the WaveStar CIT or Navis Optical EMS. 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.

Default: None

4. src- source

Description: *src* is 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 on the system (Navis Optical EMS or WaveStar CIT) from which the file is transferred
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"

Default: None

5. to- to memory type

Description: 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 (*WaveStar* CIT)
- "EMS,**psel**,**ssel**,**tsel**,**nsap**" , EMS means Element Management System (*Navis* Optical EMS).
sel, **ssel**, **tsel**, and **nsap** are part of the from (and to) parameter and specify NSAP and selectors of the *WaveStar* CIT or *Navis* Optical EMS. 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.

Default: None

6. dst- destination directory name

Description: **dst** is 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

Description: 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

Default: None

Output format Normal completion message

If the network element fully complies with the CPY-MEM command, then the network element 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” \(5-6\)](#) 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 shall be 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 *WaveStar* CIT or *Navis* Optical EMS.

A directory or URL shall be 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 *WaveStar* CIT or *Navis* Optical 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 *WaveStar* 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 network element 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.

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 *Navis Optical EMS* to PRI. To cause *prgm* to execute, the APPLY command must be used.

```
CPY-MEM:LT-UNITE::123456::"EMS,02,04,02,39840F80000000000000  
00000008006A19784500","/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 *WaveStar* CIT and stores it in a directory named data in a location named 00_11_01.

```
CPY-MEM:LT-UNITE::123456::"PRI",,"CIT,01,01,03,39840F8000
000000000000000008006A13244500","\\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 *WaveStar* CIT:

```
CPY-MEM:LT-UNITE::123456::"CIT,01,01,03,39840F800000000000  
00000000008006A13244500","\\data\\00_11_01","PRI",,RESTOR  
E;  
  
LT-UNITE 00-11-02 08:00:00  
M 123456 COMPLD  
:
```

Error responses

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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 shall respond 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"	-

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 shall respond 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 network element, the system shall respond with:

Error code: SDNC - Status, Data not consistent

Validation rule: Insufficient file space

If the command failed due to insufficient file space, the system shall respond 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 shall respond 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 shall respond 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 shall respond 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 shall respond 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 shall respond 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 shall respond 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 shall respond 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 specified 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

Related TL1 messages

- [“CPY-MEM: Copy memory” \(11-18\)](#)
- [“APPLY: Apply software generic” \(11-29\)](#)
- [“RTRV-PRMTR-DATA: Retrieve parameter data” \(11-3\)](#)
- [“RTRV-PRMTR-SFTWR: Retrieve parameter software” \(11-12\)](#)
- [“RTRV-NE: Retrieve network element” \(12-4\)](#)
- [“ED-NE: Edit network element” \(12-7\)](#)

Additional Notes None.

References None.



CPY-NEM Notification

Output format The CPY-MEM notification shall use the general format of a REPT DBCHG Report Database Change notification.

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

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

Output parameters

Command parameters

1. from - from memory type
Refer to the [“CPY-MEM: Copy memory” \(11-18\)](#) for the description of this parameter.
2. src- source
See definition of input parameter **src** in [“CPY-MEM: Copy memory” \(11-18\)](#).
3. to- to memory type
See definition of input parameter **to** in [“CPY-MEM: Copy memory” \(11-18\)](#).
4. dst- destination directory name
See definition of input parameter **dst** in [“CPY-MEM: Copy memory” \(11-18\)](#).
5. class – Class Of The Copy
See definition of input parameter **class** in [“CPY-MEM: Copy memory” \(11-18\)](#).

Example output The following is an example for a CPY-MEM notification after a software download:

```
A    LT-UNITE 00-11-01 15:00:00  
      000 REPT DBCHG  
        "TIME=15-00-00,DATE=00-11-03:CPY-  
MEM::\"EMS,02,04,02,39840F8000000000000000000000006A19784500\", \" /unit  
e/release1/prgm\", \"PRI\", DOWNLOAD"  
;
```

The following is an example for a CPY-MEM notification after a DB restore (before the NE resets):

[illegible]

The following is an example for a CPY-MEM notification after a DB backup via the FT-TD:

```

A  LT-UNITE 00-11-01 15:00:00
   000 REPT DBCHG
   "TIME=15-00-00,DATE=00-11-03:CPY-
MEM::\"PRI\".,,\"FTTD,01,01,03,39840F80000000000000000000008006A13244550
0\".,\"ftp://johndoe:passwd@ftphost.company.com/directory/00_11_01\",BA
CKUP"
;
```



APPLY: Apply software generic

The APPLY command can be used to install a copy of a software generic stored in the network element, 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
3. qualifier
Description: The ***qualifier***’s parameters are INSTALL and PREVIOUS.
 - 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.
 - PREVIOUS forces the generic that is in previous NVM to be installed, even if it has been previously installed.
 Type: alphanumeric value set
Range: INSTALL, PREVIOUS
Default: INSTALL

Output format Normal completion message

If the network element 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 */
;
```

Output parameters n/a**Detailed behavior description****Installation of a previous generic**

The software state, as indicated by the RTRV-PRMTR-SFTWR command, is DOWNLOADED if the generic has been downloaded but not yet successfully installed.

If a generic has been previously installed, then it has a state equal to PREVIOUS.

For a software generic of state equal to PREVIOUS, the APPLY command will be denied unless *qualifier* has the value PREVIOUS.

This helps to prevent an inadvertent second APPLY from replacing the currently executing generic with the previous one.

The PREVIOUS option for APPLY is intended for use as a manual backout and is limited to either of the following cases:

- The previous generic and the current database are compatible.
- The previous generic and the previous database are compatible.

Compatibility is ensured by comparison of serial numbers. If the previous generic is incompatible with both databases then the APPLY command will not be successful.

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

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” \(5-6\)](#) 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 shall respond 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 shall respond 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 shall respond 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 shall be 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 network element, 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

To force the installation, *qualifier* should be set to PREVIOUS.

Validation rule: File inappropriate

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

Error code: SDNC - Status, Data Not Consistent

Related TL1 messages

- [“APPLY: Apply software generic” \(11-29\)](#)
- [“CPY-MEM: Copy memory” \(11-18\)](#)
- [“RTRV-PRMTR-DATA: Retrieve parameter data” \(11-3\)](#)
- [“RTRV-PRMTR-SFTWR: Retrieve parameter software” \(11-12\)](#)

Additional notes None.

References None.



APPLY notification

Output format The APPLY notification shall use the general format of a REPT DBCHG Report Database Change notification.

Syntax The APPLY notification shall have following specific syntax:
Command Syntax: `APPLY:,,qualifier;`
The output parameters sid, date, time, and atag are described in the REPT DBCHG Report Database Change notification.

Output parameters

Command parameters

See definition of *qualifier* in [“APPLY: Apply software generic” \(11-29\)](#).

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"
;
```





12 Data communications network

Overview

Purpose This section contains the TL1 interface definition for the domain “data communications network”.

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General DCN parameters

Overview

Purpose This section describes TL1 messages for DCN which have effects on system wide DCN configurations.

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RTRV-NE: Retrieve network element

The RTRV-NE command retrieves DCN attributes associated with the network element 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” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
Type: TID
Range: n/a
Default: n/a
2. *ctag* – Correlation Tag
Description: Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
Type: CTAG
Range: n/a
Default: n/a

Spec block parameters

none

Output format Normal completion message

If the RTRV-NE request is successful, the following normal completion message shall be returned:

```
M  sid date time  
   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 for the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command.

Output parameters

Spec block parameters

dcnprn – DCN ASAP Profile Name

Description: 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

Detailed behavior description

The command shall retrieve 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;  
M  LT-UNITE 00-11-01 08:00:00  
   123456 COMPLD  
   ":ftamftpgw=DISABLE"  
   ":tl1tcpipgw=DISABLE"  
   ":tunstat=DISABLE"  
   ":dcnprn=DEFAULT"  
;
```

Error responses Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there apply to the RTRV-NE command.

Validation rule

n/a

Related TL1 messages [“ED-NE: Edit network element” \(12-7\)](#)

Additional notes n/a

References n/a



ED-NE: Edit network element

The ED-NE command is used to activate or de-activate DCN functions associated with the network element 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
See definition of *tid* in [“RTRV-NE: Retrieve network element” \(12-4\)](#).
2. *ctag* – Correlation Tag
See definition of *ctag* in [“RTRV-NE: Retrieve network element” \(12-4\)](#).

Spec block parameters

1. *dcnpr* – DCN ASAP Profile Name
See definition of *dcnpr* in [“RTRV-NE: Retrieve network element” \(12-4\)](#).

Output format Normal completion message

If the ED-NE command completes successfully, then 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: Retrieve header” \(5-6\)](#) command.

Output parameters n/a

Detailed behavior description The command shall activate or de-activate the DCN function associated with the parameters specified in the *spec_block* section.

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” \(5-6\)](#) command Error responses section. The error responses listed there apply to the RTRV-NE command.

Related TL1 messages

- [“RTRV-NE: Retrieve network element” \(12-4\)](#)
- [“RTRV-FECOM-LAN: Retrieve LAN channel related parameters” \(12-24\)](#)
- [“ENT-FECOM-LAN: Enter LAN related parameters” \(12-27\)](#)

Additional notes n/a

References n/a



ED-NE notification

Output format The ED-NE notification shall use the general format of a REPT DBCHG Report Database Change notification.

Command Syntax: The ED-NE notification shall have following specific syntax: ED-NE::*spec_block*

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

Output parameters

dcnprn – DCN ASAP Profile Name

See definition of *dcnprn* in [“RTRV-NE: Retrieve network element” \(12-4\)](#).

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"
;
```



DCC terminations

Overview

Purpose This section describes TL1 commands for section RS-DCC and Line MS-DCC: provisioning, modification and status retrieval

Contents

RTRV-FECOM: Retrieve DCC related parameters	12-11
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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]*;

Input parameters

Command parameters

1. tid – Target Identifier
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for input parameter syntax and description of this parameter.
3. port – DCC port
 Description: This parameter indicates the optical port AID of an OPn 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 optical ports belonging to the NE.
4. dcctype
 Description: This parameter specifies whether the LINE/MS or SECTION/RS DCC parameters of the OPn **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

none

Output format Normal completion message

If the RTRV-FECOM is successful, the following normal completion response shall be returned:

```
M  sid date time
   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 for the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command.

Output parameters

Command parameters

1. port
See definition of *port* in input parameters sections of [“RTRV-FECOM: Retrieve DCC related parameters” \(12-11\)](#).
2. dcctype
See definition *dcctype* in input parameters sections of [“RTRV-FECOM: Retrieve DCC related parameters” \(12-11\)](#).

Spec block parameters

1. dccstat
Description: This parameter indicates whether communication over the DCC channel is enabled or disabled.
Type: Alphanumeric value set
Range: ENABLE
Default: ENABLE
Note: Output responses will only be sent for DCC channels with *dccstat*=ENABLE, see also Detailed Behavior Description below.
2. lapdmode
Description: 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.
Type: Alphanumeric value set

Range:

- UITS
- AITS

Default: UITS

3. lapdrl

Description: This parameter indicates the LAPD role.

Type: Alphanumeric value set.

Range:

- USER-SIDE
- NETWORK-SIDE

Default: USER-SIDE

4. osinode

Description: Assignment of DCC channels to an OSI-node in a NE. A *LambdaUnite*[™] MSS 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).

