



Metropolis[®] Enhanced Optical Networking (EON) (OLS 40G/80G)

Release 8.2

Operations Systems Engineering Guide (OSEG)

365-575-561 R8.2
Issue 3
March 2002

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About This Document

Purpose

The *Metropolis® Enhanced Optical Networking (EON) Operations Systems Engineering Guide*, 365-575-561 R8.2, gives detailed information on operations systems (OS) engineering information and the TL1 commands used with Metropolis® EON.

Reason for reissue

This reissue of the *Metropolis® Enhanced Optical Networking (EON) Operations Systems Engineering Guide* (365-575-561 R8.2, Issue 3, dated March 2002) reflects the features for Release 8.2, as well as the commands that have been added for Release 8.2: **DWNLD - FTAM**, **ENT - PATHTRC**, **RTRV - PATHTRC**, and **TEST - LOOPBACK**.

Intended audience

The intended audience of this document consists primarily of network operations planners, facility maintenance center personnel, transmission engineers, and technical support staff.

How to Use This Document

This document consists of reference chapters that describe Metropolis® EON OS engineering information and TL1 commands.

Assumptions

This document assumes that readers have the following required skills:

- Basic principles of telecommunication transmission
- Common telecommunication and system terminology (a glossary is provided in this manual to assist you)
- Test sets and tools used in the telecommunication industry
- Local operations and functional procedures of your company
- Personal computer (PC) operation, common PC terminology, and navigational tasks in a windows-style user interface.

Training

Prerequisite training that will allow you to become proficient in understanding and operating the Metropolis® EON is described in the Product Support section, under "Training."

Information Contained in this Document

The following table briefly describes the type of information found in each chapter.

Chapter	Description
About This Document	The preface ■ describes the guide's purpose, intended audience, and organization, ■ lists related documentation, ■ explains how to comment on this document.
Chapter 1, "Introduction"	Contains a brief introduction to Operations Systems Interfaces and TL1 commands.
Chapter 2, "Operations Interfaces"	Describes the Operations Interfaces used with Metropolis® EON.
Chapter 3, "TL1 Message Details"	Gives a detailed description of the TL1 command set used with the Metropolis® EON.

Chapter	Description
Chapter 4, "Parallel Telemetry"	Describes the parallel telemetry feature used with Metropolis® EON.
Glossary	Defines telecommunication terms and expands common telecommunication abbreviations and acronyms.
Index	Lists specific subjects and their corresponding page numbers.

Conventions used

The following conventions are used throughout this document.

Numbering

The chapters of this document are numbered consecutively. The page numbering restarts at 1 in each chapter. To facilitate identifying pages in different chapters, the page numbers are prefixed with the chapter number. For example, page 2-3 is the third page in Chapter 2.

Cross-references

Cross-reference conventions are identical to those used for numbering (for example, the first number in a reference to a particular page refers to the corresponding chapter).

Typographical conventions

Special typographical conventions apply to the TL1 command pages. These are:

- TL1 command names, **Courier Bold 10pt font**
- TL1 autonomous message names: Courier 10pt font
- TL1 command Input Format: *Courier Italic 10pt font*
- TL1 Input/Output Parameter names: *Courier Italic 10pt font*
- TL1 Input/Output Parameter values: Courier 10pt font
- TL1 *spec_block* parameter names: **Courier Bold 10pt font**
- TL1 *spec_block* parameter values: *Courier Italic 10pt font*

Abbreviations

Abbreviations used in this document can be found in the Glossary unless it can be assumed that the reader is familiar with the abbreviation.

Related Documentation

This section briefly describes the documents that are included in the Metropolis® EON documentation set.

- *Metropolis® Enhanced Optical Networking (EON) Applications and Planning Guide*, 365-575-558 R8.2

The *Metropolis® Enhanced Optical Networking (EON) Applications and Planning Guide*, 365-575-558 R8.2, is for use by network planners, analysts and managers. It is also for use by the Lucent Account Team. It presents a detailed overview of the system, describes its applications, gives planning requirements, engineering rules, ordering information, and technical specifications.
- *Metropolis® Enhanced Optical Networking (EON) User Operations Guide*, 365-575-559 R8.2

The *Metropolis® Enhanced Optical Networking (EON) User Operations Guide*, 365-575-559 R8.2, provides step-by-step information for use in daily system operations. The User Operations Guide (UOG) demonstrates system provisioning, operations, and administrative tasks by use of the CIT.
- *Metropolis® Enhanced Optical Networking (EON) Alarm Messages and Troubleclearing Guide*, 365-575-560 R8.2

The *Metropolis® Enhanced Optical Networking (EON) Alarm Messages and Troubleclearing Guide*, 365-575-560 R8.2, gives detailed information on each possible alarm message. Furthermore, it provides procedures for routine maintenance, troubleshooting, diagnostics, and component replacement.
- *Metropolis® Enhanced Optical Networking (EON) Installation Guide*, 365-575-562 R8.2

The *Metropolis® Enhanced Optical Networking (EON) Installation Guide*, 365-575-562 R8.2, is a step-by-step guide to system installation and setup. It also includes information needed for pre-installation site planning and post-installation acceptance testing.
- *Metropolis® Enhanced Optical Networking (EON) Software Release Description (SRD)*, 365-575-563 R8.2

The *Metropolis® Enhanced Optical Networking (EON) Software Release Description (SRD)*, 365-575-563 R8.2, is a description of procedural information. It also includes a listing of Release 8.2 features, problems fixed, known problems, and other helpful information. It can be used for both a new system and an upgrade of the EON software.

- *Metropolis® Enhanced Optical Networking (EON) Provisionable Parameters Job Aid, 365-575-564 R8.2*

The *Metropolis® Enhanced Optical Networking (EON) Provisionable Parameters Job Aid, 365-575-564 R8.2*, is a set of laminated job aid cards, containing detailed provisioning information, that are used for quick reference.

- *Metropolis® Enhanced Optical Networking (EON) Threshold-Crossing Alert (TCA) Provisionable Parameters Job Aid, 365-575-565 R8.2*

The *Metropolis® Enhanced Optical Networking (EON) Threshold-Crossing Alert (TCA) Provisionable Parameters Job Aid, 365-575-565 R8.2*, is a set of laminated job aid cards, containing detailed TCA parameter provisioning information, that are used for quick reference.

- The following additional documents can be helpful for planning and ordering:

Toll Systems OLS Intercabinet Cables, ED7G028-22.

Toll Systems Cable Assemblies OT Cabinet Framework, ED7G045-20.

Toll Systems OT System Ordering and Installation Information for OT Cabinet, J69000-C-1.

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- Lucent OnLine Customer Support - online access to information and services that can help resolve technical support requests.



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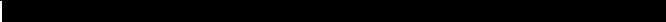
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Introduction

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Contents

Introduction

1

Overview

This document provides information on Lucent Technologies Metropolis[®] Enhanced Optical Networking (EON) TL1 and operations system (OS) interfaces.

Introduction to Operations Systems Interfaces

The Metropolis[®] EON Transaction Language 1 (TL1) interface communicates alarm, status, and control information to/from the alarm surveillance OS. The Metropolis[®] EON TL1 interface is based on Telcordia TR-TSY-000833, Issue 3, Revision 1*, and TR-NWT-000833, Issue 1, Supplement 1. The Metropolis[®] EON parallel telemetry interface uses contact closures.

The Metropolis[®] EON TL1 interface also supports performance monitoring (PM) threshold-crossing alerts (TCAs) and retrievals of current and historical PM data.

The Metropolis[®] EON supports X.25, OSI and TCP/IP operations communications interfaces to connect OS and network element(s) (NEs). The operations communications interfaces for NE-NE are OSI DCC and OSI LAN.

* Where TR-TSY-000833, Issue 3, Rev. 1 was deficient, the Metropolis[®] EON conforms to Telcordia's TR-NWT-000833, Issue 1.

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Overview

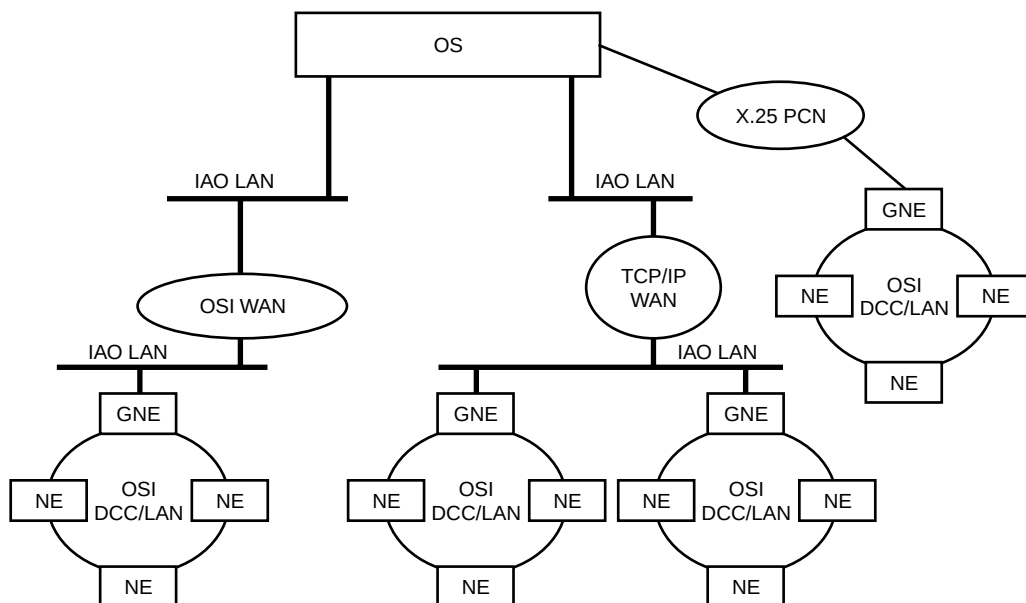
This chapter provides information on the operations communications interfaces used with the Metropolis[®] Enhanced Optical Networking (EON). The OS-NE operations communications interfaces include TCP/IP LAN, OSI LAN, and X.25 NE-NE operations communications interfaces include OSI DCC and OSI LAN.

For information on TL1 Commands/Messages, refer to Chapter 3, *TL1 Message Details*.

Operations Interface Connectivity — EMS/OS to NE

Element Management Systems (EMSs) or Operations Systems (OSs) need to communicate with network elements (NEs) for the purposes of sending control information and receiving status and alarm information. The Metropolis[®] EON allows communication between EMSs (such as the SubNetwork Management System) and NEs using a message-based interface over TCP/IP, OSI, and X.25 protocols.

Figure 2-1 shows an example of the EON operations Data Communications Network (DCN) architecture:



nc-metro-091

Figure 2-1. Example of EON Operations DCN Architecture

As shown in Figure 2-1, the access DCN supports X.25, OSI, and TCP/IP; the embedded DCN supports only OSI which is over supervisory DCC or 10BaseT Ethernet LAN Physical layer. The IntraOffice LAN (IAO LAN) shown above is 10BaseT Ethernet IAO LAN. Because IAO LAN is in the Physical layer of data communications, it is independent of the upper layers whether they are TCP/IP or OSI (CLNP).

NavisTM Optical Element Management System

The EMS used with Metropolis[®] EON is NavisTM Optical Element Management System (NavisTM Optical EMS). NavisTM Optical EMS provides centralized, secure, remote administration of Synchronous Optical Networks (SONET) and Dense Wavelength Division Multiplexing (DWDM) networks. NavisTM Optical EMS provides fault, provisioning, configuration, and security management functions via a graphical user interface (GUI). Through these functions, NavisTM Optical EMS is able to support communication multiplexing or concentration, guarantee network security, and record all database changes. It also provides a cut-through capability, allowing the NavisTM Optical EMS user to access an NE through its native command set.

NavisTM Optical EMS operates as an enhanced graphical tool and as a general configuration management aid. It provides NE, port, cross-connection, and path

provisioning, as well as flow-through from provisioning operations systems (OSs) to NEs. The NavisTM Optical EMS also provides fault management through subnetwork alarm and event pre-processing prior to sending fault information to a network surveillance system such as the Network Monitoring and Analysis-facility (NMA-F).

Message-Based Interface

The message-based interface provides communications with a message-based operations system. Transaction Language 1 (TL1) is supported as the Application layer protocol for interactive class communications.