Type: AID

Range: osinode{1-8}

Default: n/a

**Detailed behavior
description**

The command shall retrieve the system parameter as described in the Output Parameter Section. Output responses will only be delivered for DCC channels with ***dccstat***=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,"
;
```

Error responses

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there apply to the RTRV-FECOM command.

Validation rule

n/a

Related TL1 messages

[“ENT-FECOM: Enter DCC channel related parameters” \(12-15\)](#)

DCC terminations
RTRV-FECOM: Retrieve DCC related
parameters

Data communications network

Additional notes n/a

References n/a



ENT-FECOM: Enter DCC channel related parameters

The ENT-FECOM command allows to enable or disable a DCC channel for a specific OSI node. It can also be used to modify 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” \(5-6\)](#) command for input parameter syntax and description of this parameter.
2. *ctag* – Correlation Tag
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for input parameter syntax and description of this parameter.
3. *port*
 Description: This parameter indicates the optical port AID of an OPn circuit pack which is used together with ***dcctype*** to identify the DCC channel.
 Type: AID
 Range: SPortAID; the keyword 'all' shall not be allowed
 Default: n/a
4. *dcctype*
 Description: This parameter specifies whether the LINE/MS or SECTION/RS DCC of the OPn ***port*** is affected by the command.
 Type: Alphanumeric value set
 Range:
 • LINE
 • SECTION
 Default: SECTION

Spec block parameters

1. *dccstat*

Description: This parameter indicates whether communication over the DCC channel is enabled or disabled.

Type: Alphanumeric value set

Range:

- ENABLE
- DISABLE

Default: DISABLE

Note: This parameter must be set explicitly to ENABLED when any other spec_block parameter is changed. The default value of DISABLED is used when a DCC channel is created.

2. lapdmode

See definition of *lapdmode* in [“RTRV-FECOM: Retrieve DCC related parameters” \(12-11\)](#)

3. lapdrl

See definition of *lapdrl* in [“RTRV-FECOM: Retrieve DCC related parameters” \(12-11\)](#).

4. osinode

Description: Assignment of DCC channels to an OSI-node in a NE. A *LambdaUnite*™ MSS 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).

Type: AID

Range: osinode{1-8}

Default: osinode1

Output format Normal completion message

If the ENT-FECOM 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 for the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command.

Output parameters n/a

ENT-FECOM: Enter DCC channel related parameters

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 shall be 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.

In contrast to the general pre-provisioning concept, it is not possible to change any parameter when **dccstat** is not ENABLED for that parameter.

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=osinode9;
    LT-UNITE 00-12-24 12:00:00
M 123456 COMPLD
;
```

Error responses

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there apply to the ENT-FECOM command.

Validation rule for enabled DCC channels

The command shall be rejected when any other parameter than **dccstat** is changed and **dccstat** is not already ENABLED or set to ENABLED with the command.

Error code: SNVS - Status, Not in Valid State

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 was not used for creation of a node via ENT-ULSDCC-L3 before.

Error code: ENEQ - Equipage, Not Equiped osinode

Validation rule for max number of DCC channels for MS/RS-DCC reached

Nodes 2-8 can support only up to 16 DCC interfaces. So it should be checked that nodes 2-8 each have not more than 16 DCCs enabled.

Error code: SSRE - System Resources Exceeded, allowed limit of DCC channels exceeded

Validation rule if more than 64 DCC channels are assigned to node-1

Node-1 can support up to 64 DCC interfaces. So it should be checked that the max number of 64 DCC interfaces for node-1 (osinode1) is not exceeded.

Error code: SSRE - System Resources Exceeded, allowed limit of DCC channels exceeded

Validation rule 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.

Error code: SNVS - Not in Valid State, DCC needed for BLSR/MS-SPRING

Validation rule for Loopback

Enable DCC termination is not possible if a loopback exists for this port.

Error code: SNVS - Not in Valid State, loopback active

Related TL1 messages [“RTRV-FECOM: Retrieve DCC related parameters” \(12-11\)](#)

Additional notes n/a

References n/a



ED-FECOM notification

Output format The ED-FECOM notification shall use the general format of a REPT DBCHG Report Database Change notification.

Syntax: The ED-FECOM notification shall have the following specific syntax: ED-FECOM::***port,dcctype:spec_block***

Output parameters

Command parameters

1. **port**
See definition of ***port*** in [“ENT-FECOM: Enter DCC channel related parameters” \(12-15\)](#).
2. **dcctype**
See definition of ***dcctype*** in [“ENT-FECOM: Enter DCC channel related parameters” \(12-15\)](#).

Spec block parameters

1. **dccstat**
See definition of ***dccstat*** in [“ENT-FECOM: Enter DCC channel related parameters” \(12-15\)](#).
2. **lapdmode**
See definition of ***lapdmode*** in [“RTRV-FECOM: Retrieve DCC related parameters” \(12-11\)](#).
3. **lapdrl**
See definition of ***lapdrl*** in [“RTRV-FECOM: Retrieve DCC related parameters” \(12-11\)](#).
4. **osinode**
See definition of ***osinode*** in [“RTRV-FECOM: Retrieve DCC related parameters” \(12-11\)](#).

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"
;
```



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.

Syntax: The ENT-FECOM notification shall have following specific syntax: ENT-FECOM::***port,dcctype:spec_block***

Output parameters

Command parameters

1. port
See definition of ***port*** in [“ENT-FECOM: Enter DCC channel related parameters” \(12-15\)](#).
2. dcctype
See definition of ***dcctype*** in [“ENT-FECOM: Enter DCC channel related parameters” \(12-15\)](#).

Spec block parameters

1. dccstat
See definition of ***dccstat*** in [“ENT-FECOM: Enter DCC channel related parameters” \(12-15\)](#).
2. lapdmode
See definition of ***lapdmode*** in [“RTRV-FECOM: Retrieve DCC related parameters” \(12-11\)](#).
3. lapdrl
See definition of ***lapdrl*** in [“RTRV-FECOM: Retrieve DCC related parameters” \(12-11\)](#).
4. osinode
See definition of ***osinode*** in [“ENT-FECOM: Enter DCC channel related parameters” \(12-15\)](#).

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"
;
```



DLT-FECOM notification

Output format The DLT-FECOM notification shall use the general format of a REPT DBCHG Report Database Change notification.

Syntax: The DLT-FECOM notification shall have following specific syntax: DLT-FECOM::*port,dcctype:spec_block*

Output parameters

Command parameters

1. port
See definition of *port* in [“ENT-FECOM: Enter DCC channel related parameters” \(12-15\)](#).
2. dcctype
See definition of *dcctype* in [“ENT-FECOM: Enter DCC channel related parameters” \(12-15\)](#).

Spec block parameters

1. osinode
See definition of *osinode* in [“ENT-FECOM: Enter DCC channel related parameters” \(12-15\)](#).

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"
;
```



LAN

Overview

Purpose This section describes TL1 commands applicable to the LAN for *WaveStar*® CIT respectively *Navis*® Optical EMS access.

Contents

<u>RTRV-FECOM-LAN: Retrieve LAN channel related parameters</u>	<u>12-24</u>
<u>ENT-FECOM-LAN: Enter LAN related parameters</u>	<u>12-27</u>
<u>ENT-FECOM-LAN notification</u>	<u>12-30</u>
<u>Autonomous notification</u>	<u>12-31</u>



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(future))

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” \(5-6\)](#) Retrieve Header
2. *aid* – Access Identifier
Description: 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” \(5-6\)](#) command for input parameter syntax and description of this parameter.

Spec block parameters

none

Output format Normal completion message

If the RTRV-FECOM-LAN is successful, the following normal completion response shall be returned:

```

sid date time
M ctag COMPLD
  "aid:spec_block"
  ...
  "aid:spec_block"
;
```

RTRV-FECOM-LAN: Retrieve LAN channel
related parameters

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” \(5-6\)](#) command.

Output parameters

Command parameters

1. aid – Target Identifier
Description: This parameter indicates the LAN port AID. The value lanall is not allowed.
Type: AID
Range: LanPort AID
Default: none

Spec block parameters

1. lanrpri – LAN Designated Router Priority
Description: This parameter sets the relative priority for the node in the election for designated 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
2. lanstat – LAN Status
Description: 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: lan1: ENABLE; lan2, lan3: ENABLE, DISABLE
Default: lan1, lan2, lan3: ENABLE
3. lantlss – LAN TARP Storm Suppression
Description: This parameter indicates the enhanced TARP propagation rules that suppress TARP LAN storms.
Type: Alphanumeric value set

Range:

- ENABLE
- DISABLE

Default: ENABLE

4. osinode
- Description: Assignment of LAN port to an OSI-node in a NE. An *LambdaUnite*[™] MSS 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).
Type: AID
Range: For LAN1: osinode1 (fixed value)
For LAN2 and LAN3: osinode{1-8}
Default: osinode1

Detailed behavior description

The command shall retrieve 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=E  
NABLE"  
;
```

Error responses

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there apply to the RTRV-FECOM-LAN command.

Validation rule

n/a

Related TL1 messages

[“ENT-FECOM-LAN: Enter LAN related parameters” \(12-27\)](#)

Additional notes

n/a

References

n/a



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” \(5-6\)](#) command for input parameter syntax and description of this parameter.
2. aid – Access Identifier
 Description: This parameter indicates the LAN port AID.
 Type: AID
 Range: LanPort AID with one exception: the keyword 'lanall' shall not be allowed
 Default: n/a
3. ctag – Correlation Tag
 Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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.

1. lanrpri – LAN Designated Router Priority
 See definition of *lanrpri* in [“RTRV-FECOM-LAN: Retrieve LAN channel related parameters” \(12-24\)](#).
2. lanstat – LAN Status
 See definition of *lanstat* in [“RTRV-FECOM-LAN: Retrieve LAN channel related parameters” \(12-24\)](#).
3. lantlss – LAN TARP Storm Suppression

ENT-FECOM-LAN: Enter LAN related parameters

See definition of **lantlss** in [“RTRV-FECOM-LAN: Retrieve LAN channel related parameters” \(12-24\)](#).

4. osinode

See definition of **osinode** in [“RTRV-FECOM-LAN: Retrieve LAN channel related parameters” \(12-24\)](#).

Output format Normal completion message

If the ENT-FECOM-LAN 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 for the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command.

Output parameters n/a

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 shall be reported by means of ENT-FECOM-LAN notification.

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=osinode9;

      NE-UNITE 00-12-23 11:59:00
M   123456 COMPLD
;
```

Error responses Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there apply to the ENT-FECOM-LAN command.

ENT-FECOM-LAN: Enter LAN related parameters

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 was not used for creation of a node via ENT-ULSDCC-L3 before.

Error code: ENEQ - Equipage, Not Equiped osinode

Validation rule: Can't disable LAN1

If it is tried to set *lanstat* to DISABLE for LAN1, the command shall be rejected.

Error code: SNVS - Status, Not in Valid State, LAN1 can not be disabled

Validation rule: Can't enable LAN TARP Storm Suppression when TARP propagation is disabled

If it is tried to set *lantlss*=ENABLE while *l4etpf*=DISABLE (see [“RTRV-ULSDCC-L4: Retrieve OSI layer 4 related parameters” \(12-47\)](#)) the command shall be denied.

Error code: SNVS - Status, Not in Valid State, LAN TARP storm suppression can not be enabled

Related TL1 messages [“RTRV-FECOM-LAN: Retrieve LAN channel related parameters” \(12-24\)](#)

Additional notes n/a

References n/a



ENT-FECOM-LAN notification

Output format The ENT-FECOM-LAN notification shall use the general format of a REPT DBCHG Report Database Change notification.

Syntax: The ENT-FECOM-LAN notification shall have following specific syntax: ENT-FECOM-LAN:*aid*::*spec_block*

Output parameters

Command parameters

1. aid – Access Identifier
See definition of *aid* in [“ENT-FECOM-LAN: Enter LAN related parameters” \(12-27\)](#).

Spec block parameters

1. lanrpri – LAN Router Priority
See definition of *lanrpri* in [“RTRV-FECOM-LAN: Retrieve LAN channel related parameters” \(12-24\)](#).
2. lanstat – LAN Status
See definition of *lanstat* in [“RTRV-FECOM-LAN: Retrieve LAN channel related parameters” \(12-24\)](#).
3. osinode
See definition of *osinode* in [“RTRV-FECOM-LAN: Retrieve LAN channel related parameters” \(12-24\)](#).

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=osinode9"
;
```



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.



OSI network layer

Overview

Purpose This section describes TL1 commands applicable to layer 3 of the OSI stack.

Contents

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RTRV-ULSDCC-L3:Retrieve layer 3 related parameters

The RTRV-ULSDCC-L3 command is used to retrieve the layer 3 parameters of the OSI stacks. Up to 8 independent OSI instances can exist in a NE: Node-1 has a NSAP and is default. Node 2-8 have each a Network Entity Title (NET). NSAP = NET + SEL. Layer 3 include the parameter of the NSAP field, IS level, IS domain, RA prefix and RA destination node.

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” \(5-6\)](#) command for input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for input parameter syntax and description of this parameter.
3. osinode
Description: A *LambdaUnite*[™] MSS NE can have up to 8 instances of the OSI stack. Node-1 is default.
Type AID
Range: OSI_node_AID
Default: If this field is omitted: osinodeall is used.

Spec block parameters

none

Output format Normal completion message

If the RTRV-ULSDCC-L3 is successful, the following normal completion response shall be returned:

```
M  sid date time
   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 for the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command.

Output parameters

Command parameters

1. osinode
See definition of input parameter *osinode* in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#). The value osinodeall is not allowed as output parameter.

Spec block parameters

1. l3afi – NSAP/NET Authority and Format Identifier
Description: This parameter of NSAP set 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
Description: This NSAP part 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 shall be 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

- Description: 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: 80. This value represents the SONET DSP format, see SR-878
4. l3org – NSAP/NET Organization Identifier
Description: This parameter of NSAP set or retrieve the NSP (allocated Company Code).
Type: hexadecimal number
Range: 000000 – FFFFFFFF
Default: 000000
5. l3res – NSAP/NET Reserved
Description: 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
Description: This parameter of NSAP 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
Description: This parameter of NSAP 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
Description: The 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 – FFFFFFFFFFFFFFFF

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

9. l3sel – NSAP Selector

Description: The Selector 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, when TP4 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

Description: This parameter indicates the Network Router Type: ES-IS (level1, value L1), IS-IS (level2, value L2) and Partition Repair capability (value3)..

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 and Partition Repair Capable (PRC) and contains also level1 and level2

Default: L1

11. l3domain – Layer3 IS Domain

Description: 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.

Type: alphanumeric string

Range:

- 1 for osinode1
- 1 – 2 for osinode2 to osinode8

Default: 1

12. l3raprefix – Layer3 Reachable Address Prefix

Description: 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.

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

Description: 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.

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

Detailed behavior description

The command shall retrieve 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"  
;
```

Error responses

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there apply to the RTRV-ULSDCC-L3 command.

- Related TL1 messages
- [“ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack.” \(12-39\)](#)

Additional notes

n/a

References

n/a



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” \(5-6\)](#) command for input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for input parameter syntax and description of this parameter.
3. osinode
Description: 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.
Type: AID
Range: osinode{1-8}
Default: n/a

Spec block parameters

1. l3afi – NSAP/NET Authority and Format Identifier
See definition of *l3afi* in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).
2. l3idi – NSAP/NET initial Domain Identifier

ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack.

See definition of ***l3idi*** in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).

3. l3dfi – NSAP/NET DSP Format Identifier
See definition of ***l3dfi*** in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).
4. l3org – NSAP/NET Organization Identifier
See definition of ***l3org*** in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).
5. l3res – NSAP/NET Reserved
See definition of ***l3res*** in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).
6. l3rd – NSAP/NET Routing Domain
See definition of ***l3rd*** in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).
7. l3area – NSAP/NET Area Identifier
See definition of ***l3area*** in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).
8. l3isisnl – Layer 3 IS Level
See definition of ***l3isisnl*** in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).
9. l3domain – Layer3 IS Domain
See definition of ***l3domain*** in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).
10. l3raprefix – Layer3 Reachable Address Prefix
See definition of ***l3raprefix*** in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).
11. l3radesnode – Layer3 Reachable Address Destination Node
See definition of ***l3radesnode*** in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).

Output format Normal completion message

If the ED-ULSDCC-L3 is successful, the following normal completion response shall be returned:

```

sid date time
M ctag COMPLD
;
```

ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack.

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” \(5-6\)](#) command.

Output parameters

n/a

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*, *l3isinl* leads to a reset of the DCF controller and disconnection of management communication.

The update shall be 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::osinode9: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” \(5-6\)](#) command Error responses section. The error responses listed there apply to the ENT-ULSDCC-L3 command.

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 Address 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, PA-Prefix matches
with the NSAP Area Address

Validation rule: l3radesnode Value must be different from osinode

The command shall 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: 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

Related TL1 messages

- [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#)

Additional notes n/a

References n/a



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 ED-ULSDCC-L3 notification shall use the general format of a REPT DBCHG Report Database Change notification.

Syntax: The ED-ULSDCC-L3 notification shall have following specific syntax: ED-ULSDCC-L3::*osinode:spec_block*

Output parameters

Command parameters

1. *osinode*
See definition of *osinode* in [“ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack.” \(12-39\)](#).

Spec block parameters

1. *l3afi* – NSAP/NET Authority and Format Identifier
See definition of *l3afi* in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).
2. *l3idi* – NSAP/NET initial Domain Identifier
See definition of *l3idi* in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).
3. *l3dfi* – NSAP/NET DSP Format Identifier
See definition of *l3dfi* in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).
4. *l3org* -NSAP/NET Organization Identifier
See definition of *l3org* in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).
5. *l3res* – NSAP/NET Reserved
See definition of *l3res* in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).
6. *l3rd* – NSAP/NET Routing Domain
See definition of *l3rd* in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).
7. *l3area* – NSAP/NET Area Identifier

- See definition of ***l3area*** in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).
8. l3isisnl – Layer 3 IS Level
See definition of ***l3isisnl*** in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).
 9. l3domain – Layer3 IS Domain
See definition of ***l3domain*** in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).
 10. l3raprefix – Layer3 Reachable Address Prefix
See definition of ***l3raprefix*** in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).
 11. l3radesnode – Layer3 Reachable Address Destination Node
See definition of ***l3radesnode*** in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).

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::osinode9:l3afi=39,l3idi=840F,l3dfi=80,l3org=1001
00,l3res=0000,l3rd=0020,l3area=4711,l3isisnl=L12,l3d
omain=2,l3raprefix=,l3radesnode=0"
;
```



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 describes TL1 commands applicable to layer 4 of the OSI stacks.

Contents

<u>RTRV-ULSDCC-L4: Retrieve OSI layer 4 related parameters</u>	<u>12-47</u>
<u>ENT-ULSDCC-L4: Enter layer 4 related parameters of the OSI stacks.</u>	<u>12-51</u>
<u>ENT-ULSDCC-L4 notification</u>	<u>12-56</u>
<u>DLT-ULSDCC-L4: Delete TARP manual adjacent NSAP address in layer 4 of the specified OSI stack.</u>	<u>12-58</u>
<u>DLT-ULSDCC-L4 notification</u>	<u>12-61</u>



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” \(5-6\)](#) command for input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for input parameter syntax and description of this parameter.
3. osinode
See definition of **osinode** in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).

Spec block parameters

none

Output format Normal completion message

If the RTRV-ULSDCC-L4 is successful, the following normal completion response shall be returned:

```

M  sid date time
   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 for the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command.

Manual Adjacencies

If more than one manual adjacency is defined for one osinode, they shall appear on separate output lines.

Example:

```
sid date time
M ctag COMPLD
  "osinode1:<other spec_block parameters>"
  "osinode1:l4ajnsap=39840F80000000000000000000000000123456789ABC00"
  "osinode1:l4ajnsap=39840F8000000000000000000000000023456789ABC00"
;
```

Output parameters

Command parameters

1. osinode

See definition of output parameter *osinode* in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).

Spec block parameters

1. l4etpf – TARP propagation

Description: This parameter is used to enable or disable TARP Propagation function for a node.

Type: Alphanumeric value set

Range:

- ENABLE
- DISABLE

Default: ENABLE

2. l4etrfr – TARP responder

Description: This parameter 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)

3. l4ajnsap – TARP Manual Adjacency List

Description: This parameter specifies the NSAP address portion of an entry in the TARP Manual Adjacent network element list. Up to two addresses are possible for each node in a *LambdaUnite™* MSS NE.

Type: hexadecimal number or alphanumeric vaule 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 – FFFFFFFF
 - l4ajres 0000 – FFFF
 - l4jrd 0000 – FFFF
 - l4jarea 0000 – FFFF
 - l4ajsys 000000000000 – FFFFFFFFFFFFFFFF
 - SEL 00 The last byte indicates the selector and is not to set.
- Default: NONE (no TARP Manual Adjacencies)

Detailed behavior description

The command shall retrieve 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,l4etrff=ENABLE,l4ajnsap=39840F
80000000000000000000000000000000123456789ABC00"
;
```

Error responses

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) 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.” \(12-51\)](#)
- [“DLT-ULSDCC-L4: Delete TARP manual adjacent NSAP address in layer 4 of the specified OSI stack.” \(12-58\)](#)

OSI transport layer and TARP
RTRV-ULSDCC-L4: Retrieve OSI layer 4
related parameters

Data communications network

Additional notes n/a

References n/a



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” \(5-6\)](#) command for input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for input parameter syntax and description of this parameter.
3. osinode
See definition of *osinode* in [“ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack.” \(12-39\)](#).

Spec block parameters

1. l4etpf – TARP propagation
See definition of *l4etpf* in [“RTRV-ULSDCC-L4: Retrieve OSI layer 4 related parameters” \(12-47\)](#).
2. l4etrfr – TARP responder
See definition of *l4etrfr* in [“RTRV-ULSDCC-L4: Retrieve OSI layer 4 related parameters” \(12-47\)](#).
3. l4ajafi – TARP Man. Adjacency: NET Authority and Format Identifier
Description: This parameter of NSAP 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**.
4. l4ajidi – TARP Man. Adjacency: NET initial Domain Identifier
Description: 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 shall be 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**.
 5. l4ajdfi – TARP Man. Adjacency: NET DSP Format Identifier
Description: 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**.
 6. l4ajorg – TARP Man. Adjacency: NET Organization Identifier
Description: This parameter of NSAP set or retrieve the NSP (allocated Company Code).
Type: hexadecimal number
Range: 000000 – FFFFFFFF
Default: Value of organization part of NET of node defined by parameter **osinode**.
 7. l4ajres -TARP Man. Adjacency: NET Reserved
Description: 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**.
 8. l4ajrd – TARP Man. Adjacency: NET Routing Domain
Description: This parameter of NSAP 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***.

9. l4ajarea – TARP Man. Adjacency: NET Area Identifier

Description: This parameter of NSAP 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***.

10. l4ajsys – TARP Man. Adjacency: NET System Identifier

Description: The 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 – FFFFFFFF

Default: NONE

Output format

Normal completion message

If the ENT-ULSDCC-L4 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 for the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command.

Output parameters

n/a

**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 shall be reported by means of ENT-ULSDCC-L4 notification.

Up to two TARP manual adjacencies shall be possible for each node in an *LambdaUnite* MSS NE. One manual adjacency shall be 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.

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” \(5-6\)](#) 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* is only valid when used for osinode1. When this parameter is used with other osinode values instead of osinode1 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* is only valid when used for osinode1. When this parameter is used with other osinode values instead of osinode1 the command should be rejected.

Error code: IDRG - Input Data Range Error, *osinode*

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 network element” \(12-7\) tl1tcpipgw](#)). The command should be rejected in this case.

Error code: SNVS - Status, Not in Valid State, T-TD enabled.

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

Related TL1 messages

- [“RTRV-ULSDCC-L4: Retrieve OSI layer 4 related parameters” \(12-47\)](#)
- [“DLT-ULSDCC-L4: Delete TARP manual adjacent NSAP address in layer 4 of the specified OSI stack.” \(12-58\)](#)

Additional notes n/a

References n/a



ENT-ULSDCC-L4 notification

Output format The ENT-ULSDCC-L4 notification shall use the general format of a REPT DBCHG Report Database Change notification.

Syntax: The ENT-ULSDCC-L4 notification shall have following specific syntax: ENT-ULSDCC-L4::*osinode:spec_block*

Output parameters

Command parameters

1. osinode
See definition of osinode in [“ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack.” \(12-39\)](#) .

Spec block parameters

1. l4etpf – TARP propagation
See definition of *l4etpf* in [“RTRV-ULSDCC-L4: Retrieve OSI layer 4 related parameters” \(12-47\)](#).
2. l4etrf – TARP responder
See definition of *l4etrf* in [“RTRV-ULSDCC-L4: Retrieve OSI layer 4 related parameters” \(12-47\)](#).
3. l4ajafi – TARP Man. Adjacency: NET Authority and Format Identifier
See definition of *l4ajafi* in [“ENT-ULSDCC-L4: Enter layer 4 related parameters of the OSI stacks.” \(12-51\)](#).
4. l4ajidi – TARP Man. Adjacency: NET initial Domain Identifier
See definition of *l4ajidi* in [“ENT-ULSDCC-L4: Enter layer 4 related parameters of the OSI stacks.” \(12-51\)](#).
5. l4ajdfi – TARP Man. Adjacency: NET DSP Format Identifier
See definition of *l4ajdfi* in [“ENT-ULSDCC-L4: Enter layer 4 related parameters of the OSI stacks.” \(12-51\)](#).
6. l4ajorg – TARP Man. Adjacency: NET Organization Identifier
See definition of *l4ajorg* in [“ENT-ULSDCC-L4: Enter layer 4 related parameters of the OSI stacks.” \(12-51\)](#).
7. l4ajres – TARP Man. Adjacency: NET Reserved
See definition of *l4ajres* in [“ENT-ULSDCC-L4: Enter layer 4 related parameters of the OSI stacks.” \(12-51\)](#).
8. l4ajrd – TARP Man. Adjacency: NET Routing Domain

See definition of ***l4ajrd*** in [“ENT-ULSDCC-L4: Enter layer 4 related parameters of the OSI stacks.” \(12-51\)](#).

9. l4ajarea – TARP Man. Adjacency: NET Area Identifier
See definition of ***l4ajarea*** in [“ENT-ULSDCC-L4: Enter layer 4 related parameters of the OSI stacks.” \(12-51\)](#).
10. l4ajsys – TARP Man. Adjacency: NET System Identifier
See definition of ***l4ajsys*** in [“ENT-ULSDCC-L4: Enter layer 4 related parameters of the OSI stacks.” \(12-51\)](#).

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,l4etrfr=DIS
ABLE,l4ajafi=39,l4ajidi=0,l4ajdfi=80,l4ajorg=100100,
l4ajres=0000,l4ajrd=0020,l4ajarea=4711,l4ajsys=08006
A112345"
;
```