Metropolis[®] EON allows the user to select OS types. An OS type is a filter that determines the types of TL1 autonomous messages that appear at a port in addition to TL1 commands and responses. The types include:

- **Maintenance**– sends reports on the maintenance status of the system (for example: alarm and event reports)
- **Memory administration**– sends reports on changes in the provisioning status of equipment (for example: database changes)
- **Command response only**– sends no autonomous messages (you can manually request information through TL1 commands)
- **Other**– sends all autonomous messages
- **Peer**– sends messages in the form of commands and responses
- **Restoration**– sends the same system status reports as the maintenance OS type, except TCAs and user command information.

Protocols for Communications Between the EMS/OS and the NEs

Metropolis[®] EON supports the following protocols for communications between the EMS/OS and the NEs:

- TCP/IP
- OSI LAN
- X.25

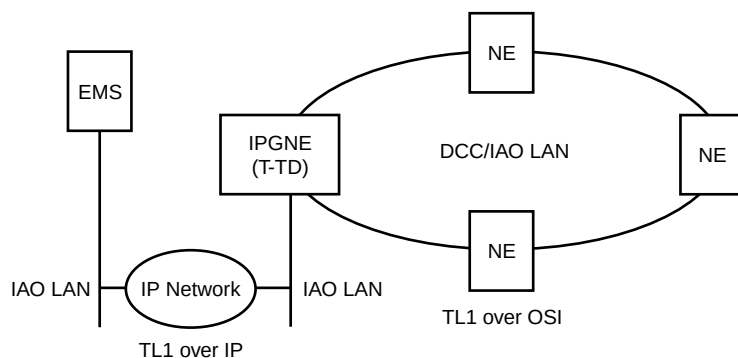
TCP/IP

Even though the data communications network among NEs is an OSI network, Metropolis[®] EON supports TCP/IP LAN as an OS-NE operations communications interface. The OS-NE TCP/IP LAN connection interface may have a TCP/IP WAN between the OS and the NE.

In Metropolis® EON, both TL1 and File Transfer Protocol (FTP) may be used over TCP/IP.

TL1 over TCP/IP

In a Metropolis® EON operations network that uses TCP/IP, the TL1 Translation Device (T-TD) provides a translation function allowing the TCP/IP manager (Navis™ Optical EMS) to exchange TL1 messages with OSI NEs. The Metropolis® EON NE which supports the T-TD function is called the TCP/IP-OSI TL1 Gateway Network Element (IPGNE), and is located between the boundary of an IP-based network and the OSI network (refer to Figure 2-2). T-TD is defined by the Network and Services Integration Forum (NSIF) standard [NSIF-AR-9806-088R11] entitled "Requirements for the TCP/IP Protocol Suite on the SONET Access DCN."



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Figure 2-2. T-TD Between IP Network and OSI Network

The Metropolis® EON NE which is provisioned as the IPGNE is connected to the Navis™ Optical EMS through IAO LAN (10BaseT Ethernet port supported by the LDA3 IAOLRP circuit pack) connection with or without TCP/IP WAN.

The IPGNE also directs autonomous messages from OSI-based NEs to the appropriate IP-based OS(s).

All TL1 encoding methods are supported: Length-Value, Raw, and Telnet, and one port number per encoding method to listen for incoming TL1 connections. The port numbers are the ones defined in the NSIF-AR-9806-088R11:

- Length-Value Encoding (port number 3081): This variation of the TL1 TCP/IP gateway is used with EMSs that use length-value encoding for transmitting TL1. With length-value encoding, each TL1 message is encapsulated into the TCP data stream as follows:
 - Version Number (1 byte, value set to 3)
 - Reserved (1 byte)

- Length (2 bytes, value set to length in bytes of TL1 message + 4)
- TL1 Message (variable length)

The length-value encoding is provided for machine-machine interactions.

- Raw Encoding (port number 3082): This variation of the TL1 TCP/IP gateway is used with EMSs that use raw encoding for transmitting TL1. With raw encoding, the TL1 message is transmitted in a TCP data stream of length 1 - 4096 bytes. The TL1 message must be parsed to find the boundary between successive TL1 messages.

The raw encoding is provided for machine-machine interactions.

- Telnet Encoding (port number 3083): This variation of the TL1 TCP/IP gateway uses Telnet, the widely used Application layer protocol for transmitting text over TCP/IP. A minimally modified version of Telnet, that eliminates unnecessary banners and prompts, is supported on the Metropolis® EON. This version of the TL1 TCP/IP gateway works with any standard Telnet client.

The telnet encoding is primarily used for human-machine interactions.

GNE Provisioning

The procedures for designating an EON end terminal NE connected on the IAO LAN as an IPGNE are as follows:

- Using the **ENT - TCPIP** TL1 command from the CenterLink CIT, provision the IP address, subnet mask, and default router.
- Using the **ENT - SYS** TL1 command from the CenterLink CIT, enable the NE as an IPGNE.
- Using the **ENT - IP - MAP** TL1 command from the CenterLink CIT, enter the IP addresses of OSs which are intended to manage NEs. If an OS's IP address is not in the access control IP MAP, this OS will prohibit access to NEs.

Software Download Via FTP over TCP/IP

FTP is the Internet standard for file transfer. The file transfer provided by FTP copies a complete file from one system to another system. Software download using FTP over TCP/IP is that between the NavisTM Optical EMS and the IPGNE connected through IAO LAN connection with or without TCP/IP WAN in between.

In terms of the client/server architecture, the NE works as the FTP client, and the EMS as FTP server. The entire operation for software download using FTP starts with a TL1 message sent from the OS to the NE.

For FTP data representation, the NE supports the following combination:

- File type: image (also called binary).
- Structure: file.
- Transmission mode: stream mode.

The procedure for software download from the OS (NavisTM Optical EMS) to EON NEs is as follows:

- Initiate the **DWNLD - FTP** TL1 command from NavisTM Optical EMS to GNE (this command will be rejected if the NE to which the command is addressed is not a GNE). The protocol used here is FTP over TCP/IP.
- After the FTP download is completed, use the GNE as a source NE to initiate the **CPY - PRGM** TL1 command from NavisTM Optical EMS to copy software generic from the source NE to remote NE(s) over OSI LAN/DCC.

Software backup/restore are implemented by OS initiating a list of retrieving/provisioning TL1 commands.

The Software Remote Copy (TL1 command **CPY - PRGM**) could be initiated to copy the software generic contained in the memory of the IPGNE to the memory of the remote NE via OSI DCC (Data Communication Channel)/LAN.

OSI LAN

OS-NE OSI LAN Interface

The Open Systems Interconnection (OSI) LAN is another OS-NE operations communications interface. The OS-NE OSI LAN connection interface may have an OSI WAN between the OS and the NE.

Metropolis EON supports 10BaseT Ethernet LAN as a data communications interface between the OS (Navis™ Optical EMS or Telecordia NMA) and the NE. The LDA3 IAOLRP circuit pack is populated in the TLM-1B slot of the Gateway Network Element (GNE). The WAN between the OS and the Ethernet LAN to which the GNE is attached could support either the TCP/IP or the OSI protocol. Figure 2-3 shows the connectivity between the OS and the EON back-to-back dual end terminals by connecting the back-to-back dual end terminals to the LAN.

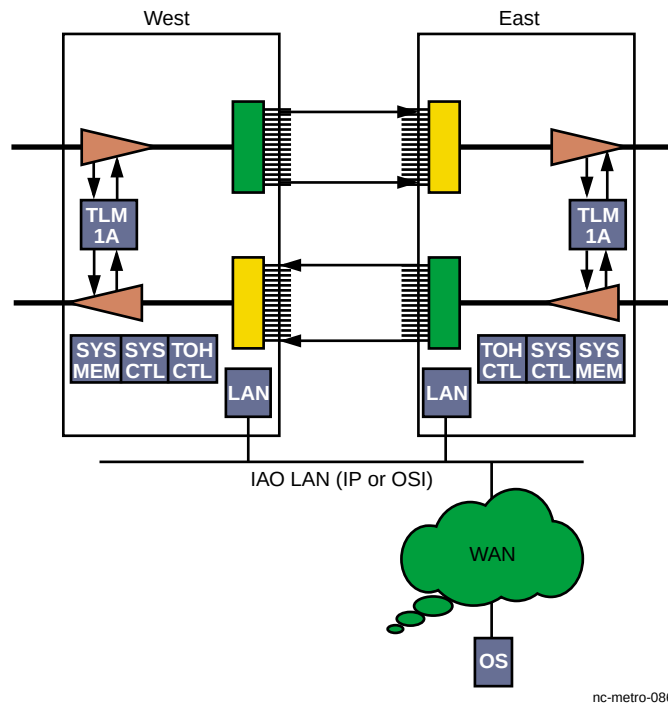


Figure 2-3. OS-NE With LAN

The OSI 7 layer protocol forms the basis for providing the capability of routing of data between the management system and Metropolis® EON nodes located within an area and between areas within an OSI Network.

The Network layer of the OSI 7 layer stack provides the means to transmit data across a network regardless of network type, topology, or services offered by the underlying network. The networks which connect OSI NEs are called subnetworks. The Network layer entity is dependent upon the network services offered by the subnetworks it must traverse to reach the destination Network layer entity along with the services provided by the underlying Data Link layer.

The connectionless network service (CLNS) and its corresponding connectionless network protocol (CLNP) provide the following services and functions at the Network layer: Network Addresses, Quality of Service (QoS) parameters, Error Notification, Segmentation of messages, Routing, and Relaying of messages through Intermediate Systems. The routing protocols supported in the Network layer are End-System to Intermediate-System (ES-IS) Routing Exchange Protocol ISO/IEC 9542 and Intermediate-System to Intermediate-System (IS-IS) Routing Exchange Protocol ISO/IEC 10589.

Figure 2-4 shows the seven layers of communications protocols used in the OSI model. The communications protocols between the EMS and the NE and those between NEs are both OSI 7-layer stacks. They differ in the following areas:

- **Physical layer:** The IAO LAN connects the EMS and the NE; the DCC or IAO LAN runs between NEs.
- **Data link layer:** LLC/MAC is used for IAO LAN; LAPD is used for DCC.

Application layer:	TL1 (GR-833-CORE)	
Presentation layer:	X.216/226	
Session layer:	X.215/225	
Transport layer:	TP4 (ISO 8073)	
Network layer:	CLNP (ISO 8473) ES-IS/IS-IS (ISO 9542)	
Data Link layer:	LLC (IEEE 802.2) MAC (IEEE 802.3)	LAPD
Physical layer:	10BaseT IAO LAN	DCC

Figure 2-4. OSI Stack Used Between EMS and the NE

As part of the Application layer, TL1 is the transaction language used to communicate between the EMS and NEs. Please refer to Chapter 3 for a detailed description of the TL1 commands set.

⇒ **NOTE:**
DCC interworking is not supported between EON NEs and other types of NEs.

The Network Service Access Point (NSAP) is used in the Network layer to address NEs and their supporting OSs in this OSI environment.

The NSAP used in addressing the destination NE in the Network layer has two basic formats: one for SONET and one for SDH. These formats differ in the 1-octet Network Selector field. NavisTM Optical EMS recognizes/uses the SONET/SDH format for Metropolis[®] EON NEs.

The area address port of the NSAP is provisionable using the **ENT - OSI** TL1 command.

The Metropolis[®] EON also provides the capability to provision the NSAP System ID (SID). This 6-byte system ID is provisionable through CenterLink. The default SID will be the original value provided by the factory.



CAUTION:

Changes to the SID could result in serious network problems if not exercised with extremely careful planning.

It is highly recommended that the original SID provided by Lucent NOT be changed since the SID is intended to ensure unique DCN addresses for the NEs. Customers are expected to assume full responsibility for the proper operation of their network when they implement any SID change.

At the physical level, 10BaseT twisted pair wire is supported. When EMS and Metropolis[®] EON are connected locally (without going through a WAN), then EMS is connected to a hub that provides a number of RJ45 connections for 10BaseT.

Software Download Via FTAM Over OSI

Metropolis[®] EON supports the software download over OSI WAN from NavisTM Optical EMS to the NE. The software download over OSI uses the OSI standard file transfer and management (FTAM) protocol. Software download over OSI is supported from the NavisTM Optical EMS to any NE; however, for maximum performance, it is recommended that FTAM be used to transfer the files to one NE initially (for example, the NE connected to the WAN). From this NE, a copy program can be initiated to copy the software generics contained in the memory of that NE to the memory of the remote NEs via the OSI DCC (Data Communication Channel) or LAN. EON supports 15 simultaneous copies from the source NE to the remote NEs.

The TL1 command for software download via FTAM is **DWNLD - FTAM**. For a detailed description of the **DWNLD - FTAM** TL1 command, refer to the **DWNLD - FTAM** command page.