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” \(5-6\)](#) command for input parameter syntax and description of this parameter.
2. ctag – Correlation Tag
Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for input parameter syntax and description of this parameter.
3. osinode
See definition of **osinode** in [“ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack.” \(12-39\)](#).

Spec block parameters

1. l4ajsys – New Manual Adjacency: NET System Identifier
See definition of **l4ajsys** in [“ENT-ULSDCC-L4: Enter layer 4 related parameters of the OSI stacks.” \(12-51\)](#).

Output format Normal completion message

OSI transport layer and TARP
DLT-ULSDCC-L4: Delete TARP manual
adjacent NSAP address in layer 4 of the
specified OSI stack.

If the DLT-ULSDCC-L4 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 for the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command.

Output parameters

n/a

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 shall be 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::osinode1:14ajs08006A112345;
NE-UNITE 01-01-18 10:09:52
M 4744843 COMPLD
;
```

Error responses

Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there apply to the DLT-ULSDCC-L4 command.

General Validation rules

no special rules.

Related TL1 messages

- [“RTRV-ULSDCC-L4: Retrieve OSI layer 4 related parameters” \(12-47\)](#)
- [“ENT-ULSDCC-L4: Enter layer 4 related parameters of the OSI stacks.” \(12-51\)](#)

Additional notes

n/a

OSI transport layer and TARP
DLT-ULSDCC-L4: Delete TARP manual
adjacent NSAP address in layer 4 of the
specified OSI stack.

References n/a

Data communications network



DLT-ULSDCC-L4 notification

Output format The DLT-ULSDCC-L4 notification shall use the general format of a REPT DBCHG Report Database Change notification.

Syntax: The DLT-ULSDCC-L4 notification shall have following specific syntax: DLT-ULSDCC-L4::*osinode:spec_block*

Output parameters

Command parameters

1. osinode
See definition of osinode in [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#).

Spec block parameters

1. l4ajsys – New Manual Adjacency: NET System Identifier
See definition of *l4ajsys* in [“ENT-ULSDCC-L4: Enter layer 4 related parameters of the OSI stacks.” \(12-51\)](#).

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"
;
```



MAPs

RTRV-MAP-NEIGHBOR: Retrieve map neighbor

The RTRV-MAP-NEIGHBOR command will retrieve a list of all immediate OSI neighbors to the local network element (node or NE). This can include other network elements, as well as neighbors on the LAN, such as the *WaveStar*® CIT.

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
 Description: Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
 Type: TID
 Range: n/a
 Default: n/a
2. ctag – Correlation Tag
 Description: Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
 Type: CTAG
 Range: n/a
 Default: n/a

Output format Normal completion message

RTRV-MAP-NEIGHBOR: Retrieve map neighbor

If the RTRV-MAP-NEIGHBOR request is successful, the following normal completion message shall be returned:

```

M  sid date time
   ctag COMPLD
   "[rate]:thru[,lpaid]:spec_block"
   ...
   "[rate]:thru[,lpaid]:spec_block"
;
```

Ordering of output lines

Output shall be 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 for the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command.

Output parameters

Command parameters

1. rate – DCC Port Rate
 Description: This parameter is only available for a DCC neighbor and provides the optical port rate as used in RTRV-**rr**.
 Type: value set
 Range:
 - STM16
 - STM64
 - STM256
 - OC48
 - OC192
 - OC768
 Default: n/a – as determined by the port type
2. thru – Connected Through
 Description: 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
 Description: This parameter provides the SPortAID of the optical port in case **thru**= DCC.

RTRV-MAP-NEIGHBOR: Retrieve map
neighbor

Type: AID

Range: SPortAID in case **thru**= DCC as defined in section AID
Structure.

Default: n/a

Spec block parameters

1. nsap – Network Service Access Point

Description: This field is the Network Service Access Point 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,
- l3sel

See [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#) for details.

Default: n/a

2. npaid – Neighbor Port AID

Description: 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

Default: n/a

3. tid – Neighbor TID

Description: 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” \(5-6\)](#) command for legal values and a general description of TIDs.

Default: n/a

RTRV-MAP-NEIGHBOR: Retrieve map
neighbor

Error responses Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there apply to the RTRV-MAP-NEIGHBOR command.

Validation rule

n/a

Related TL1 messages

- [“ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack.” \(12-39\)](#)
- [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#)
- [“RTRV-MAP-NETWORK: Retrieve network map” \(12-67\)](#)

Additional notes n/a

References n/a



RTRV-MAP-NETWORK: Retrieve network map

The RTRV-MAP-NETWORK command will retrieve a list of OSI nodes, reachable from the local network element (NE). This can include other network elements, other nodes on the local NE, as well as neighbors on the LAN, such as the *WaveStar*[®] 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
 Description: Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
 Type: TID
 Range: n/a
 Default: n/a
2. *aid* – Access Identifier
 Description: This parameter specifies the osinode for which the OSI nodes shall be retrieved. The value osinodeall is not allowed.
 Type: OSI_node_AID
 Range: As defined by the OSI_node_AID definition without the value osinodeall.
 Default: n/a
3. *ctag* – Correlation Tag
 Description: Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for the input parameter syntax and description of this parameter.
 Type: CTAG
 Range: n/a
 Default: n/a
4. *level2* – IS Routing Level
 Description: If set to N(o), report will list only the nodes in the local level 1 area of this node.

RTRV-MAP-NETWORK: Retrieve network

map

If set to Y(es), report will list the nodes in the level 2 subdomain (when **aid** specifies a level 2 node).

Type: value set

Range:

- N
- Y

Default: N

Output format Normal completion message

If the RTRV-MAP-NETWORK request is successful, the following normal completion message shall be returned:

```

sid date time
ctag COMPLD
"spec_block"
...
"spec_block"
;
```

Ordering of output lines

The output is a list of NETs sorted by **area**. Within each area, local NETs are listed first.

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” \(5-6\)](#) command.

Output parameters

Spec block parameters

1. net – Network Entity Title

Description: This field is the Network Entity Title (NET) of one reachable OSI node. The NET is the same as the NSAP (The Network Service Access Point) with the last byte set to 00 (hex).

Type: 20 byte octet string in 40 digit hex representation.

Range: The NET is composed of the following componets:

- l3idp (l3afi and l3idi)
- l3dfi,
- l3org,
- l3res,
- l3rd,

RTRV-MAP-NETWORK: Retrieve network

map

- l3area,
- l3sys,
- l3sel = 00 (hex).

See [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#) for details.

Default: n/a

2. tid – Target Identifier

Description: Specifies the TID of the local NE is only reported for entries of the local NE.

Type: TID

Range: Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command for legal values and a general description of TIDs.

Default: n/a

3. level1 – Level 1 Router

Description: Specifies whether reachable node is level 1 router.

Type: value set

Range:

- Y (es)
- N (o)

Default: n/a

4. level2 – Level 2 Router

Description: Specifies whether reachable node is level 2 router.

Type: value set

Range:

- Y (es)
- N (o)

Default: n/a

Detailed behavior description

The RTRV-MAP-NETWORK command shall retrieve per node a list of OSI nodes, reachable from the local network element (NE) via the OSI 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 *WaveStar* CIT.

In contrast to RTRV-MAP-NEIGHBOR, which retrieves info about physical neighbors and properties of the physical connection, this command shall retrieve info with respect to 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.

If the node specified by **aid** is provisioned as level 1 or **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 local OSI system shall also be listed in the report.

This command shall not generate a REPT DBCHG notification.

Example input/output The following example shows the result of a RTRV-MAP-NETWORK command:

```
RTRV-MAP-NETWORK:LT-UNITE:osinode1:123456;
    LT-UNITE 00-11-01 15:00:00
M   123456 COMPLD
      "tid=LT-UNITE,net=39840F80000000000000000000000000aa00
,level1=Y,level2=Y"
      "net=39840F80000000000000000000000000a100,level1=Y,lev
el2=Y"
      "net=39840F80000000000000000000000000a200,level1=Y,lev
el2=Y"
      "net=39840F80000000000000000000000000a500,level1=Y,lev
el2=Y"
      "net=39840F80000000000000000000000000a600,level1=Y,lev
el2=Y"
      "net=39840F80000000000000000000000000a700,level1=Y,lev
el2=Y"
      "net=39840F80000000000000000000000000a800,level1=Y,lev
el2=N"
;
```

Error responses Refer to the [“RTRV-HDR: Retrieve header” \(5-6\)](#) command Error responses section. The error responses listed there apply to the RTRV-MAP-NETWORK command.

Validation rule: osinode must be in the created state

The ***osinode*** parameter for which the network map should be retrieved 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

RTRV-MAP-NETWORK: Retrieve network

map

Related TL1 messages

- [“ED-ULSDCC-L3: Enter layer 3 related parameters of the OSI stack.” \(12-39\)](#)
- [“RTRV-ULSDCC-L3:Retrieve layer 3 related parameters” \(12-33\)](#)
- [“RTRV-MAP-NEIGHBOR: Retrieve map neighbor” \(12-62\)](#)

Additional notes n/a**References** n/a



Glossary

NUMERICS

0x1 Line Operation

0x1 means unprotected operation. The connection between network elements has one bidirectional line (no protection line).

1+1 Line Protection

A protection architecture in which the transmitting equipment transmits a valid signal on both the working and protection lines. The receiving equipment monitors both lines. Based on performance criteria and OS control, the receiving equipment chooses one line as the active line and designates the other as the standby line.

1xN Equipment Protection

1xN protection pertains to N number of circuit pack/port units protected by one circuit pack or port unit. When a protection switch occurs, the working signals are routed from the failed pack to the protection pack. When the fault clears, the signals revert to the working port unit.

12NC (12-digit Numerical Code)

Used to uniquely identify an item or product. The first ten digits uniquely identify an item. The eleventh digit is used to specify the particular variant of an item. The twelfth digit is used for the revision issue. Items with the first eleven digits the same, are functionally equal and may be exchanged.

A ABN

Abnormal (condition)

ABS (Absent)

Used to indicate that a given circuit pack is not installed.

AC

Alternating Current

ACO (Alarm Cut-Off)

A button on the user panel used to silence audible alarms.

ACT (Active)

Used to indicate that a circuit pack or module is in-service and currently providing service functions.

Adaptive-rate tributary operation of a port (Pipe mode)

Mode of operation of a port in which tributaries are *not* explicitly provisioned for the expected signal rates. The signal rates are automatically identified.

ADM (Add/Drop Multiplexer)

The term for a synchronous network element capable of combining signals of different rates and having those signals added to or dropped from the stream.

AEL

Accessible Emission Limits

Agent

Performs operations on managed objects and issues events on behalf of these managed objects. All SDH managed objects will support at least an agent. Control of distant agents is possible via local “Managers”.

AGNE

Alarm Gateway Network Element

AID (Access Identifier)

A technical specification for explicitly naming entities (both physical and logical) of an NE using a grammar comprised of ASCII text, keywords, and grammar rules.

AIS (Alarm Indication Signal)

A code transmitted downstream in a digital network that indicates that an upstream failure has been detected and alarmed if the upstream alarm has not been suppressed.

AITs

Acknowledged Information Transfer Service: Confirmed mode of operation of the LAPD protocol.

Alarm

Visible or audible signal indicating that an equipment failure or significant event/condition has occurred.

Alarm Correlation

The search for a directly-reported alarm that can account for a given symptomatic condition.

Alarm Severity

An attribute defining the priority of the alarm message. The way alarms are processed depends on the severity.

Alarm Suppression

Selective removal of alarm messages from being forwarded to the GUI or to network management layer OSs.

Alarm Throttling

A feature that automatically or manually suppresses autonomous messages that are not priority alarms.

Aligning

Indicating the head of a virtual container by means of a pointer, for example, creating an Administrative Unit (AU) or a Tributary Unit (TU).

AMI (Alternate Mark Inversion)

A line code that employs a ternary signal to convert binary digits, in which successive binary ones are represented by signal elements that are normally of alternative positive and negative polarity but equal in amplitude and in which binary zeros are represented by signal elements that have zero amplitude.

Anomaly

A difference between the actual and desired operation of a function.

ANSI

American National Standards Institute

APD

Avalanche Photo Diode

APS (Automatic Protection Switch)

A protection switch that occurs automatically in response to an automatically detected fault condition.

ASCII (American Standard Code for Information Interchange)

A standard 7-bit code that represents letters, numbers, punctuation marks, and special characters in the interchange of data among computing and communications equipment.

ASN.1

Abstract Syntax Notation 1

Assembly

Gathering together of payload data with overhead and pointer information (an indication of the direction of the signal).

Association

A logical connection between manager and agent through which management information can be exchanged.

Asynchronous

The essential characteristic of time-scales or signals such that their corresponding significant instants do not necessarily occur at the same average rate.

ATM (Asynchronous Transfer Mode)

A high-speed transmission technology characterized by high bandwidth and low delay. It utilizes a packet switching and multiplexing technique which allocates bandwidth on demand.

Attribute

Alarm indication level: critical, major, minor, or no alarm.

AU (Administrative Unit)

Carrier for TUs.

AU PTR (Administrative Unit Pointer)

Indicates the phase alignment of the VC-N with respect to the STM-N frame. The pointer position is fixed with respect to the STM-N frame.

AUG

Administrative Unit Group

AUTO (Automatic)

One possible state of a port or slot. When a port is in the AUTO state and a good signal is detected, the port automatically enters the IS (in-service) state. When a slot is in the AUTO state and a circuit pack is detected, the slot automatically enters the EQ (equipped) state.

Autolock

Action taken by the system in the event of circuit pack failure/trouble. System switches to protection and prevents a return to the working circuit pack even if the trouble clears. Multiple protection switches on a circuit pack during a short period of time cause the system to autolock the pack.

Autonomous Message

A message transmitted from the controlled Network Element to the NavisTM OEMS which was not a response to an Navis OEMS originated command.

AVAIL

Available

B Bandwidth

The difference in Hz between the highest and lowest frequencies in a transmission channel. The data rate that can be carried by a given communications circuit.

Baud Rate

Transmission rate of data (bits per second) on a network link.

BER (Bit Error Rate)

The ratio of error bits received to the total number of bits transmitted.

Bidirectional Line

A transmission path consisting of two fibers that handle traffic in both the transmit and receive directions.

Bidirectional Ring

A ring in which both directions of traffic between any two nodes travel through the same network elements (although in opposite directions).

Bidirectional Switch

Protection switching performed in both the transmit and receive directions.

BIP-N (Bit Interleaved Parity-N)

A method of error monitoring over a specified number of bits (BIP-3 or BIP-8).

Bit

The smallest unit of information in a computer, with a value of either 0 or 1.

Bit Error Rate Threshold

The point at which an alarm is issued for bit errors.

BLD OUT LG

Build-Out Lightguide

Bridge Cross-Connection

The setting up of a cross-connection leg with the same input tributary as that of an existing cross-connection leg. Thus, forming a 1:2 bridge from an input tributary to two output tributaries.

Broadband Communications

Voice, data, and/or video communications at greater than 2 Mbit/s rates.

Broadband Service Transport

STM-1 concatenation transport over the *LambdaUnite*TM MSS for ATM applications.

Byte

Refers to a group of eight consecutive binary digits.

C C

Container

CC (Clear Channel)

A digital circuit where no framing or control bits are required, thus making the full bandwidth available for communications.

CC (Cross-Connection)

Path-level connections between input and output tributaries or specific ports within a single NE. Cross-connections are made in a consistent way even though there are various types of ports and various types of port protection. Cross-Connections are re-configurable interconnections between tributaries of transmission interfaces.

Cell Relay

Fixed-length cells. For example, ATM with 53 octets.

CEPT

Conférence Européenne des Administrations des Postes et des Télécommunications

Channel

A sub-unit of transmission capacity within a defined higher level of transmission capacity.

Circuit

A set of transmission channels through one or more network elements that provides transmission of signals between two points, to support a single communications path.

CIT or WaveStar® CIT (Craft Interface Terminal)

The user interface terminal used by craft personnel to communicate with a network element.

CL

Clear

CLEI

Common Language Equipment Identifier

Client

Computer in a computer network that generally offers a user interface to a server.

CLLI

Common Language Location Identifier

Closed Ring Network

A network formed of a ring-shaped configuration of network elements. Each network element connects to two others, one on each side.

CM (Configuration Management)

Subsystem that configures the network and processes messages from the network.

CMI

Coded Mark Inversion

CMIP

Common Management Information Protocol. OSI standard protocol for OAM&P information exchange.

CMISE

Common Management Information Service Element

CO (Central Office)

A building where common carriers terminate customer circuits.

Co-Resident

A hardware configuration where two applications can be active at the same time independently on the same hardware and software platform without interfering with each others functioning.

Collocated

System elements that are located in the same location.

Command Group

An administrator-defined group that defines commands to which a user has access.

Concatenation

A procedure whereby multiple virtual containers are associated one with each other resulting in a combined capacity that can be used as a single container across which bit sequence integrity is maintained.

Correlation

A process where related hard failure alarms are identified.

CP

Circuit Pack

CPE

Customer Premises Equipment

CPU

Central Processing Unit

CR (Critical (alarm))

Alarm that indicates a severe, service-affecting condition.

CRC

Cyclical Redundancy Check

Cross-Connect Map

Connection map for an SDH Network Element; contains information about how signals are connected between high speed time slots and low speed tributaries.

Crosstalk

An unwanted signal introduced into one transmission line from another.

CSMA/CD

Carrier Sense Multiple Access with Collision Detection

CTS

Customer Technical Support within Lucent Technologies

Current Value

The value currently assigned to a provisionable parameter.

D DACS/DCS

Digital Access Cross-Connect System

Data

A collection of system parameters and their associated values.

Database Administrator

A user who administers the database of the application.

dB

Decibels

DC

Direct Current

DCC (Data Communications Channel)

The embedded overhead communications channel in the synchronous line, used for end-to-end communications and maintenance. The DCC carries alarm, control, and status information between network elements in a synchronous network.

DCE (Data Communications Equipment)

The equipment that provides signal conversion and coding between the data terminating equipment (DTE) and the line. The DCE may be separate equipment or an integral part of the DTE or of intermediate equipment. A DCE may perform other functions usually performed at the network end of the line.

DCF

Data Communications Function; Dispersion Compensation Fiber

DCM (Dispersion Compensation Module)

A device used to compensate the dispersion, the pulse spreading properties of an optical fiber. DCMs are necessary for very-long-haul applications and high bit rates.

DCN

Data Communications Network

Default

An operation or value that the system or application assumes, unless a user makes an explicit choice.

Default Provisioning

The parameter values that are pre-programmed as shipped from the factory.

Defect

A limited interruption of the ability of an item to perform a required function. It may or may not lead to maintenance action depending on the results of additional analysis.

Demultiplexing

A process applied to a multiplexed signal for recovering signals combined within it and for restoring the distinct individual channels of these signals.

DEMUX (Demultiplexer)

A device that splits a combined signal into individual signals at the receiver end of transmission.

Deprovisioning

The inverse order of provisioning. To manually remove/delete a parameter that has (or parameters that have) previously been provisioned.

Digital Link

A transmission span such as a point-to-point 2 Mbit/s, 34 Mbit/s, 140 Mbit/s, VC12, VC3 or VC4 link between controlled network elements.

Digital Multiplexer

Equipment that combines by time-division multiplexing several digital signals into a single composite digital signal.

Digital Section

A transmission span such as an STM-N signal. A digital section may contain multiple digital channels.

Disassembly

Splitting up a signal into its constituents as payload data and overhead (an indication of the direction of a signal).

Dispersion

Time-broadening of a transmitted light pulse.

Dispersion Shifted Optical Fiber

1330/1550 nm minimum dispersion wavelength.

Divergence

When there is unequal amplification of incoming wavelengths, the result is a power divergence between wavelengths.

DNI (Dual Node Ring Interworking)

A topology in which two rings are interconnected at two nodes on each ring and operate so that inter-ring traffic is not lost in the event of a node or link failure at an interconnecting point.

Doping

The addition of impurities to a substance in order to attain desired properties.

Downstream

At or towards the destination of the considered transmission stream, for example, looking in the same direction of transmission.

DPLL

Digital Phase Locked Loop

DRAM

Dynamic Random Access Memory

Drop and Continue

A circuit configuration that provides redundant signal appearances at the outputs of two network elements in a ring. Can be used for Dual Node Ring Interworking (DNI) and for video distribution applications.

Drop-Down Menu

A menu that is displayed from a menu bar.

DSNE (Directory Service Network Element)

A designated Network Element that is responsible for administering a database that maps Network Elements names (node names) to addresses (node Id). There can be one DSNE per (sub)network.

DTE (Data Terminating Equipment)

The equipment that originates data for transmission and accepts transmitted data.

DTMF

Dual Tone Multifrequency

DUR

Dual Unit Row (subrack)

DUS

Do not Use for Synchronization

DWDM (Dense Wavelength Division Multiplexing)

Transmitting two or more signals of different wavelengths simultaneously over a single fiber.

E EBER (Excessive Bit Error Rate)

The calculated average bit error rate over a data stream.

ECC

Embedded Control Channel

EEPROM

Electrically Erasable and Programmable Read-Only Memory

EIA (Electronic Industries Association)

A trade association of the electronic industry that establishes electrical and functional standards.

EM (Event Management)

Subsystem of *Navis* OEMS that processes and logs event reports of the network.

EMC (Electromagnetic Compatibility)

A measure of equipment tolerance to external electromagnetic fields.

EMI (Electromagnetic Interference)

High-energy, electrically induced magnetic fields that cause data corruption in cables passing through the fields.

EMS or *Navis* Optical EMS

Element Management System

Entity

A specific piece of hardware (usually a circuit pack, slot, or module) that has been assigned a name recognized by the system.

Entity Identifier

The name used by the system to refer to a circuit pack, memory device, or communications link.

EPROM

Erasable Programmable Read-Only Memory

EQ (Equipped)

Status of a circuit pack or interface module that is in the system database and physically in the frame, but not yet provisioned.

ES (Errored Seconds)

A performance monitoring parameter. ES “type A” is a second with exactly one error; ES “type B” is a second with more than one and less than the number of errors in a severely errored second for the given signal. ES by itself means the sum of the type A and type B ESs.