X.25 Interface

In addition to TCP/IP and OSI LAN, the Metropolis® EON supports a TL1/X.25 interface to report alarm and status conditions and performance monitoring data to operations systems (OS) such as NMA (Network Monitoring and Analysis) operations systems (see Telcordia's SR-STS-OO1665 for a list of NMA releases compatible with the Metropolis® EON software releases). The Metropolis® EON TL1/X.25 interface provides significantly more detailed information than the alternate parallel telemetry interface to the operations system (OS). The Metropolis® EON TL1 messages are based on Telcordia's TR-TSY-000833, Issue 3, Revision 1.*

X.25 Technical Specifications

Each Metropolis® EON is capable of supporting a direct, synchronous TL1/X.25 link to the EMS. The following tables list X.25 detailed technical specifications that are supported by the Metropolis® EON.

The X.25 interface to the Metropolis® EON supports two permanent virtual circuits (PVCs) and up to six switched virtual circuits (SVCs). Every virtual circuit may be used to issue TL1 commands to the Metropolis® EON and obtain responses. Once communication is established, the OS can send a TL1 command to any connected virtual circuit (VC) and can expect the Metropolis® EON to reply via the same VC.

At the Packet layer, the Metropolis® EON is configured as a passive data terminating equipment (DTE) with the parameters listed in Table 2-1

Table 2-1. TL1/X.25 Interface — X.25 Packet Layer Parameters

Parameter	Value
Packet Size	256 bytes
Window Size	2 packets
D bit support	No
M bit support	Yes
Q bit support	No

* Where TR-TSY-000833, Issue 3, Revision 1 was deficient, the Metropolis® EON conforms to Telcordia's TR-NWT-000833, Issue 1.

At the Link layer, the Metropolis® EON uses the standard link access procedure B (LAPB) protocol with the parameters listed in Table 2-2

Table 2-2. TL1/X.25 Interface — LAPB Link Layer Parameters

Parameter	Value
Maximum Frame Size	2104 bits
Module	8
Window Size	7 frames
n2	6 retries
T1	3 seconds
T3	not supported

The Metropolis[®] EON uses synchronous, full duplex, continuous carrier communication. Data rates of 1200, 2400, 4800, 9600, 19200, and 56000 are supported. The EIA-232D interface is configured as DTE, using the pins listed in Table 2-3.

Table 2-3. TL1/X.25 Interface — EIA-232D Pin Connections

Pin	Description
1	Protective Ground (Shield)
2	Transmitted Data
3	Received Data
4	Request to Send (RTS)*
5	Clear to Send (CTS)†
6	DCE Ready
7	Signal Ground
8	Received Line Signal Detector
15	Transmit Clock (TC)
17	Receive Clock (RC)
20	Data Terminal Ready (DTR)*

* DTR and RTS are always on when the Metropolis[®] EON is powered.

† The Metropolis[®] EON will only transmit data via X.25 when CTS is on.

The X.25 circuits between a Metropolis[®] EON and the EMS may be transported via an X.25 packet network, dedicated private line, or circuit switched network, at the user's option.

X.25 Traffic Redirect Feature

Introduction

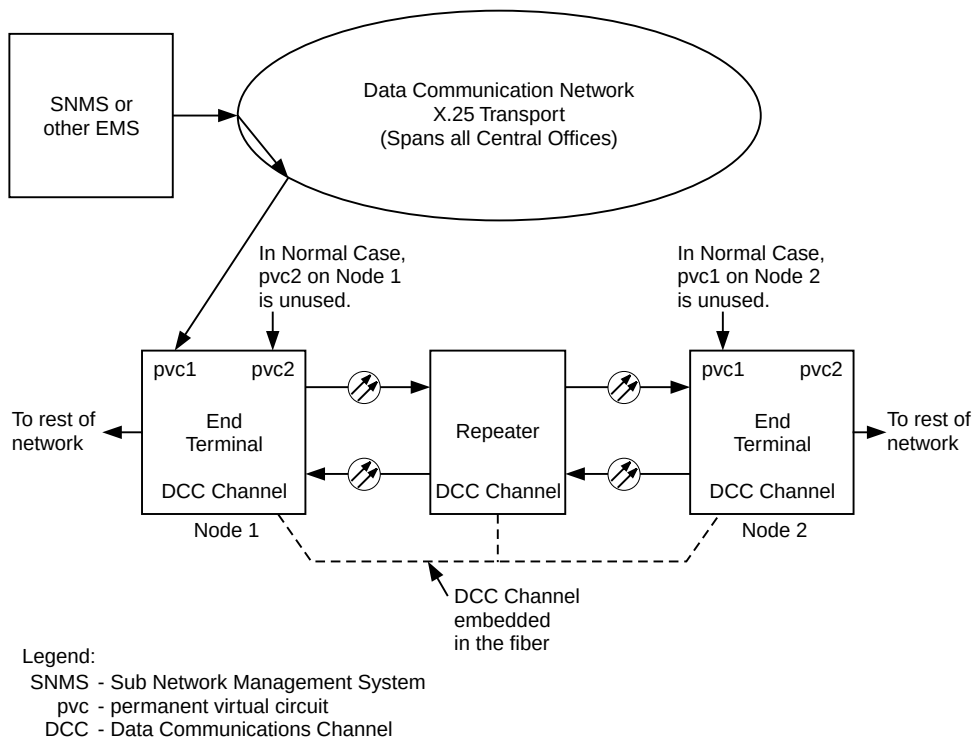
In Release 3.4 and adopted in all subsequent releases, the Metropolis[®] EON introduced an X.25 Traffic Redirect feature. The X.25 Traffic Redirect feature allows a Metropolis[®] EON Network Element (End Terminal) to perform intelligent rerouting of TL1 traffic over the customer X.25 network in the case of line failure.

For linear systems, the redirect feature establishes communication with the other end of the system around a single line failure. For Data Communications Channel (DCC) Ring systems, the redirect feature establishes communication with the other side of the ring around two line failures.

The X.25 Traffic Redirect feature decreases the time needed to identify a failure in the network.

Normal Case

During normal operations, the TL1 traffic is carried over the DCC channel embedded in the optical supervisory signal.



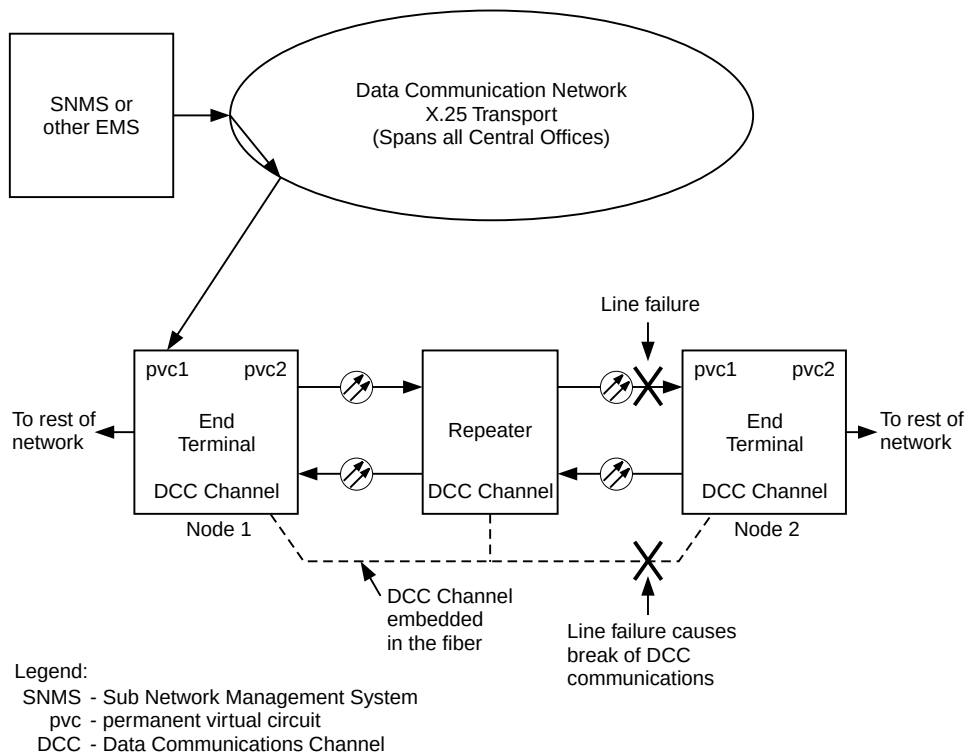
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Figure 2-5. Normal Case - No Failure, No Redirect

Failure Case

Prior to Release 3.4, the NMA could only detect a line failure by verifying a loss of communication with the tail end Network Element.

When the TL1 traffic is lost, the NMA cannot determine which specific failure has occurred, creating difficulties in isolating the problem.



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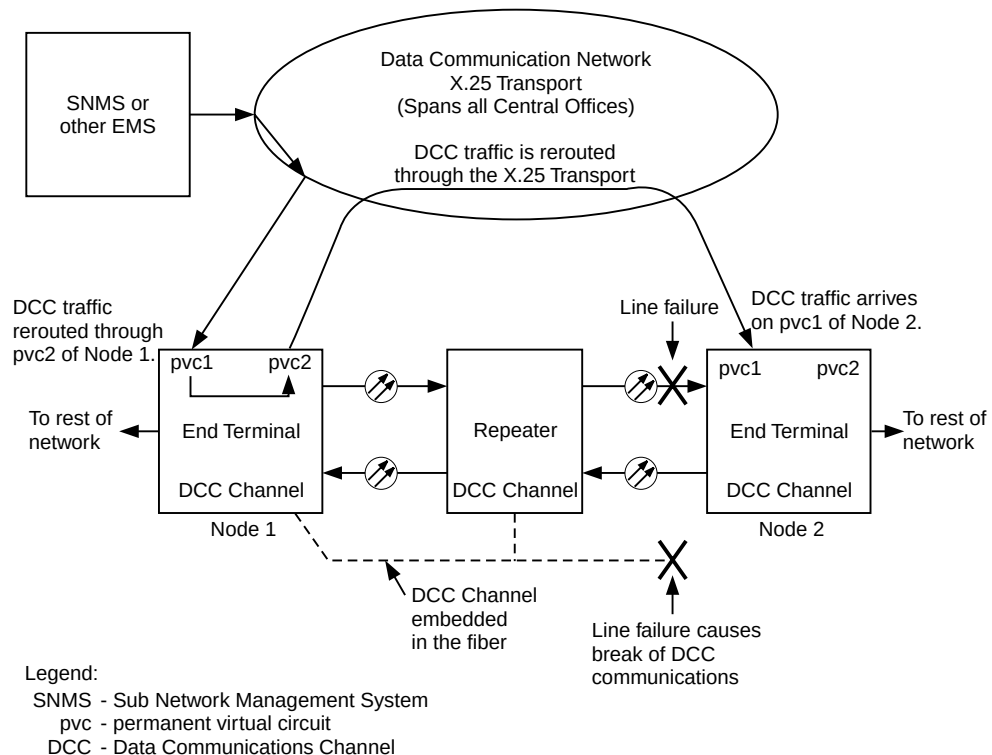
Figure 2-6. Failure Case

Redirect Case

The X.25 Traffic Redirect feature allows Node 1 to detect the loss of communication with Node 2 and reroute the TL1 traffic onto pvc2. The TL1 traffic then travels through the X.25 network and reaches Node 2 via pvc1, re-establishing communication between the two End Terminals.

With TL1 traffic restored, the NMA can receive the TL1 alarm messages generated due to the original failure, allowing maintenance to isolate the problem more quickly and efficiently.

Once the line failure is fixed, the TL1 traffic automatically reverts back to the DCC channel embedded in the fiber.



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Figure 2-7. Redirect Case

Affected TL1 Commands

TL1 commands that support the X.25 Traffic Redirect feature include:

- **ENT - SYS**
- **RTRV - SYS**

The X.25 Traffic Redirect feature is provisioned via the **ENT - SYS** TL1 command by setting the Input Parameter PVC2_REDIRECT to YES on an End Terminal.



CAUTION:

The PVC2_REDIRECT parameter should be set to YES on one AND ONLY ONE End Terminal in a string.

Operations Interface Connectivity — NE to NE

DCC and IAO LAN

Network Elements in a Metropolis[®] EON ring(s) must communicate with each other to allow alarms and messages to route from one node to another. In Metropolis[®] EON, Operations Interface connectivity is provided by either DCC or IAO LAN:

- **DCC (supervisory channel)**

In previous releases, the Operations Interface (OI) domain had been limited to the set of end terminals plus intermediate repeaters and extended with dual-facing end terminals with the Telemetry Feed-through feature. OI connectivity was provided through the use of the SONET DCC bytes present in the supervisory channel that is multiplexed/demultiplexed in each optical section between Metropolis[®] EON NEs.

The DCC bytes are (de)multiplexed by the TLM circuit packs. The TLM circuit packs also provide user access to other parts of the SONET overhead such as orderwires (E1 and E2 bytes). The TLM circuit packs route the DCC signals to the TOHCTL circuit pack for OSI stack and application processing.

- **IAO LAN**

In Release 4.0, the TOHCTL (LEA5) circuit pack was replaced by the TOHCTL (LEA102) circuit pack. The new TOHCTL circuit pack supports the same supervisory channel DCC access as the earlier TOHCTL circuit pack. It also provides an 802.3 10BaseT LAN interface for Metropolis[®] EON NEs configured as end terminals. This is accomplished by inserting the IAOLRP circuit pack into the TLM-1B slot next to the first telemetry

circuit pack. The IAOLRP routes the 10BaseT signals from the IAO LAN connector of the interconnection panel to the DCC transmit and receive outputs of the regular TLM circuit pack.



NOTE:

The new TOHCTL (LEA102) circuit pack is required with Release 4.0 software and later, *except* Release 7.0.

Based on the configuration in which it is installed (Repeater or End Terminal), the TOHCTL (LEA102) circuit pack automatically determines whether to process the supervisory signals from slot IAOLRP/TLM-1B as IAO-LAN-specific (IAOLRP) or as SONET DCC (TLM-1B).

NE-NE Connectivity for EON Dual-End Terminals

For EON back-to-back dual end terminals (end terminals East and West), the data communications between the East and West terminals could have two choices: TLM feed-through or LAN.

Figure 2-8 shows two end terminals that are connected by TLM feed-through with the LDA4 telemetry circuit pack residing in the TLM-1B slot of each terminal.

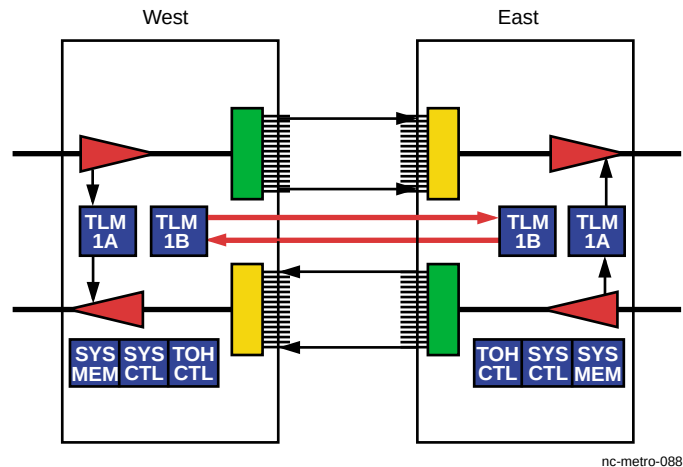


Figure 2-8. NE-NE With TLM Feed-through

An economical approach is to connect two end terminals by LAN with LDA3 IAOLRP circuit pack residing in the TLM-1B slot of each terminal as shown in Figure 2-9. The terminals can be connected in either of the following ways:

- By connecting the intraoffice LAN cable on both terminals to a LAN hub
- By connecting both terminals with a crossover cable with a DB15 connector on each end

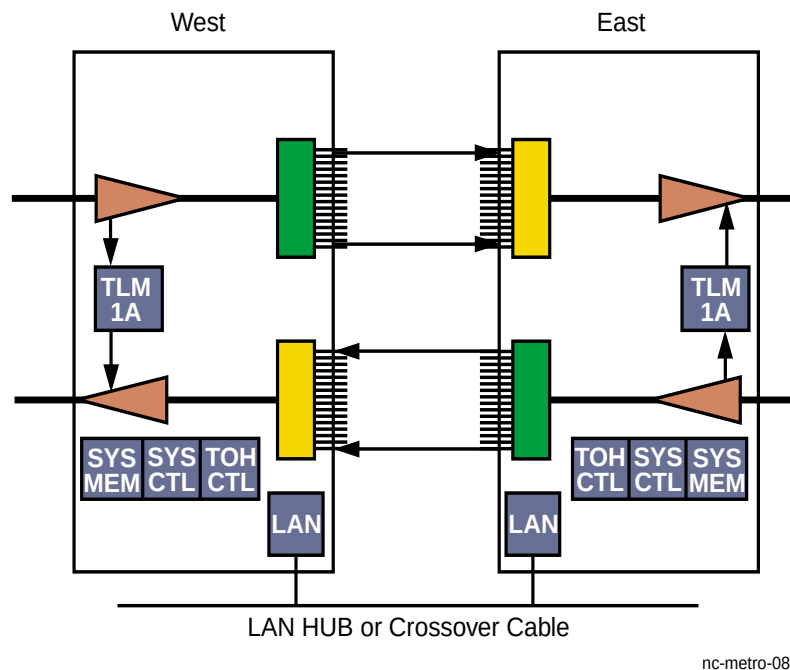


Figure 2-9. NE-NE With LAN

 **NOTE:** When back-to-back dual end terminals are employed in the EON ring or linear application, the parameter "companion_tid" in the **ENT-SYS** TL1 command shall be provisioned for both east- and west-facing end terminals.

Examples of EON DCN Configurations

Closed Ring

Figure 2-10 shows an example of the OS managing a four-node closed ring. Each node is a back-to-back dual end terminal node consisting of both the east- and west-facing end terminals. In this case, only one end terminal, such as end terminal A West, is required to be provisioned as an IPGNE, even though end terminal A East shall also be connected to the LAN. The closed data communications interconnection will provide a protection for operations communications traffic if a fiber cut between two nodes takes place. Further operations communications traffic protection against IPGNE system failure will be achieved by provisioning a secondary IPGNE, i.e., end terminal A East or another end terminal which has a LAN connection with access to the DCN's IP network.

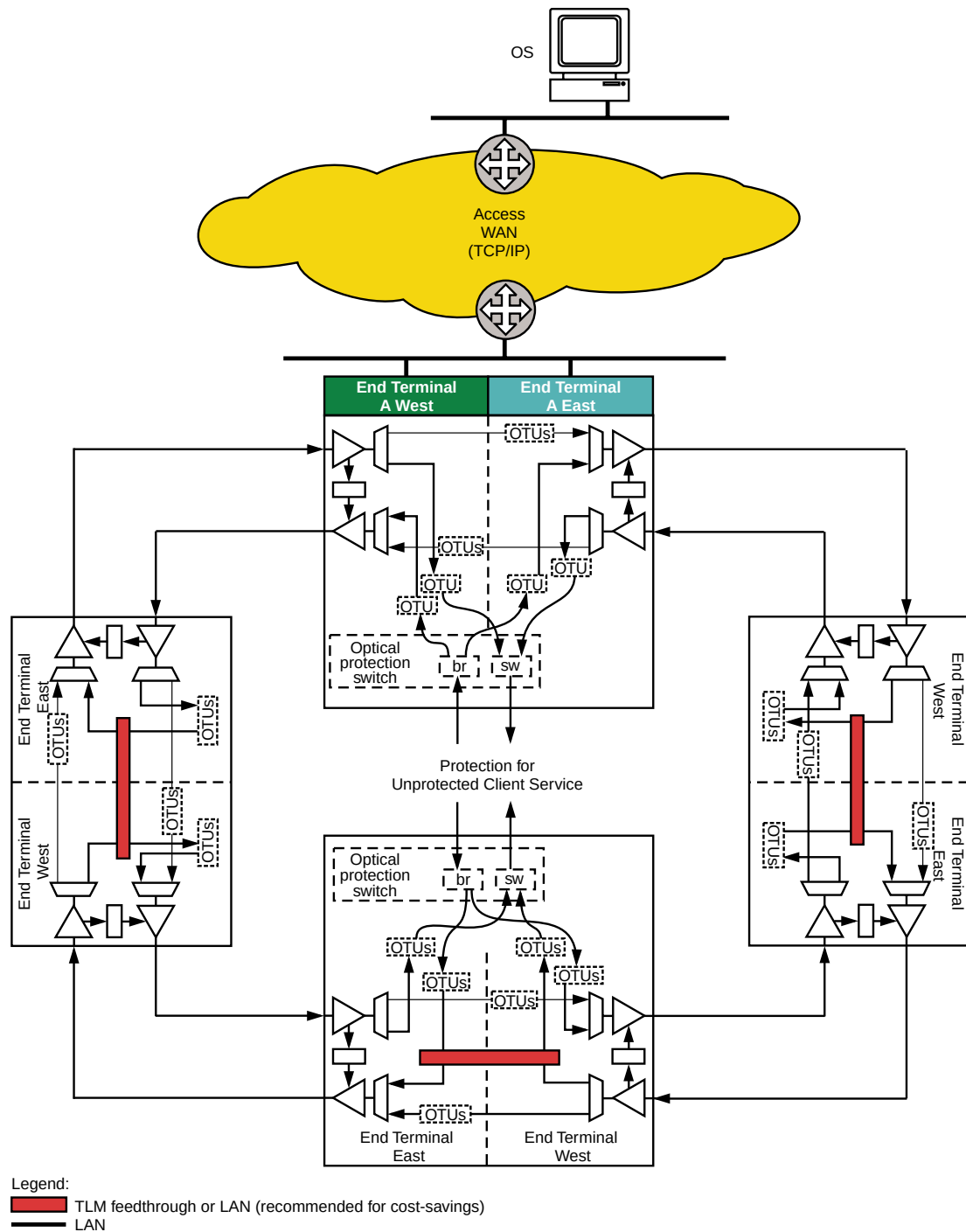


Figure 2-10. Example of a Closed Ring DCN Configuration

Linear Application

Figure 2-11 shows an example of the OS managing a four-node linear application consisting of one 1A-TX, one back-to-back dual end terminal node, one repeater and one 1A-RCV. In this case, one end terminal (1A-TX) shall be provisioned as an IPGNE and the node at the other end (1A-RCV) shall be provisioned as a secondary IPGNE to protect operations communications traffic against a fiber cut between two nodes, with the IPGNE system failure also being protected.

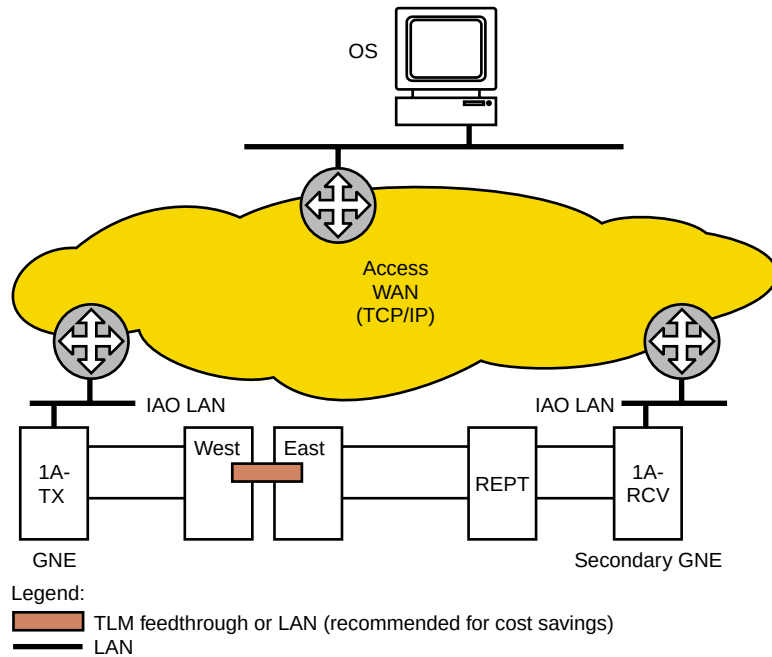


Figure 2-11. Example of an Open Ring DCN Configuration

Large Network

A single OSI area with up to 50 nodes can be managed. A mechanism for growing the network beyond 50 nodes is to split the network into multiple OSI areas and then establish links between areas. These links are configured Metropolis® EON nodes in an area (referred to as Level 2 nodes) that are responsible for linking the areas. An integrated network composed of IS-IS Level 2 areas will provide a more flexible, cost-effective and robust environment to provide access from the EMS to each managed NE. IS-IS level 2 requires upfront design of the network areas and requires some additional provisioning.