ESD

Electrostatic Discharge

ESP

Electrostatic Protection

Establish

A user initiated command, at the *WaveStar* CIT, to create an entity and its associated attributes in the absence of certain hardware.

ETSI

European Telecommunications Standards Institute

Event

A significant change. Events in controlled Network Elements include signal failures, equipment failures, signals exceeding thresholds, and protection switch activity. When an event occurs in a controlled Network Element, the controlled Network Element will generate an alarm or status message and send it to the management system.

Event Driven

A required characteristic of network element software system: NEs are reactive systems, primarily viewed as systems that wait for and then handle events. Events are provided by the external interface packages, the hardware resource packages, and also by the software itself.

Externally Timed

An operating condition of a clock in which it is locked to an external reference and is using time constants that are altered to quickly bring the local oscillator’s frequency into approximate agreement with the synchronization reference frequency.

Extra traffic

Unprotected traffic that is carried over protection channels when their capacity is not used for the protection of working traffic.

F Fault

Term used when a circuit pack has a hard (not temporary) fault and cannot perform its normal function.

Fault Management

Collecting, processing, and forwarding of autonomous messages from network elements.

FCC

Federal Communications Commission

FDA/CDRH

The Food and Drug Administration's Center for Devices and Radiological Health.

FDDI (Fiber Distributed Data Interface)

Fiber interface that connects computers and distributes data among them.

FE (Far End)

Any other network element in a maintenance subnetwork other than the one the user is at or working on. Also called remote.

FEBE (Far-End Block Error)

An indication returned to the transmitting node that an errored block has been detected at the receiving node. A block is a specified grouping of bits.

FEC (Forward Error Correction)

An error correction technique in which redundant bits are added to the payload signal enabling the receiving station to detect and correct bit errors that unavoidably occur when an optical line signal is transmitted over longer distances over an optical fiber. FEC is used to increase the transmission span length.

FEPROM (Flash EPROM)

A technology that combines the non-volatility of EPROM with the in-circuit re-programmability of EEPROM.

FERF (Far-End Receive Failure)

An indication returned to a transmitting Network Element that the receiving Network Element has detected an incoming section failure. Also known as RDI.

FIT (Failures in Time)

Circuit pack failure rates per 10^9 hours as calculated using the method described in Reliability Prediction Procedure for Electronic Equipment, BellCore Method I, Issue 6, December 1997.

Fixed-rate tributary operation of a port

Mode of operation of a port in which tributaries are provisioned for the expected signal rates. This provisioning information is used for cross-connection rate validation and for alarm handling (for example “Loss of Pointer”).

Folded Rings

Folded (collapsed) rings are rings without fiber diversity. The terminology derives from the image of folding a ring into a linear segment.

Forced

Term used when a circuit pack (either working or protection) has been locked into a service-providing state by user command.

FR (Frame Relay)

A form of packet switching that relies on high-quality phone lines to minimize errors. It is very good at handling high-speed, bursty data over wide area networks. The frames are variable lengths and error checking is done at the end points.

Frame

The smallest block of digital data being transmitted.

Framework

An assembly of equipment units capable of housing shelves, such as a bay framework.

Free Running

An operating condition of a clock in which its local oscillator is not locked to an internal synchronization reference and is using no storage techniques to sustain its accuracy.

G GB

Gigabytes

Gbit/s

Gigabits per second

GHz

Gigahertz

Global Wait to Restore Time

Corresponds to the time to wait before switching back to the timing reference. It occurs after a timing link failure has cleared. This time applies for all timing sources in a system hence the name global. This can be between 0 and 60 minutes, in increments of one minute.

GNE (Gateway Network Element)

A network element that passes information between other network elements and management

systems through a data communication network.

Grooming

In telecommunications, the process of separating and segregating channels, as by combing, such that the broadest channel possible can be assembled and sent across the longest practical link. The aim is to minimize de-multiplexing traffic and reshuffling it electrically.

H Hard Failure

An unrecoverable non-symptomatic (primary) failure that causes signal impairment or interferes with critical network functions, such as DCC operation.

HDB3 (High Density Bipolar 3 Code)

Line code for 2 Mbit/s transmission systems.

HDLC (High Level Data Link Control)

OSI reference model datalink layer protocol.

HMI

Human Machine Interface

HML (Human Machine Language)

A standard language developed by the ITU for describing the interaction between humans and dumb terminals.

HO

High Order

Holdover

An operating condition of a clock in which its local oscillator is not locked to an external reference but is using storage techniques to maintain its accuracy with respect to the last known frequency comparison with a synchronization reference.

Hot Standby

A circuit pack ready for fast, automatic placement into operation to replace an active circuit pack. It has the same signal as the service going through it, so that choice is all that is required.

HPA (Higher Order Path Adaptation)

Function that adapts a lower order Virtual Container to a higher order Virtual Container by processing the Tributary Unit pointer which indicates the phase of the lower order Virtual Container Path Overhead relative to the higher order Virtual Container Path Overhead and assembling/disassembling the complete higher order Virtual Container.

HPC (Higher Order Path Connection)

Function that provides for flexible assignment of higher order Virtual Containers within an STM-N signal.

HPT (Higher Order Path Termination)

Function that terminates a higher order path by generating and adding the appropriate Virtual Container Path Overhead to the relevant container at the path source and removing the Virtual Container Path Overhead and reading it at the path sink.

HS

High Speed

HW

Hardware

Hz

Hertz

I I/O

Input/Output

IAO LAN

Intraoffice Local Area Network

ID

Identifier

IEC

International Electro-Technical Commission

IEEE

Institute of Electrical and Electronics Engineers

IMF

Infant Mortality Factor

Insert

To physically insert a circuit pack into a slot, thus causing a system initiated restore of an entity into service and/or creation of an entity and associated attributes.

Interface Capacity

The total number of STM-1 equivalents (bidirectional) tributaries in all transmission interfaces with which a given transmission interface shelf can be equipped at one time. The interface capacity varies with equipage.

Intermediate System (IS)

A system which routes/relays management information. An SDH Network Element may be a combined intermediate and end system.

IS (In-Service)

A memory administrative state for ports. IS refers to a port that is fully monitored and alarmed.

IS-IS Routing

The Network Elements in a management network, route packets (data) between each other using an IS-IS level protocol. The size of a network running IS-IS Level 1 is limited, and therefore certain mechanisms are employed to facilitate the management of larger networks.

For STATIC ROUTING, the capability exists for disabling the protocol over the LAN connections, effectively causing the management network to be partitioned into separate IS-IS Level 1 areas. In order for the network management system to communicate with a specific Network Element in one of these areas, the network management system must identify through which so-called Gateway Network Element this specific Network Element is connected to the LAN. All packets to this specific Network Element are routed directly to the Gateway Network Element by the network management system, before being re-routed (if necessary) within the Level 1 area.

For DYNAMIC ROUTING an IS-IS Level 2 routing protocol is used allowing a number of Level 1 areas to interwork. The Network Elements which connect an IS-IS area to another area are set to run the IS-IS Level 2 protocol within the Network Element and on the connection between other Network Elements. Packets can now be routed between IS-IS areas and the network management system does not have to identify the Gateway Network Elements.

ISDN

Integrated Services Digital Network

ITM

Integrated Transport Management

ITM-NM

Integrated Transport Management Network Module

ITU

International Telecommunications Union

ITU-T

International Telecommunications Union — Telecommunication standardization sector. Formerly known as CCITT: Comité Consultatif International Télégraphique & Téléphonique; International Telegraph and Telephone Consultative Committee.

J Jitter

Short term variations of amplitude and frequency components of a digital signal from their ideal position in time.

K kbit/s

Kilobits per second

L *LambdaUnite* OLS 1.6T (400G/800G)

LambdaUnite Optical Line System 1.6 Terabit/s (400Gbit/s/800Gbit/s)

LAN (Local Area Network)

A communications network that covers a limited geographic area, is privately owned and user administered, is mostly used for internal transfer of information within a business, is normally contained within a single building or adjacent group of buildings, and transmits data at a very rapid speed.

LAPD (Link Access Procedure D-bytes)

Protocol used on Data Link Layer (OSI layer two) according to ITU-T Q.921.

LBC

Laser Bias Current

LBFC

Laser Backface Currents

LBO (Lightguide Build-Out)

An attenuating (signal-reducing) element used to keep an optical output signal strength within desired limits.

LCN

Local Communications Network

LCS

Local Customer Support

LED

Light-Emitting Diode

LH

Long Haul

Line

A transmission medium, together with the associated equipment, required to provide the means of transporting information between two consecutive network elements. One network element originates the line signal; the other terminates it.

Line Protection

The optical interfaces can be protected by line protection. Line protection switching protects against failures of line facilities, including the interfaces at both ends of a line, the optical fibers, and any equipment between the two ends. Line protection includes protection of equipment failures.

Line Timing

Refers to a network element that derives its timing from an incoming STM-N signal.

Link

The mapping between in-ports and out-ports. It specifies how components are connected to one another.

LL

Lucent Learning (former CTIP)

LO

Low Order

Location

An identifier for a specific circuit pack, interface module, interface port, or communications link.

Lockout of Protection

The *WaveStar* CIT command that prevents the system from switching traffic to the protection line from a working line. If the protection line is active when a “Lockout of Protection” is entered – this command causes the working line to be selected. The protection line is then locked from any Automatic, Manual, or Forced protection switches.

Lockout State

The Lockout State shall be defined for each working or protection circuit pack. The two permitted states are: None – meaning no lockout is set for the circuit pack, set meaning the circuit pack has been locked out. The values (None & Set) shall be taken independently for each working or protection circuit pack.

LOF (Loss of Frame)

A failure to synchronize an incoming signal.

LOM

Loss Of Multiframe

Loop Timing

A special case of line timing. It applies to network elements that have only one OC-N/STM-N interface. For example, terminating nodes in a linear network are loop timed.

Loopback

Type of diagnostic test used to compare an original transmitted signal with the resulting received signal. A loopback is established when the received optical or electrical external transmission signal is sent from a port or tributary input directly back toward the output.

LOP (Loss of Pointer)

A failure to extract good data from a signal payload.

LOS (Loss of Signal)

The complete absence of an incoming signal.

Loss Budget

Loss (in dB) of optical power due to the span transmission medium (includes fiber loss and splice losses).

LPA (Lower order Path Adaptation)

Function that adapts a PDH signal to a synchronous network by mapping the signal into or de-mapping the signal out of a synchronous container.

LPC (Lower Order Path Connection)

Function that provides for flexible assignment of lower order VCs in a higher order VC.

LPT (Lower Order Path Termination)

Function that terminates a lower order path by generating and adding the appropriate VC POH to the relevant container at the path source and removing the VC POH and reading it at the path sink.

LS

Low Speed

LTE

Line Terminating Equipment

M **µm**
Micrometer

MAF

Management Application Function

Maintenance Condition

An equipment state in which some normal service functions are suspended, either because of a problem or to perform special functions (copy memory) that can not be performed while normal service is being provided.

Management Connection

Identifies the type of routing used (STATIC or DYNAMIC), and if STATIC is selected allows the gateway network element to be identified.

Manager

Capable of issuing network management operations and receiving events. The manager communicates with the agent in the controlled network element.

Manual Switch State

A protection group shall enter the Manual Switch State upon the initiation and successful completion of the Manual Switch command. The protection group leaves the Manual Switch state by means of the Clear or Forced Switch commands. While in the Manual Switch state the system may switch the active unit automatically if required for protection switching.

Mapping

The logical association of one set of values, such as addresses on one network, with quantities or values of another set, such as devices or addresses on another network.

MB

Megabytes

Mbit/s

Megabits per second

MCF (Message Communications Function)

Function that provides facilities for the transport and routing of Telecommunications Management Network messages to and from the Network Manager.

MD (Mediation Device)

Allows for exchange of management information between Operations System and Network Elements.

MDI

Miscellaneous Discrete Input

MDO

Miscellaneous Discrete Output

MEC (Manufacturer Executable Code)

Network Element system software in binary format that after being downloaded to one of the stores can be executed by the system controller of the network element.

MEM

Memory

Mid-Span Meet

The capability to interface between two lightwave network elements of different vendors. This applies to high-speed optical interfaces.