The IS-IS intra domain routing exchange protocol provides information to ISs as to the reachability of the other ISs and the ESs that those ISs can reach, either directly, or through other ISs. The ISs that can route within an area are called Level 1 IS. These ISs know all other Level 1 ISs within the area and the shortest path to each. A Level 2 IS contains routing information about other Level 2 ISs outside the area and Level 1 ISs in the same area. The Level 2 IS is responsible for routing from one area to another.

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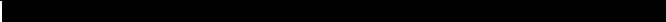
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Contents

Overview

This section provides detailed information about the input and output parameters for the Metropolis[®] Enhanced Optical Networking (EON) supported TL1 commands. Both autonomous messages (generated by the network element [NE] independent of any request) and command/response messages (generated in response to a request from the OS or OS user) are supported.

All alphabetic characters in the TL1 command responses and autonomous messages are output in uppercase except access identifier (*aid*), condition description (*conddescr*), alarm message description (*almmsg*), and error text. The *aid* is displayed in lowercase in the user interface, and the same is done for the TL1 interface. The *conddescr*, *almmsg*, and error text are output in mixed case for readability.

The NE does not support parameter grouping.

TL1 command entries which are to be typed exactly as shown are printed in **bold type**. The responses are printed in `courier` type. Descriptive names of entry values are shown in *italic* type. A carriage return is represented by a <cr>, a line feed is represented by a <lf>, and a space is represented by a ~. Items enclosed in brackets "[]" indicate optional parameters.

Two digits are used for the year in both input and output. The system has been tested for, and has passed, proper year 2000 operation.

Commands are separated by four function categories, and each command has been assigned a user authorization level that will be verified with the user's login ID authorization level. The four function categories are:

- Configuration Management (C)
- Fault Management (F)
- Performance Monitoring (PM)
- Security Management (S)

Five user authorization levels for each function category, based upon login ID, are provided to control which NE functions a particular user may perform. They are:

- **Expert (Level 5)**, which provides access to all commands and options. Only expert users have access to the security and access functions. These functions include assigning and changing logins/passwords, setting login/password aging times, enabling/disabling ports, setting TID names, and rebooting the system.
- **Privileged (Level 4)**, which provides access to all commands and options except those that may affect all service at once.
- **General (Level 3)**, which provides access to all commands except those relating to security and system access.
- **Basic (Level 2)**, which provides access to commands used to carry out minimum administration work for the system.
- **Reports-only (Level 1)**, which provides access to the reports only. The reports-only users are not allowed to change any of the system provisioning values.

Users may execute any commands on their function category authorization level, as well as all commands at levels lower than theirs. For example, a user with authorization level 4 in Security Management function category (S4) can execute commands listed in levels 4, 3, 2, and 1 in the Security Management function category.

ACT-USER

ACT-USER: Activate User

The privilege level for this command is REPORTS.

The OSI category for this command is SECURITY.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

ACT-USER:*tid:uid:ctag::pid;*

DESCRIPTION

The **ACT-USER** command can be initiated to set up a session to the network element.

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 active login session is allowed per network element, per access channel. Any subsequent login attempt while a session is still active should be denied.

This command is available only to Expert users when the channel is in the locked state.

This command is available to reports-only users, also, for all CIT, DCC or TL1 ports on the NE.

Until a successful login attempt is complete for a given network element and virtual circuit, there is no communications (autonomous or command responses) outbound from the network element, except to DENY unsuccessful login attempts.

If a user's 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.

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 only action then allowed for the user is to change the password identifier via the **ED-PID** command.

No response will be provided for any command with an invalid syntax or parameters (other than the *UID* and *PID*), unless the same access channel has an active login session with the Gateway Network Element. In those cases only, some other invalid commands are DENY-ed by the GNE (refer to the **RTRV-HDR ERROR RESPONSES** section for details).

When the network element receives an **ACT-USER** command, the given login ID will initiate a login session on the network element provided that:

- Logins are enabled on the access port,
- A provisioned login ID and correct password are entered, and
- Network element login security is enabled (for non-privileged users only).

If the X.25 link to the GNE fails, all active X.25 logins are terminated without notice to the user. Similarly, all active logins to a remote network element are terminated if a communication failure occurs between the GNE and that remote network element, or if either the GNE, the targeted remote network element or an intermediate network element is reset or initialized. Communication failures include OC-N and DCC failures, unless protected in rings, between the GNE and the targeted remote network element, also.

INPUT PARAMETERS

tid Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

<i>uid</i>	User identifier. This is the unique user login identifier for which the ACT-USER login command is intended. Grouping and/or ranging of <i>uid</i> values for this command is not allowed. Valid <i>uid</i> values for the ACT-USER command are case-sensitive alphanumeric strings of 1 to 10 characters which have been previously provisioned as valid login IDs in the network element. This includes login and password aging.
<i>ctag</i>	Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for <i>ctag</i> are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.
<i>pid</i>	Private identifier. This required parameter is the confidential password authenticator for the given <i>uid</i>. Valid <i>pid</i> values consist of case-sensitive strings of six to ten alphabetic, numeric and symbolic characters where at least two are non-alphabetic and at least one is symbolic (white space is ignored). Password strings are transmitted in unencrypted form in the ACT-USER command; are encrypted when stored in the network element; and are never transmitted from the network element. Symbolic characters: ! " % ' () * + - . / < > [] ^ _ { } Numeric characters: 0 1 2 3 4 5 6 7 8 9 Alphabetic characters: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z a b c d e f g h i j k l m n o p q r s t u v w x y z The special characters defined in the iso8859 character set, character values 161 through 255 decimal.

OUTPUT FORMAT

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

```

sid date time
M ctag COMPLD
"uid:lastlog,attempts"
/* Lucent Technologies <system>
<release>
User Privilege Level: <privilege>
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.
*/
;
```

If the network element receives a valid **ACT-USER** command and the addressed *uid* is already currently logged in on the same access channel and has the same privilege level, the network element provides a normal completion response. One of the following strings is used for the <system> value: FT-2000 OC-48 Large Capacity Terminal (LCT) or Optical Line System. The <release> string is of the form:

Release x.y.z-type

where x.y.z reflects the actual software release number and type can be LCT for Large Capacity Terminal (LCT) or OLS for Optical Line System.

Beginning with Release 8.1 of Metropolis(R) Enhanced Optical Networking (EON),

the <system> value is: Metropolis(R) Enhanced Optical Networking,

the type is EON.

uap

The <privilege> shows the user's authorization levels (AL) for each command function category (FC) in the form of **FCAL&FCAL&FCAL&FCAL**.

Multiple FCALs are specified by using single ampersands (&).

Commands are grouped into 4 FCs: Configuration Management (C), Fault Management (F), Performance Monitoring (PM), and Security Management (S).

For each FC, a user can have one of the five AL values. In the descending privilege order, these values are: Expert (level 5), Privileged (level 4), General (level 3), Basic (level 2), Reports (level 1).

The following are possible FCAL values:

C[1-5]	For C onfiguration Management Authorization Level 1 through 5.
F[1-5]	For F ault Management Authorization Level 1 through 5.
PM[1-5]	For P erformance M onitoring Authorization Level 1 through 5.
S[1-5]	For S ecurity Management Authorization Level 1 through 5.

If the login request would otherwise complete successfully, but the user's password has expired, the following completion response is returned:

```

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

Note that if the password must be changed to login successfully, only one attempt at the **ED-PID** is allowed. If that attempt is denied, the network element returns to a mode in which it is expecting an **ACT-USER** command on that access channel.

OUTPUT PARAMETERS

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**. The remainder of the output parameter variables are described below.

<i>uid</i>	User Identifier. This is included in the command by the OS and repeated by the network element as a confirmation that the given user identifier is successfully logged in.
<i>lastlog</i>	This is the date and time of the last session established by this <i>uid</i> . It is output in the format "MM-DD HH-MM-SS" with the date and time separated by one space. If no information is available regarding the last login session for this <i>uid</i> (for example, this is the first login session), this output field is null.
<i>attempts</i>	This is the number of unsuccessful session attempts since the last successful login session on this network element. Users are given three tries to correctly enter their login ID and password. Three tries equals one attempt. After each incorrect try, the login is denied.

If three login attempts are denied in a row on a single port, the OS is autonomously notified via REPT EVT message with a condition description of "INTRUSION ALERT". The intrusion alert counter is restarted when a successful login is recorded on the port, or the "intrusion alert" message is generated, or when the network element is reset.

EXAMPLE INPUT/OUTPUT

No response message is transmitted except to convey that the login is granted (or denied). The following example shows a successful login session initiation attempt prior to R8.1.

```
ACT-USER:LT-OLS:PeterPan:123456:N*v*rL*d3;  
LT-OLS 96-07-03 16:42:11  
M 123456 COMPLD  
"PeterPan:07-03 16-39-27,1"  
/* Lucent Technologies Optical Line System  
Release 2.1.0-OLS  
User Privilege Level: C4&F3&PM1&S2  
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 successful login session initiation attempt beginning with R8.1.

```
ACT-USER:LT-OLS:PeterPan:123456::N*v*rL*d3;
  LT-OLS 96-07-03 16:42:11
M 123456 COMPLD
  "PeterPan:07-03 16-39-27,1"
/* Lucent Technologies Metropolis(R) Enhanced Optical Networking
   Release 8.1.0-EON
   User Privilege Level: C4&F3&PM1&S2
   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 login session attempt for a user login whose password is expired:

```
ACT-USER:LT-PF-2000:PeterPan:123456::N*v*rL*d3;
  LT-PF-2000 93-10-26 16:42:11
M 123456 PRTL
  "PeterPan:10-25 16-39-27,1"
/* Your password has expired. Until you change your password (ED-PID)
   you will not be allowed further access to this Network Element */
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **ACT-USER** command.

For invalid login tries, the error response message is transmitted only after both *uid* and *pid* are provided by the session requester, irrespective of whether the *uid*, *pid*, or both are invalid.

Exception: For an **ACT-USER** command with extra punctuation *after* the *pid* other than an end-of-message semicolon (;), no error response is returned if there are no active logins to the network element. Usually, if non-null *uid* and *pid* values are received, the network element would provide a response.

If the network element receives an **ACT-USER** command with an invalid *uid*, invalid *pid* or both, or if a different login session is already active on the access channel or logins are disabled, the following error response is returned:

```
sid date time
M ctag DENY
DENY
/* Login Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

CANC-USER

ED-PID

DLT-USER-SECU

ENT-USER-SECU

RTRV-USER-SECU

ED-USER-SECU

ALW-MSG-EQPT

ALW-MSG-EQPT: Allow Message Equipment

The privilege level for this command is PRIVILEGED.

The OSI category for this command is SECURITY.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

ALW-MSG-EQPT :*tid*:*aid*:*ctag*[::,,];

DESCRIPTION

The **ALW-MSG-EQPT** command is initiated by users to resume transmission of autonomous messages, office alarms, and/or parallel telemetry from a network element if message or alarm reporting from that network element had been inhibited.

When a network element receives an **ALW-MSG-EQPT** command from a user, the network element resumes transmission of all autonomous messages, office alarms, and/or parallel telemetry if message or alarm reporting had been inhibited.

When autonomous message reporting to the user is resumed after having been inhibited, the network element reports that autonomous message reporting is allowed in an autonomous REPT EVT message.

The network element reports all active alarm and status conditions to all users, depending on OS type, in autonomous (REPT) messages, when the reporting of autonomous messages is resumed by any user after having been inhibited.

If there are no active alarm or status conditions to report, the network element returns a normal completion (COMPLD) response to the **ALW-MSG-EQPT** command and report that autonomous message reporting is allowed in an autonomous REPT EVT message.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)
& (ampersand)
* (star)
- (dash)
_ (underscore)
/ (slash)

aid

Access identifier. The *aid* value can be one of the following values: "**ALL**", "**OFFICE ALMS**", "**PAR TLM**", "**TL1**".

all

This specifies that reporting for all of the parameters below is to resume on the network element.

office alms

This specifies that reporting of office alarms is to resume on the network element.

par tlm

This specifies that reporting of alarms over the parallel telemetry is to resume on the network element.

tl1

This specifies that autonomous message reporting is to resume on all TL1 ports on the network element.

If no value is provided for *aid*, **all** is assumed.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the login request fully complies with the **ALW-MSG-EQPT** request, the following normal completion response is returned:

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

If the network element receives an **ALW-MSG-EQPT** command from a user when transmission of all autonomous messages, office alarms, and/or parallel telemetry, had already been enabled, the network element provides a normal completion response.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

```
alw-msg-eqpt:LT-OLS:all:123xyz;  
IP 123xyz  
<  
  LT-OLS 94-06-06,09:30:49  
M 123xyz COMPLD  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **ALW-MSG-EQPT** command.

If an **ALW-MSG-EQPT** command is received with an invalid *aid* value, the following error response is returned:

```
sid date time  
M ctag DENY  
IIAC  
/* Input, Invalid Access Identifier */  
;
```

RELATED TL1 COMMANDS/MESSAGES

INH-MSG-EQPT

CANC-USER

CANC-USER: Cancel User

The privilege level for this command is REPORTS.

The OSI category for this command is SECURITY.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

CANC-USER:*tid:uid:ctag;*

DESCRIPTION

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



NOTE:

This command is available to reports-only users, also, for all CIT, DCC or TL1 ports on the NE.

When the network element receives a **CANC-USER** command, the given login identifier will terminate a login session on the network element provided that:

- A provisioned login identifier is entered, and
- The login identifier is currently active on the access channel on which the command is received.

After the **CANC-USER** command successfully completes, an autonomous message is sent, via all access channel(s) provisioned to receive such messages and on which a login session is active, to report that the login session has been terminated.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)
& (ampersand)
* (star)
- (dash)
_ (underscore)
/ (slash)

uid

User identifier. This is the unique case sensitive user login identifier for which the **CANC - USER** logout command is intended.

The *uid* value that was used to initiate a login session, even if changed or deleted by a system administrator while the current login session is still active, is the *uid* value expected in the **CANC - USER** command to terminate the login session.

Grouping and/or ranging of *uid* values for this command is not allowed.

tag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *tag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

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

```
sid date time
M tag COMPLD
;
```

If the network element receives a valid **CANC - USER** command, but the addressed *uid* is not currently logged in on the access channel, or the addressed *uid* is invalid, for example, > 10 characters or no characters, the network element provides a normal completion response.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV - HDR**.

EXAMPLE INPUT/OUTPUT

The following example shows a successful login session termination.

```
CANC-USER:LT-OLS:PeterPan:123456;  
IP 123456  
<  
LT-PF-2000 96-01-02 16:42:11  
M 123456 COMPLD  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **CANC-USER** command.

If the network element receives this command with a *uid* which does not match that of the current login, that is, the active login associated with the port on which the **CANC-USER** was received, the following error response is returned:

```
sid date time  
M ctag DENY  
DENY  
/* Privilege, Illegal User Identity, mismatch with current login  
user ID */  
;
```

RELATED TL1 COMMANDS/MESSAGES

ACT-USER

ED-PID

DLT-USER-SECU

ENT-USER-SECU

RTRV-USER-SECU

ED-USER-SECU

CPY-PRGM

CPY-PRGM: Copy Program

The privilege level for this command is PRIVILEGED.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

CPY-PRGM: *tid::ctag::,,dest_tid;*

DESCRIPTION

The **CPY-PRGM** command can be initiated by users to copy the software generic contained in the memory of one network element (the source) to the memory of another network element (the destination) of the **same type**.

Copying the program (software download) occurs in the background. Once the background download is initiated, there is no mechanism provided to cancel the operation.

A maximum of 15 downloads can be in progress at any given time.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

tag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

dest_tid

Destination target identifier. This is the target identifier of the destination network element to which the program will be copied. It has no default value. A valid value must be entered. Refer to Target Identifier (TID) under TL1-Related Provisioning section for valid alphanumeric characters allowed for the value of the TID of the destination network element.

OUTPUT FORMAT

If the network element fully complies with the **CPY-PRGM** request, the following normal completion response is returned:

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

Since the execution and completion of the **CPY-PRGM** command will take anywhere from about 20 minutes (for a single download) to about 3.5 hours (for 15 simultaneous downloads), the command will be executed in the background.

Once the command execution starts in the background, the system will be free to accept and execute other commands.

Since the software download occurs in the background and takes several minutes to a few hours, the user will be allowed to log-off during this time if the user decides to do so.

The download condition (condition type IP-CPY-SW-PRGM) is reported in the REPT EVT COM message with a condition effect of SC (standing condition raised).

When the software download is completed, it is reported in the REPT EVT COM message with a condition effect of CL (standing condition cleared).

The user will be able to retrieve the active standing condition of software download in progress via the **RTRV-COND-COM** command.

If the software download is successful, it is reported in the REPT EVT COM message with a condition type (OC-CPY-SW-PRGM) that indicates the successful completion of the software download and a condition effect of TC (transient condition).

If the software download has failed, it is reported in the REPT EVT COM message with a condition type (FLT-CPY-SW-PRGM) that indicates the failure of the software download and a condition effect of TC (transient condition).

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows an input and output of **CPY-PRGM** command for a PF-2000 system:

```
CPY-PRGM:LT-PF-2000::123456::,,Node5NE;  
IP 123456  
<  
LT-PF-2000 93-10-26 16:42:11  
M ctag COMPLD  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the *dest_tid* is syntactically incorrect, the following error response will be returned:

```
sid date time  
M ctag DENY  
IDNV  
/* Input, Data Not Valid, invalid destination TID */  
;
```

If communications cannot be established to the *dest_tid* because of a DCC failure condition, the following error response will be returned:

```
sid date time  
M ctag DENY  
SROF  
/* Status, Requested Operation Failed, remote communication failure */  
;
```

If the *tid* contains an unrecognizable software release, the following error response will be returned:

```
sid date time  
M ctag DENY  
SSTP  
/* Status, SToPped, unrecognizable software */  
;
```

If the *tid* is being programmed by another download program, the following error response will be returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed, a SW download in progress */
;
```

The *dest_tid* cannot be the *tid*. If the *tid* is entered as the *dest_tid*, the following error response will be returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid destination TID */
;
```

If the destination tid is null, the following error response will be returned:

```
sid date time
M ctag DENY
ICNV
/* Input, Command Not Valid, destination TID must be specified */
;
```

If communications cannot be established to the Destination network element because of an invalid *tid* (that is, the destination tid is not in Local Cache/DIB), the following error response will be returned:

```
sid date time
M ctag DENY
IITA
/* Input, Invalid TArget identifier, unknown destination TID */
;
```

If executing this command would initiate a second software copy operation to the same *dest_tid*, the following error response will be returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed, a CPY-PRGM is already in
progress to the same Destination Network Element from this
Network Element */
;
```

If the *dest_tid* is already being used as a *dest_tid* for a copy operation from a different *tid*, the following error response will be returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed, a CPY-PRGM is already in
progress to the Destination Network Element from a different
Source Network Element */
;
```

If the *dest_tid* is already being used as a *tid* for a copy operation to a different *dest_tid*, the following error response will be returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed, a CPY-PRGM is already in
progress from the Destination Network Element to a different
Source Network Element */
;
```

Up to 15 downloads may be initiated from the *tid*. If executing this command would exceed this limit, the following error response will be returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed, Too many CPY-PRGM requests */
;
```

RELATED TL1 COMMANDS/MESSAGES

None

DLT-ASSOC-OTPS

DLT-ASSOC-OTPS: Delete Association OT_Port_Signal

The privilege level for this command is GENERAL.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 3.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

DLT-ASSOC-OTPS:*tid::ctag::spec_block;*

DESCRIPTION



CAUTION:

Execution of this command may affect alarm reporting.

The **DLT-ASSOC-OTPS** command takes down OTPS associations, that is, it separates an association between an optical channel and one optical translator port signal.

Deletions can be made to **ADD**, **DROP**, **XADD** and **XDROP** associations.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)

- (dash)

_ (underscore)

/ (slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. The system level attributes to be modified are specified inside the *spec_block*. Parameters within *spec_block* are specified using a *name=value, name=value, . . .* type construct with no constraints on the order of parameters. Constructs such as *name1=value1, name2=, name3=, name4=, name5=value5, . . .* are acceptable and in this example only the parameters *name1* and *name5* will be changed at the network element. If the current value of the parameter *name1* is already *value1* in the above example, *name1* will not be changed.

For the **DLT-ASSOC-OTPS** command, the *spec_block* may contain one or more of the following parameters:

src_tid

Source Target identifier. This is the name of the network element in which the external OTU resides. This value must be selectable from a pull down menu in the CIT window, and the user is also allowed to enter any TID they wish, in the case that the TID they wish to use is resetting and thus unavailable from the pull down menu. The TID values in the pull down menu should be composed of the local TID and the COMPANION_TID. It must allow the same character set as the TID parameter. The *src_tid* parameter is only required in **XADD** and **XDROP** association, and should be omitted in all other associations.

src_aid

Source Access Identifier. This is the address of the OUPSR, OTU or OCHAN for which the command is intended.

Entity: All

Legal Values: (ALL)

Entity: Single Port (OTU)

Legal Values: (OTU)-(1,2)-(1-32)-(1)

CenterLink CIT selection options: (OTU)-(1, 2)-(1-32)-(1)

Entity: Single Port (OT Port Module)

Legal Values: (OTPM)-(1,2)-(1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31)-(1-4)-(1)

CenterLink CIT selection options: (OTPM)-(1, 2)-(1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31)-(1-4)-(1)

Entity: Single OUPSR port

Legal Values: (OUPSR)-(1,2)-(1-32)-(AIN, AOUT, BIN, BOUT, CIN, COUT)

Entity: Single optical channel

Legal Values: (OCHAN)-(1A, 1B, 2A, 2B)-(1-32)

Entity: Port (2DM25)

Legal Values: (2DM25)-(ALL), (2DM25)-(1,2)-(ALL,1-32)-(HS, P1, P2)

CenterLink CIT selection options: (2DM25)-(ALL, 1, 2)-(ALL, 1-32)-(ALL, HS, P1, P2)

Note: If the `src_aid` and `dest_aid` is set to "ALL", then all associations will be deleted, including add, drop, xadd and xdrop.

dest_tid

Destination Target identifier. This is the name of the network element in which the external OTU resides. This value must be selectable from a pull down menu in the CIT window, and the user is also allowed to enter any TID they wish, in the case that the TID they wish to use is resetting and thus unavailable from the pull down menu. The TID values in the pull down menu should be composed of the local TID and the COMPANION_TID. It must allow the same character set as the TID parameter. The *dest_tid* parameter is only required in the **XADD** and **XDROP** association, and should be omitted in all other associations.

dest_aid

Destination Access Identifier. This is the address of the OUPSR, OTU, or OCHAN, for which the command is intended.

Entity: ALL

Legal Values: (ALL)

Entity: Single Port (OTU)

Legal Values: (OTU)-(1,2)-(1-32)-(1)

CenterLink CIT selection options: (OTU)-(1, 2)-(1-32)-(1)

Entity: Single Port (OT Port Module)

Legal Values: (OTPM)-(1,2)-(1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31)-(1-4)-(1)

CenterLink CIT selection options: (OTPM)-(1, 2)-(1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31)-(1-4)-(1)

Entity: Single OUPSR port

Legal Values: (OUPSR)-(1,2)-(1-32)-(AIN, AOUT, BIN, BOUT, CIN, COUT)

Entity: Single optical channel

Legal Values: (OCHAN)-(1A, 1B, 2A, 2B)-(1-32)

Entity: Port (2DM25)

Legal Values: (2DM25)-(ALL), (2DM25)-(1,2)-(ALL,1-32)-(HS, P1, P2)

CenterLink CIT selection options: (2DM25)-(ALL, 1, 2)-(ALL, 1-32)-(ALL, HS, P1, P2)

assoc

Association type. This parameter specifies the type of association being requested. It may have one of the following values: "**ADD**", "**DROP**", "**XADD**", or "**XDROP**".

ADD

This requests the add association between the transmitting OUPSR and the receiving OTPS or the transmitting OTPS and receiving OCHAN.

DROP

This requests the drop association between the receiving OTPS and transmitting OCHAN or the receiving OUPSR and the transmitting OTPS.

XADD

This requests the add association between the transmitting OUPSR and receiving external OTU.

XDROP

This requests the drop association between the receiving OUPSR and transmitting external OTU.