MIPS

Millions of Instructions Per Second

Miscellaneous Discrete Interface

Allows an operations system to control and monitor equipment collocated within a set of input and output contact closures.

MJ (Major (alarm))

Indicates a service-affecting failure, main or unit controller failure, or power supply failure.

MMF

Multi-Mode Fiber

MMI

Man-Machine Interface

MML

Human-Machine Language

MN (Minor (alarm))

Indicates a non-service-affecting failure of equipment or facility.

MO

Managed Object

MS

Multiplexer Section

ms

Millisecond

MS-SPRING (Multiplexer Section Shared Protection Ring)

A protection method used in Add-Drop Multiplexer Network Elements.

MSOH (Multiplexer Section OverHead)

Part of the Section Overhead. Is accessible only at line terminals and multiplexers.

MSP (Multiplexer Section Protection)

Provides capability for switching a signal from a working to a protection section.

MST (Multiplexer Section Termination)

Function that generates the Multiplexer Section OverHead in the transmit direction and

terminates the part of the Multiplexer Section overhead that is acceptable in the receive direction.

MTBF

Mean Time Between Failures

MTBMA

Mean Time Between Maintenance Activities

MTIE

Maximum Time Interval Error

MTPI

Multiplexer Timing Physical Interface

MTS (Multiplexer Timing Source)

Function that provides timing reference to the relevant component parts of the multiplex equipment and represents the SDH Network Element clock.

MTTR

Mean Time To Repair

Multiplexer

A device (circuit pack) that combines two or more transmission signals into a combined signal on a shared medium.

Multiplexing

A procedure by which multiple lower order path layer signals are adapted into a higher order path, or the multiple higher order path layer signals are adapted into a multiplex section.

N NA

Not Applicable

NE (Network Element)

A node in a telecommunication network that supports network transport services and is directly manageable by a management system.

NEBS

Network Equipment-Building System

nm

Nanometer (10^{-9} meters)

NMON (Not Monitored)

A provisioning state for equipment that is not monitored or alarmed.

No Request State

This is the routine-operation quiet state in which no external command activities are occurring.

Node

A network element in a ring or, more generally, in any type of network. In a network element supporting interfaces to more than one ring, node refers to an interface that is in a particular ring. Node is also defined as all equipment that is controlled by one system controller. A node is not always directly manageable by a management system.

Non-Revertive Switching

In non-revertive switching, an active and stand-by line exist on the network. When a protection switch occurs, the standby line is selected to support traffic, thereby becoming the active line. The original active line then becomes the stand-by line. This status remains in effect even when the fault clears. That is, there is no automatic switch back to the original status.

Non-Synchronous

The essential characteristic of time-scales or signals such that their corresponding significant instants do not necessarily occur at the same average rate.

NORM

Normal

NPI

Null Pointer Indication

NPPA (Non-Preemptible Protection Access)

Non-preemptible protection access increases the available span capacity for traffic which does not require protection by a ring, but which cannot be preempted.

NRZ

Nonreturn to Zero

NSA

Non-Service Affecting

NSAP Address (Network Service Access Point Address)

Network Service Access Point Address (used in the OSI network layer 3). An automatically assigned number that uniquely identifies a Network Element for the purposes of routing DCC messages.

NVM (Non-Volatile Memory)

Memory that retains its stored data after power has been removed. An example of NVM would be a hard disk.

O O&M

Operation and Maintenance

OA

Optical Amplifier

OAM&P

Operations, Administration, Maintenance, and Provisioning

OC, OC-n

Optical Carrier

OC-12

Optical Carrier, Level 12 Signal (622.08 Mbit/s)

OC-192

Optical Carrier, Level 192 (9953.28 Mbit/s) (10 Gbit/s)

OC-3

Optical Carrier, Level 3 Signal (155 Mbit/s)

OC-48

Optical Carrier, Level 48 (2488.32 Mbit/s) (2.5 Gbit/s)

OC-768

Optical Carrier, Level 768 (39813.12 Mbit/s) (40 Gbit/s)

OI (Operations Interworking)

The capability to access, operate, provision, and administer remote systems through craft interface access from any site in an SDH network or from a centralized operations system.

OLS

Optical Line System

ONMS

Optical Network Management System

OOF

Out-of-Frame

OOS (Out-of-Service)

The circuit pack is not providing its normal service function (removed from either the working or protection state) either because of a system problem or because the pack has been removed from service.

Open Ring Network

A network formed of a linear chain-shaped configuration of network elements. Each network element connects to two others, one on each side, except for two network elements at the ends which are connected on only one side. A closed ring can be formed by adding a connection between the two end nodes.

Operations Interface

Any interface providing you with information on the system behavior or control. These include the equipment LEDs, user panel, *WaveStar* CIT, office alarms, and all telemetry interfaces.

Operator

A user of the system with operator-level user privileges.

Optical Channel

A STM-N wavelength within an optical line signal. Multiple channels, differing by 1.5 μm in wavelength, are multiplexed into one signal.

Optical Line Signal

A multiplexed optical signal containing multiple wavelengths or channels.

Original Value Provisioning

Preprogramming of a system's original values at the factory. These values can be overridden using local or remote provisioning.

OS (Operations System)

A central computer-based system used to provide operations, administration, and maintenance functions.

OSF

Open Software Foundation; Operations System Function

OSI (Open Systems Interconnection)

Referring to the OSI reference model, a logical structure for network operations standardized by the International Standards Organization (ISO).

Outage

A disruption of service that lasts for more than 1 second.

OW (Orderwire)

A dedicated voice-grade line for communications between maintenance and repair personnel.

P Parameter

A variable that is given a value for a specified application. A constant, variable, or expression that is used to pass values between components.

Parity Check

Tests whether the number of ones (or zeros) in an array of binary bits is odd or even; used to determine that the received signal is the same as the transmitted signal.

Pass-Through

Paths that are cross-connected directly across an intermediate node in a network.

Path

A logical connection between the point at which a standard frame format for the signal at the given rate is assembled, and the point at which the standard frame format for the signal is disassembled.

Path Terminating Equipment

Network elements in which the path overhead is terminated.

PCB

Printed Circuit Board

PCM

Pulse Code Modulation

PDH

Plesiochronous Digital Hierarchy

PI

Physical Interface

Pipe mode (Adaptive-rate tributary operation of a port)

Mode of operation of a port in which tributaries are ***not*** explicitly provisioned for the expected signal rates. The signal rates are automatically identified.

Platform

A family of equipment and software configurations designed to support a particular application.

Plesiochronous Network

A network that contains multiple subnetworks, each internally synchronous and all operating at the same nominal frequency, but whose timing may be slightly different at any particular instant.

PM (Performance Monitoring)

Measures the quality of service and identifies degrading or marginally operating systems (before an alarm would be generated).

PMD (Polarization Mode Dispersion)

Output pulse broadening due to random coupling of the two polarization modes in an optical fiber.

POH (Path Overhead)

Informational bytes assigned to, and transported with the payload until the payload is de-multiplexed. It provides for integrity of communication between the point of assembly of a virtual container and its point of disassembly.

Pointer

An indicator whose value defines the frame offset of a virtual container with respect to the frame reference of the transport entity on which it is supported.

POP

Point of Presence

Port (also called Line)

The physical interface, consisting of both an input and output, where an electrical or optical transmission interface is connected to the system and may be used to carry traffic between network elements. The words “port” and “line” may often be used synonymously. “Port” emphasizes the physical interface, and “line” emphasizes the interconnection. Either may be used to identify the signal being carried.

Port State Provisioning

A feature that allows a user to suppress alarm reporting and performance monitoring during provisioning by supporting multiple states (automatic, in-service, and not monitored) for low-speed ports.

POTS

Plain Old Telephone Service

PP

Pointer Processing

PRC (Primary Reference Clock)

The main timing clock reference in SDH equipment.

Preprovisioning

The process by which the user specifies parameter values for an entity in advance of some of the equipment being present. These parameters are maintained only in NVM. These modifications are initiated locally or remotely by either *WaveStar* CIT or *Navis* OEMS.

Preprovisioning provides for the decoupling of manual intervention tasks (for example, install circuit packs) from those tasks associated with configuring the node to provide services (for example, specifying the entities to be cross-connected).

PRI

Primary

Proactive Maintenance

Refers to the process of detecting degrading conditions not severe enough to initiate protection switching or alarming, but indicative of an impending signal fail or signal degrade defect.

Protection Access

To provision traffic to be carried by protection tributaries when the port tributaries are not being used to carry the protected working traffic.

Protection Group Configuration

The members of a group and their roles, for example, working protection, line number, etc.

Protection Path

One of two signals entering a path selector used for path protection switching or dual ring interworking. The other is the working path. The designations working and protection are provisioned by the user, whereas the terms active path and standby path indicate the current protection state.

Protection State

When the working unit is currently considered active by the system and that it is carrying traffic. The “active unit state” specifically refers to the receive direction of operation — since protection switching is unidirectional.

PROTN (Protection)

Extra capacity (channels, circuit packs) in transmission equipment that is not intended to be used for service, but rather to serve as backup against equipment failures.

PROV (Provisioned)

Indicating that a circuit pack is ready to perform its intended function. A provisioned circuit pack can be active (ACT), in-service (IS), standby (STBY), provisioned out-of-service (POS), or out-of-service (OOS).

PSDN

Public Switched Data Network

PSTN

Public Switched Telephone Network

PTE

Path Terminating Equipment

PTR

Pointer

PWR

Power

PWR ON

Power On

Q Q-LAN

Thin Ethernet LAN which connects the manager to Gateway Network Elements so that management information between Network Elements and management systems can be exchanged.

QL (Quality Level)

The quality of the timing signal(s) provided to synchronize a Network Element. In case of optical line timing the level can be provided by the Synchronization Status Message (S-1 byte). If the System and Output Timing Quality Level mode is “Enabled”, and if the signal selected for the Station Clock Output has a quality level below the Acceptance Quality Level, the Network Element “squelsches” the Station Clock Output Signal, which means that no signal is forwarded at all.

QOS

Quality of Service

R RAM

Random Access Memory

RDI (Remote Defect Indication)

An indication returned to a transmitting terminal that the receiving terminal has detected an incoming section failure. [Previously called far-end-receive failure (FERF).]

Reactive Maintenance

Refers to detecting defects/failures and clearing them.

Receive-Direction

The direction towards the Network Element.

Regeneration

The process of reconstructing a digital signal to eliminate the effects of noise and distortion.

Regenerator Loop

Loop in a Network Element between the Station Clock Output(s) and one or both Station Clock Inputs, which can be used to de-jitterize the selected timing reference in network applications.

Regenerator Section Termination (RST)

Function that generates the Regenerator Section Overhead (RSOH) in the transmit direction and terminates the RSOH in the receive direction.

Reliability

The ability of a software system performing its required functions under stated conditions for a stated period of time. The probability for an equipment to fulfill its function. Some of the ways in which reliability is measured are: MTBF (Mean Time Between Failures) expressed in hours; Availability = $(MTBF)/(MTBF+MTTR)(\%)$ [where MTTR = mean time to restore]; outage in minutes per year; failures per hour; percentage of failures per 1,000 hours.

Remote Network Element

Any Network Element that is connected to the referenced Network Element through either an electrical or optical link. It may be the adjacent node on a ring, or N nodes away from the reference. It also may be at the same physical location but is usually at another (remote) site.

Restore Timer

Counts down the time (in minutes) during which the switch waits to let the worker line recover before switching back to it. This option can be set to prevent the protection switch continually switching if a line has a continual transient fault.

Revertive

A protection switching mode in which, after a protection switch occurs, the equipment returns to the nominal configuration (that is, the working equipment is active, and the protection equipment is standby) after any failure conditions that caused a protection switch to occur, clear, or after any external switch commands are reset. (See “Non-Revertive”.)

Revertive Switching

In revertive switching, there is a working and protection high-speed line, circuit pack, etc. When a protection switch occurs, the protection line, circuit pack, etc. is selected. When the fault clears, service “reverts” to the working line.

Ring

A configuration of nodes comprised of network elements connected in a circular fashion. Under normal conditions, each node is interconnected with its neighbor and includes capacity for transmission in either direction between adjacent nodes. Path switched rings use a head-end bridge and tail-end switch. Line switched rings actively reroute traffic over the protection capacity.

Route

A series of contiguous digital sections.

Router

An interface between two networks. While routers are like bridges, they work differently. Routers provide more functionality than bridges. For example, they can find the best route between any two networks, even if there are several different networks in between. Routers also provide network management capabilities such as load balancing, partitioning of the network, and trouble-shooting.

RSOH

Regenerator Section OverHead; part of SOH

RST

Regenerator Section Termination

RT

Remote Terminal

RTRV

Retrieve

RZ (Return to Zero)

A code form having two information states (termed zero and one) and having a third state or an at-rest condition to which the signal returns during each period.

S SA

Service Affecting

SA

Section Adaptation

SD

Signal Degrade

SDH (Synchronous Digital Hierarchy)

A hierarchical set of digital transport structures, standardized for the transport of suitable adapted payloads over transmission networks.

SDS

Standard Directory Service based on ANSI recommendation T1.245

SEC

Secondary

SEC

SDH Equipment Clock

Section

The portion of a transmission facility, including terminating points, between a terminal network element and a line-terminating network element, or two line-terminating network elements.

Section Adaptation

Function that processes the AU-pointer to indicate the phase of the VC-3/4 POH relative to the STM-N SOH and assembles/disassembles the complete STM-N frame.

Self-Healing

A network's ability to automatically recover from the failure of one or more of its components.

SEMF (Synchronous Equipment Management Function)

Function that converts performance data and implementation specific hardware alarms into object-oriented messages for transmission over the DCC and/or Q-interface. It also converts object-oriented messages related to other management functions for passing across the S reference points.

Server

Computer in a computer network that performs dedicated main tasks which generally require sufficient performance.

Service

The operational mode of a physical entity that indicates that the entity is providing service. This designation will change with each switch action.

SES (Severely Errored Seconds)

This performance monitoring parameter is a second in which a signal failure occurs, or more than a preset amount of coding violations (dependent on the type of signal) occurs.

SH

Short Haul

Single-Ended Operations

Provides operations support from a single location to remote Network Elements in the same SDH subnetwork. With this capability you can perform operations, administration, maintenance, and provisioning on a centralized basis. The remote Network Elements can be those that are specified for the current release.

Site Address

The unique address for a Network Element.

Slot

A physical position in a shelf designed for holding a circuit pack and connecting it to the backplane. This term is also used loosely to refer to the collection of ports or tributaries connected to a physical circuit pack placed in a slot.

SM or SMF (Single-Mode Fiber)

A low-loss, long-span optical fiber typically operating at either 1310 nm, 1550 nm, or both.

SMN

SDH Management Network

SNC/I

SubNetwork Connection (protection) / Inherent monitoring

SNC/N

SubNetwork Connection (protection) / Non-Intrusive Monitoring

SNR (Signal-to-Noise Ratio)

The relative strength of signal compared to noise.

Software Backup

The process of saving an image of the current network element's databases, which are contained in its NVM, to a remote location. The remote location could be the *WaveStar* CIT or *Navis* OEMS.

Software Download

The process of transferring a generic (full or partial) or provisioned database from a remote entity to the target network element's memory. The remote entity may be the *WaveStar* CIT or *Navis* OEMS. The download procedure uses bulk transfer to move an un-interpreted binary file into the network element.

Software ID

Number that provides the software version information for the system.

SOH (Section Overhead)

Capacity added to either an AU-4 or assembly of AU-3s to create an STM-1. Contains always STM-1 framing and optionally maintenance and operational functions. SOH can be subdivided in MSOH (multiplex section overhead) and RSOH (regenerator section overhead).

SONET (Synchronous Optical Network)

The North American standard for the rates and formats that defines optical signals and their constituents.

Span

An uninterrupted bidirectional fiber section between two network elements.

Span Growth

A type of growth in which one wavelength is added to all lines before the next wavelength is added.

SPE

Synchronous Payload Envelope

SPF (Single point of failure)

A single failure in the OSI-network (DCC, LAN or node), that causes isolation of more than one node in the OSI-network. The use of IS-IS areas, without obeying all rules & guidelines, increases the risk of a single point of failure in the network.

SPI

SDH Physical Interface

Squelch Map

This map contains information for each cross-connection in a ring and indicates the source and destination nodes for the low-speed circuit that is part of the cross-connection. This information is used to prevent traffic misconnection in rings with isolated nodes or segments.

SSM

Synchronization Status Marker

SSU_L

Synchronization Supply Unit — Local

SSU_T

Synchronization Supply Unit — Transit

Standby Path

One of two signals entering a constituent path selector, the standby path is the path not currently being selected.

State

The state of a circuit pack indicates whether it is defective or normal (ready for normal use).

Station Clock Input

An external clock may be connected to a Station Clock Input.

Status

The indication of a short-term change in the system.

STBY (Standby)

The circuit pack is in service but is not providing service functions. It is ready to be used to replace a similar circuit pack either by protection or by duplex switching.

STM

Synchronous Transport Module (SDH)

STM-N (Synchronous Transport Module, Level N)

A building block information structure that supports SDH section layer connections, where N represents a multiple of 155.52 Mbit/s. Normally N = 1, 4, 16, 64 or 256.

Stream (Line; aggregate)

A synchronous high rate connection between multiplexers, typically 10 or 40 Gbit/s.

STS

Synchronous Transport Signal (SONET)

Subnetwork

A group of interconnected/interrelated Network Elements. The most common connotation is a synchronous network in which the Network Elements have data communications channel (DCC) connectivity.

Supervisor

A user of the application with supervisor user privileges.

Suppression

A process where service-affecting alarms that have been identified as an “effect” are not displayed to a user.

SYNC

Synchronizer

Synchronization Messaging

Synchronization messaging is used to communicate the quality of network timing, internal timing status, and timing states throughout a subnetwork.

Synchronous

The essential characteristic of time scales or signals such that their corresponding significant instances occur at precisely the same average rate, generally traceable to a single Stratum 1 source.

Synchronous Network

The synchronization of transmission systems with synchronous payloads to a master (network) clock that can be traced to a reference clock.

Synchronous Payload

Payloads that can be derived from a network transmission signal by removing integral numbers of bits from every frame. Therefore, no variable bit-stuffing rate adjustments are required to fit the payload in the transmission signal.

SYSCTL

System Controller circuit pack

System Administrator

A user of the computer system on which the system’s OS software application can be installed.

T TARP

Target Identifiers Address Resolution Protocol

TBD

To Be Determined

TCA (Threshold-Crossing Alert)

A message type sent from a Network Element that indicates that a certain performance monitoring parameter has exceeded a specified threshold.

TDM (Time Division Multiplexing)

A technique for transmitting a number of separate data, voice, and/or video signals simultaneously over one communications medium by interleaving a portion of each signal one after another.

TEN

Telecommunications Management Network

Through (or Continue) Cross-Connection

A cross-connection within a ring, where the input and output tributaries have the same tributary number but are in lines opposite each other.

Through Timing

Refers to a network element that derives its transmit timing in the east direction from a received line signal in the east direction and its transmit timing in the west direction from a received line signal in the west direction.

THz

Terahertz (10^{12} Hz)

TID (Target Identifier)

A provisionable parameter that is used to identify a particular Network Element within a network. It is a character string of up to 20 characters where the characters are letters, digits, or hyphens (-).

TL1 (Transaction Language One)

A subset of ITU's human-machine language.

TM (Terminal Multiplexer)

An Add/Drop Multiplexer with only one stream interface.

Transmit-Direction

The direction outwards from the Network Element.

Tributary

A signal of a specific rate (2 Mbit/s, 34 Mbit/s, 140 Mbit/s, VC12, VC3, VC4, STM-1 or STM-4) that may be added to or dropped from a line signal.

Tributary

A path-level unit of bandwidth within a port, or the constituent signal(s) being carried in this unit of bandwidth, for example, an STM-1 tributary within an STM-N port.

Tributary Unit Pointer

Indicates the phase alignment of the VC with respect to the TU in which it resides. The pointer position is fixed with respect to the TU frame.

True Wave™ Optical Fiber

Lucent Technologies' fiber generally called non-zero dispersion-shift fiber, with a controlled amount of chromatic dispersion designed for amplified systems in the 1550/1310 nm range.

TRY

Technical Requirement

TSA (Time Slot Assignment)

A capability that allows any tributary in a ring to be cross-connected to any tributary in any lower-rate, non-ring interface or to the same-numbered tributary in the opposite side of the ring.

TSI (Time Slot Interchange)

The ability of the user to assign cross-connections between any tributaries of any lines within a Network Element. Three types of TSI can be defined: Hairpin TSI, Interring TSI (between rings), and intra-ring TSI (within rings).

TSO

Technical Support Organization

TTP

Trail Termination Point

TU (Tributary Unit)

An information structure which provides adaptation between the lower order path layer and the higher path layer. Consists of a VC-n plus a tributary unit pointer (TU PTR).

TUG

Tributary Unit Group

Two-Way Point-to-Point Cross-Connection

A two-legged interconnection, that supports two-way transmission, between two and only two tributaries.

Two-Way Roll

The operation which moves a two-way cross-connection between tributary i and tributary j to a two-way cross-connection between the same tributary i and a new tributary k with a single user command.

U UAS (Unavailable Seconds)

In performance monitoring, the count of seconds in which a signal is declared failed or in which 10 consecutively severely errored seconds (SES) occurred, until the time when 10 consecutive non-SES occur.

UITs (Unacknowledged Information Transfer Service)

Unconfirmed mode of LAPD operation.

UNEQ

Path Unequipped

Upstream

At or towards the source of the considered transmission stream, for example, looking in the opposite direction of transmission.

User Privilege

Permissions a user must perform on the computer system on which the system software runs.

UTC (Universal Time Coordinated)

A time-zone independent indication of an event. The local time can be calculated from the Universal Coordinated Time.

V V

Volts

VAC

Volts Alternating Current

Value

A number, text string, or other menu selection associated with a parameter.

Variable

An item of data named by an identifier. Each variable has a type, such as int or Object, and a scope.

VC (Virtual Container)

Container with path overhead.

VDC

Volts Direct Current

VF

Voice frequency

Virtual

Refers to artificial objects created by a computer to help the system control shared resources.

Virtual Circuit

A logical connection through a data communication (for example, X.25) network.

Voice Frequency (VF) Circuit

A 64 kilobit per second digitized signal.

Volatile Memory

Type of memory that is lost if electrical power is interrupted.

W WAD

Wavelength Add/Drop

WAN (Wide Area Network)

A communication network that uses common-carrier provided lines and covers an extended geographical area.

Wander

Long term variations of amplitude frequency components (below 10 Hz) of a digital signal from their ideal position in time possibly resulting in buffer problems at a receiver.

Wavelength Interchange

The ability to change the wavelength associated with an STM-N signal into another wavelength.

WDCS

Wideband Digital Cross-Connect System

WDM (Wavelength Division Multiplexing)

A means of increasing the information-carrying capacity of an optical fiber by simultaneously transmitting signals at different wavelengths.

Wideband Communications

Voice, data, and/or video communication at digital rates from 64 kbit/s to 2 Mbit/s.

Working

Label attached to a physical entity. In case of revertive switching the working line or unit is the entity that is carrying service under normal operation. In case of nonrevertive switching the label has no particular meaning.

Working State

The working unit is currently considered active by the system and that it is carrying traffic.

WRT (Wait to Restore Time)

Corresponds to the time to wait before switching back after a failure has cleared, in a revertive protection scheme. This can be between 0 and 15 minutes, in increments of one minute.

WS

Work Station

WTR (Wait to Restore)

Applies to revertive switching operation. The protection group enters the WTR state when all Equipment Fail (EF) conditions are cleared, but the system has not yet reverted back to its working line. The protection group remains in the WTR state until the Wait-to-Restore timer completes the WTR time interval.

X X.25

An ITU standard defining the connection between a terminal and a public packet-switched network

X.25 Interface/Protocol

The ITU packet-switched interface standard for terminal access that specifies three protocol layers: physical, link, and packet for connection to a packet-switched data network.

XC

Cross Connect

Z Zero Code Suppression

A technique used to reduce the number of consecutive zeros in a line-coded signal (B3ZS, B8ZS).



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