OUTPUT FORMAT

If the network element fully complies with this command, the following output message is returned:

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

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example deletes a drop association between an optical channel ("ochan-1a-7") and an OTPM ("otpm-1-3-3-1") as follows:

```
dlt-assoc-otps:LT-PF-2000::123456::src_aid=ochan-1a-7,dest_aid=otpm-1-3-3-1,assoc=drop;
IP 123456
<
LT-PF-2000-3 93-11-26 16:42:11
M 123456 COMPLD
;
```

The following example deletes an add association from an OUPSR ("oupsr-1-3-BOUT") to an external OTU (OTU-1-5-1) as follows:

```
dlt-assoc-otps:east::123456::src_tid=east,src_aid=oupsr-1-3-bout,
dest_tid=west,dest_aid=otu-1-5-1,assoc=xadd;
IP 123456
<
  LT-PF-2000-3 99-11-26 16:42:11
M 123456 COMPLD
;
```

The following example deletes all associations in the database:

```
dlt-assoc-otps:east::123456::src_aid=all,src_tid=all,assoc=NULL;
IP 123456
<
  LT-PF-2000-3 99-11-26 16:42:11
M 123456 COMPLD
;
```

When the *src_aid* and *src_tid* are "all", then all associations in the database should be deleted, include add, drop, xadd and xdrop.

ERROR RESPONSES

Refer to the **RTRV - HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with any extra (beyond the input format specification just shown) null or non-null command parameter blocks (:), parameters (not supported by FT-2000, delimited by ","), or termination characters (;), the following error response is returned:

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

If the network element receives this command without a *src_aid* or *dest_aid* value or with a *src_aid* or *dest_aid* value that does not identify either a single oupsr

OUTPUT PORT, OTU or OTPM signal or a single optical channel, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier,
Source or Destination AID missing or invalid */
;
```

If the network element receives this command without an *src_tid* value and the association type is **XDROP**, or with an invalid *src_tid*, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Target Identifier,
Source or Destination TID missing or invalid */
;
```

If the network element receives this command without a *dest_tid* value and the association type is **XADD**, or with an invalid *dest_tid*, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Target Identifier,
Source or Destination TID missing or invalid */
;
```

If this command is received with an *assoc* which does not exactly match that of the existing association specified by the *src_aid* and *dest_aid*, this command will be denied with the following error response:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid ASSOC */
;
```

If the network element receives this command with an *assoc* value that is not supported by FT-2000, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid ASSOC */
;
```

If the association specified by this command does not exist, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, specified association does not exist */
;
```

If the external NE can not be reached in a XADD or XDROP association, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed, Source or Destination NE
un-reachable. */
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

ENT-ASSOC-OTPS

RTRV-ASSOC-OTPS

DLT-IP-MAP

DLT-IP-MAP: Delete OS IP address from the access control map (also called application context ID map).

The privilege level for this command is PRIVILEGED.

The OSI category for this command is SECURITY.

This command is available starting in OLS Release 8.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

DLT-IP-MAP:*tid::ctag::spec_block;*

DESCRIPTION



NOTE:

While this command is allowed at all network elements in the subnetwork, only the map at the enabled TL1 TCP/IP-OSI GNE node is valid. The maps at disabled TL1 TCP/IP-OSI GNE nodes can be modified, but they have no effect. The **RTRV-SYS** command *IPGNE* parameter enables/disables the GNE functionality.

DLT-IP-MAP command can be initiated by a user to delete one OS entry from the access control map created by the **ENT-IP-MAP** command. If the OS does not appear in the map the incoming TCP connection is refused. But the existing TCP connections (if there are) with this deleted OS shall not be released because of this deletion.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)

- (dash)
- _ (underscore)
- / (slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. Parameters set within the specific block are positionally independent and are set using a construct such as: *PARAMETER=value* in a comma-separated list. The specific block may have zero or more of the following parameters set within it. Furthermore, each parameter listed below may appear at most once within the specific block for a single command.

For each of the following parameters there is listed one or more parameter values. If a particular parameter does not appear in the *spec_block*, its value remains unchanged as a result of this command. The use of the term "null" in the descriptions below implies that the parameter does not appear in the command.

IP_AD

IP Address. This is the 32-bit IPv4 address of the OS. It is made up of four dot-separated decimal numbers ranging from 0 to 255. More than one IP address can be deleted by executing the command multiple times.

This parameter is required.

OUTPUT FORMAT

If the network element fully complies with this command, the following output message is returned:

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

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

The following example shows a successful completion of the command by the network element:

```
dlt-ip-map:LT-PF-2000::123456::ip_ad=198.78.46.8;

IP 123456
<

LT-PF-2000 01-10-26 16:42:11
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If an error is detected in any of the command parameters, the entire command is denied.

If there are errors in more than one command parameter, an error is detected and reported in only one of the parameters. The parameter for which the error is detected may not be the first parameter in the command that is in error.

In addition to the non-message-specific error responses listed in the **RTRV-HDR ERROR RESPONSES** section, the following error responses are listed in the order and priority that the network element checks for each condition.

If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (not supported by the network element, delimited by ","), or termination characters (;), the following error response is returned:

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

If the network element receives this command with the same parameter specified more than once, the following error response is returned:

```
sid date time
M ctag DENY
IISP
/* Input, Invalid Syntax or Punctuation, parameter(s) multiply
defined */
;
```

If the network element receives this command with **IP_AD** value invalid or not found in the map , the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid IP_AD or not found */
;
```

RELATED TL1 COMMANDS/MESSAGES

ENT-IP-MAP

RTRV-IP-MAP

ENT-SYS

RTRV-SYS

DLT-TADRMAP

DLT-TADRMAP: Delete Target_Identifier_Address_Map

The privilege level for this command is PRIVILEGED.

The OSI category for this command is CONFIGURATION.

This command is available beginning in OLS Release 2.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

DLT-TADRMAP:*tid:aid:ctag[:[:]]:spec_block;*

DESCRIPTION

The **DLT-TADRMAP** command instructs a Directory Services Network Element (DSNE) to remove an entry from the network maps of all the network elements in the OSI network. The DSNE is where the network map, listing all active nodes in the network, is maintained.

When a node is removed from an OSI network, the DSNE must be updated to reflect that the node is no longer active. Entering this command at the DSNE will remove the obsolete node entry from the DSNE network map and from all **RTRV-MAP-xxx** reports at all nodes. This command will also remove any communication failure alarms related to removing the node from the network.

This command can only be executed at the DSNE and will only succeed if the communication status of the network element (NE) being deleted is "FAILED". The command **RTRV-MAP-xxx** may be used to list the communication status of a network element.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)
- (dash)
_ (underscore)
/ (slash)

aid

Access identifier.

Entity: All

Legal Values: (ALL)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. Parameters within *spec_block* are specified using *name=value* syntax. The *spec_block* contains the following: TID.

DLT_TID

The **DLT_TID** identifies the network element to be removed from the DSNE's network map.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

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

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

```
DLT-TADRMAP:LT-PF-2000:all:123456:::tid=DELETED-NE;  
IP 123456  
<  
LT-PF-2000 94-03-22 16:12:11  
M 123456 COMPLD  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

The network element returns the following error response if the *aid* value is missing, or invalid.

```
sid date time  
M ctag DENY  
IIAC  
/* Input, Invalid Access Identifier */  
;
```

The network element returns the following error response if the **TID** value in the *spec_block* is invalid.

```
sid date time  
M ctag DENY  
IITA  
/* Input, Invalid Target identifier, invalid TID */  
;
```

The network element returns the following error response if it is directed to a network element that is not the DSNE.

```
sid date time  
M ctag DENY  
SNVS  
/* Status, Not in Valid State, TID is not the DSNE */  
;
```

The network element returns the following error response if the TID to be deleted is not listed in the DSNE network map.

```
sid date time
M ctag DENY
SNVS
/* Status, Not in Valid State, System name does not exist */
;
```

Only network elements whose communication status is "FAILED" may be removed from the network map. The network element returns the following error response if a user attempts to remove a network element whose communication status is not "FAILED".

```
sid date time
M ctag DENY
SNVS
/* Status, Not in Valid State, Can only delete NEs with FAILED status */
;
```

When more than one network element is defined as the DSNE, an alarm will result. The network element returns the following error response if a user attempts to remove a network element while the network has more than one DSNE defined.

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed, Duplicate DSNE */
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-MAP-NETWORK

DLT-USER-SECU

DLT-USER-SECU: Delete User Security

The privilege level for this command is PRIVILEGED.

The OSI category for this command is SECURITY.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

DLT-USER-SECU:*tid:uid:ctag;*

DESCRIPTION



CAUTION:

Execution of this command will remove a user account. That user will no longer be able to log in.

The **DLT-USER-SECU** command is used by an appropriate administrator to delete the security parameters associated with a user. This is applicable where a user account is being closed. This command can not be executed by non-privileged users when the TL1 security feature is on. Expert user accounts cannot be deleted.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)

- (dash)

_ (underscore)

/ (slash)

uid

This is the User Identifier of a user. Valid values are a case-sensitive alphanumeric string of 1 to 10 characters. Only a single *uid* is supported in this command.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the delete user security request, the following normal completion response is returned:

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

If the *uid* is currently logged into the network element through any of the communication interface ports (DTE, DCE, or X.25), when this command is successfully executed, the user identified by the *uid* is disconnected, and the network element responds to the user who entered the **DLT-USER-SECU** with the completion message (shown above).

If the network element receives a **DLT-USER-SECU** command containing a non-existing *uid*, the following normal completion response is returned:

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

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

```
DLT-USER-SECU:LT-PF-2000:kjlee:123456;  
IP 123456  
<  
LT-PF-2000 93-10-26 16:42:11  
M 123456 COMPLD  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives a **DLT-USER-SECU** command with an invalid *uid* (user identifier), the following error response is returned:

```
sid date time  
M ctag DENY  
PIUI  
/* Privilege, Illegal User Identity, invalid UID */  
;
```

Two expert user logins must exist in the network element at all times. If the user attempts to delete an expert user login, the following error response is returned:

```
sid date time  
M ctag DENY  
PIFC  
/* Privilege, Illegal Field Control  
Attempting to delete an expert login. Two expert user  
logins are required at all times.  
*/  
;
```

Two super user logins must exist in the network element at all times. If the user attempts to delete a super user login, the following error response is returned:

```
sid date time  
M ctag DENY  
PIFC  
/* Privilege, Illegal Field Control  
Attempting to delete a super login. Two super user  
logins are required at all times.  
*/  
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
      sid date time
M ctag DENY
  SROF
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

ENT-USER-SECU

ED-USER-SECU

RTRV-USER-SECU

DWNLD-FTAM

DWNLD-FTAM: Software download using OSI File Transfer Access and Management (FTAM) protocol.

The privilege level for this command is PRIVILEGED.

The OSI category for this command is CONFIGURATION.

This command is available starting in Metropolis® EON Release 8.2.



NOTE:

This command is not available on Centerlink CIT.

INPUT FORMAT

DWNLD-FTAM:*tid::ctag::spec_block;*

DESCRIPTION

The **DWNLD-FTAM** command can be initiated by a user to download a software generic from a remote system (EMS/OS) to the EON network element's flash memory on the system memory (SYSMEM) pack.

The software download using FTAM protocol over OSI is that between the EMS/OS and any reachable EON NE through OSI network. But from the network performance point of view, it is suggested that the user initiate a software download from EMS/OS to the NE connected to EMS/OS through IAOLAN with or without OSI WAN in between. Then, the downloaded software can be copied to other network elements using the **CPY-PRGM** command via OSI DCC (Data Communication Channel) or LAN.

Software download occurs in the background. Once the background download is initiated, there is no mechanism provided to cancel the operation.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed.

It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-#

The TID will support the special characters defined in the iso8859 character set, character values 161 through 255 decimal. Additionally, the TID will support the following characters:

Open Bracket [
Close Bracket]
Open Bracket {
Close Bracket }

Plus Sign +
At Symbol @
Pound Sign #
Dollar Sign \$
Asterisk *
Ampersand &
Period .
Percentage Sign %
Underscore _

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for ctag are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. Parameters set within the specific block are positionally independent and are set using a construct such as: **PARAMETER=value** in a comma-separated list. The specific block may have zero or more of the following parameters set within it. Furthermore, each parameter listed below may appear at most once within the specific block for a single command.

For each of the following parameters there is listed one or more parameter values. If a particular parameter does not appear in the *spec_block*, its value remains unchanged as a result of this command. The use of the term "null" in the descriptions below implies that the parameter does not appear in the command.

NSAP

Network Service Access Point. This is the network address of the remote system (EMS/OS) from which the EON NE software download is to be made. The NSAP of remote system (EMS/OS) is used to establish the FTAM association between the local NE (FTAM Initiator) and the remote system (FTAM Responder).

The fixed length NSAP is 20 octets (40 hexadecimal digits) long. The variable length NSAP varies from 8 octets to 20 octets long.

This parameter is required.

PATHNAME

This is the full pathname of the directory on the remote system (EMS/OS) containing the FTAM Responder) where the EON NE software generic files are held.

This pathname is a printable string of up to 128 characters, surrounded by escaped quotation marks (""). Quotation marks are not allowed inside of the printable string. The directory named by this parameter is also expected to contain the information file **METROEON_PKG**. This file will contain a list of all the required files for the download.

This parameter is required.

FTAM_UID

User ID for FTAM. This is the ID of the FTAM Responder user that has access to the NE software generic files. The maximum allowed length for this parameter is 32 characters.

This parameter is required.

FTAM_PWD

Password for FTAM. This is the FTAM Responder password that the EON NE will use when establishing an FTAM association for downloading the NE software generic from the FTAM Responder into the backup partition of the NE flash memory. The maximum allowed length for this parameter is 32 characters.

This parameter is required.

OUTPUT FORMAT

If the network element fully complies with this command, the following output message is returned:

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

The normal completion response is given when the command successfully initiates a background download of the generic software to the local network element. Since the download may take several minutes to a few hours to complete, the network element should not wait for the completion of the command before providing the normal completion response.

Once the command execution starts in the background, the system will be free to accept and execute other commands.

Since the software download occurs in the background and takes several minutes to a few hours, the user will be allowed to log-off during this time if the user decides to do so.

The NE reports the occurrence of the alarm **software download in progress** via REPT ALM when the requested file(s) transfer begins. The NE reports the clearing of **software download in progress** via REPT ALM upon completion/termination of the requested file(s) transfer.

If the software download is successful, the NE reports the event (nonalarmed condition) **software transfer successful** in the REPT EVT COM message, and also reports the occurrence of the alarm **SYSMEM/SYSCTL code mismatch** via REPT ALM if a software mismatch has been detected between the software stored in the SYSMEM circuit pack and the software version running in the NE.

If the software download has failed, the NE reports the event (nonalarmed condition) **software transfer failed** in the REPT EVT COM message, and also reports the occurrence of the alarm **SYSMEM unrecognizable code** via REPT ALM.

The DWNLD-FTAM command generates a REPT DBCHG message. For security reasons, the <FTAM_PWD> parameter must be masked prior to generating any autonomous message.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV -HDR**.

EXAMPLE INPUT/OUTPUT

The following example shows the successful completion of the command by the network element: Input lines are broken here only for the convenience of the reader.

```
DWNLD-FTAM:LT-PF-2000::123456:::
NSAP=39840F800000000000000000000000008006A1123451d,
PATHNAME=\\"/home/net/eon/release8\\",FTAM_UID=lt01,FTAM_PWD=ft-2000;
IP 123456
<

    LT-PF-2000 01-10-26 16:42:11
M 123456 COMPLD
;
```

The following example shows the **software transfer failed** in the REPT EVT COM message.

```
sid date time
A atag REPT EVT COM
  "aid:SWTRANSFER,TC,date,time,,,:\software transfer failed\",";
;
```

The following example shows the **software transfer successful** in the REPT EVT COM message.

```

    sid date time
A atag REPT EVT COM
    "aid:SWTRANSFER,TC,date,time,,,,:\\"software transfer successful\\",:"
;

```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If an error is detected in any of the command parameters, the entire command is denied:

If there are errors in more than one command parameter, an error is detected and reported in only one of the parameters. The parameter for which the error is detected may not be the first parameter in the command that is in error.

In addition to the non-message-specific error responses listed in the **RTRV - HDR ERROR RESPONSES** section, the following error responses are listed in the order and priority that the network element checks for each condition.

If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (not supported by the network element, delimited by ","), or termination characters (;), the following error response is returned:

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

If the network element receives this command with the same parameter specified more than once, the following error response is returned:

```
sid date time
M ctag DENY
  IISP
/* Input, Invalid Syntax or Punctuation, parameter(s) multiply
defined */
;
```

If the network element receives this command with invalid or missing **NSAP** value, the following error response is returned:

```
sid date time
M ctag DENY
  IDNV
/* Input, Data Not Valid, invalid or missing NSAP */
;
```

If the network element receives this command with invalid or missing **PATHNAME** value, the following error response is returned:

```
sid date time
M ctag DENY
  IDNV
/* Input, Data Not Valid, invalid or missing PATHNAME */
;
```

If the network element receives this command with invalid or missing **FTAM_UID** value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid or missing FTAM_UID */
;
```

If the network element receives this command with invalid or missing **FTAM_PWD** value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid or missing FTAM_PWD */
;
```

If the network element receives this command with correct syntax, but user is failed to log in, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed, not logged in */
;
```

If the network element receives this command with all of the correct input parameters, but is unable to set up a successful FTAM association between NE (FTAM Initiator) and OS (FTAM Responder), the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed, failed to set up a FTAM
association */
;
```

If the network element receives this command with a software download in progress, the following error response is returned:

```
sid date time
M ctag DENY
  SROF
/* Status, Requested Operation Failed, a SW download is already in progress
for the destination NE */
;
```

RELATED TL1 COMMANDS/MESSAGES

CPY-PRGM

DWNLD-FTP

DWNLD-FTP: Software download using FTP protocol.

The privilege level for this command is PRIVILEGED.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 8.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

DWNLD-FTP:*tid::ctag::spec_block;*

DESCRIPTION

DWNLD-FTP command can be initiated by a user to download a software generic from a remote system (EMS/OS) to the OLS network element's flash memory on the system memory (SYSMEM) pack.

The software download using FTP over TCP/IP is that between the EMS/OS and TCP/IP-OSI TL1 GNE connected through IAOLAN connection with or without TCP/IP WAN in between. The OLS NE is provisioned as TCP/IP-OSI TL1 GNE using **ENT-SYS** command's **IPGNE** parameter.

The downloaded software can be copied to other network elements using the **CPY-PRGM** command via OSI DCC (Data Communication Channel).

Software download occurs in the background. Once the background download is initiated, there is no mechanism provided to cancel the operation.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)

- (dash)
- _ (underscore)
- / (slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. Parameters set within the specific block are positionally independent and are set using a construct such as: *PARAMETER=value* in a comma-separated list. The specific block may have zero or more of the following parameters set within it. Furthermore, each parameter listed below may appear at most once within the specific block for a single command.

For each of the following parameters there is listed one or more parameter values. If a particular parameter does not appear in the *spec_block*, its value remains unchanged as a result of this command. The use of the term "null" in the descriptions below implies that the parameter does not appear in the command.

IP_AD

IP Address. This is the IP Address of the host (EMS/OS containing the FTP Server) from which the OLS NE software download is to be made.

The address is the 32-bit IP address made up of four dot-separated decimal numbers ranging from 0 to 255.

This parameter is required.

PATHNAME

This is the full pathname of the directory on the host (system containing the FTP Server) where the OLS NE software generic files are held.

This pathname is a printable string of up to 128 characters, surrounded by escaped quotation marks (\"). Quotation marks are not allowed inside of the printable string.

The directory named by this parameter is also expected to contain the information file **METROEON_PKG**. This file will contain a list of all the required files with their digital signatures for the download.

This parameter is required.

FTP_UID

User ID for FTP. This is the ID of the FTP Server user that has access to the NE software generic files. The maximum allowed length for this parameter is 32 characters.

This parameter is required.

FTP_PWD

Password for FTP. This is the FTP Server password that the OLS NE will use when establishing an FTP session for downloading the NE software generic from the FTP Server into the backup partition of the NE flash memory. The maximum allowed length for this parameter is 32 characters.

This parameter is required.

FTP_DSCHK

Secure Hash and Digital Signature Checking. **FTP_DSCHK** takes the values of *YES* and *NO*. If *YES*, The Secure Hash Algorithm and Digital Signature Algorithm are applied to the transferred files to prevent possible manipulation of data for an unsecured IP network.

If *NO*, the integrity data checking using Secure Hash and Digital Signature will not be applied

If this parameter is not specified when user initiate the command, **FTP_DSCHK** will take value of *NO*.

OUTPUT FORMAT

If the network element fully complies with this command, the following output message is returned:

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

The normal completion response is given when the command successfully initiates a background download of the generic software to the local network element. Since the download may take several minutes to a few hours to complete, the network element should not wait for the completion of the command before providing the normal completion response.

Once the command execution starts in the background, the system will be free to accept and execute other commands.

Since the software download occurs in the background and takes several minutes to a few hours, the user will be allowed to log-off during this time if the user decides to do so.

The NE reports the occurrence of the alarm **software download in progress** via REPT ALM when the requested file(s) transfer begins. The NE reports the clearing of **software download in progress** via REPT ALM upon completion/termination of the requested file(s) transfer.

If the software download is successful, the NE reports the event (nonalarmed condition) **software transfer successful** in the REPT EVT COM message, and also reports the occurrence of the alarm **SYSMEM/SYSCTL code mismatch** via REPT ALM if a software mismatch has been detected between the software stored in the SYSMEM circuit pack and the software version running in the NE.

If the software download has failed, the NE reports the event (nonalarmed condition) **software transfer failed** in the REPT EVT COM message, and also reports the occurrence of the alarm **SYSTEM unrecognized code** via REPT ALM.

The **DWNLD-FTP** command generates a REPT DBCHG message. For security reasons, the **<FTP_PWD>** parameter must be masked prior to generating any autonomous message.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

The following example shows the successful completion of the command by the network element: Input lines are broken here **only** for the convenience of the reader.

```
DWNLD-FTP:LT-PF-2000::123456::ip_ad=198.78.46.8,
pathname=\"/home/net/olseon/release8\",ftp_uid=lt01,ftp_pwd=ft-2000;

IP 123456
<

LT-PF-2000 01-10-26 16:42:11
M 123456 COMPLD
;
```

The following example shows the **software transfer failed** in the REPT EVT COM message.

```
sid date time
A atag REPT EVT COM
"aid:SWTRANSFER,TC,date,time,,,,:\"software transfer failed\",:"
;
```

The following example shows the **software transfer successful** in the REPT EVT COM message.

```
sid date time
A atag REPT EVT COM
"aid:SWTRANSFER,TC,date,time,,,,:\"software transfer successful\",:"
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If an error is detected in any of the command parameters, the entire command is denied;

If there are errors in more than one command parameter, an error is detected and reported in only one of the parameters. The parameter for which the error is detected may not be the first parameter in the command that is in error.

In addition to the non-message-specific error responses listed in the **RTRV - HDR ERROR RESPONSES** section, the following error responses are listed in the order and priority that the network element checks for each condition.

If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (not supported by the network element, delimited by ","), or termination characters (;), the following error response is returned:

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

If the network element receives this command with the same parameter specified more than once, the following error response is returned:

```
sid date time
M ctag DENY
IISP
/* Input, Invalid Syntax or Punctuation, parameter(s) multiply
defined */
;
```

The software download using FTP over TCP/IP is that between the EMS/OS and TCP/IP-OSI TL1 GNE connected through IAOLAN connection with or without TCP/IP WAN in between. If the network element which receives this command is not a TCP/IP-OSI TL1 GNE. The following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid destination NE*/
;
```

If the network element receives this command with invalid or missing **IP_AD** value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid or missing IP_AD */
;
```

If the network element receives this command with invalid or missing **PATHNAME** value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid or missing PATHNAME */
;
```

If the network element receives this command with invalid or missing **FTP_UID** value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid or missing FTP_UID */
;
```

If the network element receives this command with invalid or missing **FTP_PWD** value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid or missing FTP_UID */
;
```

If the network element receives this command with invalid **FTP_DSCHK** value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid FTP_DSCHK */
;
```

If the network element receives this command with correct syntax, but user is failed to log in, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed, not logged in */
;
```

If the network element receives this command with all of the correct input parameters, but is unable to set up a successful FTP session between NE (FTP client) and OS (FTP server), the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed, failed to set up a FTP
session */
;
```

If the network element receives this command with a software download in progress, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed, a SW download is already in progress
for the destination NE */
;
```

RELATED TL1 COMMANDS/MESSAGES

ENT-SYS

CPY-PRGM

ED-DAT

ED-DAT: Edit Date_and_Time

The privilege level for this command is PRIVILEGED.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

ED-DAT:*tid::ctag::[date][,time][:spec_block];*

DESCRIPTION



CAUTION:

Execution of this command may corrupt performance monitoring data.

The **ED-DAT** command can be initiated by users to request the network element to change its system date and time to a given value.

The activation time of some pending commands may be skipped or repeated as a result of changing the system date or time of the network element. Appropriate actions should be taken to ensure the proper execution of these commands.

Delayed activation is not allowed for this command.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)

_ (underscore)

/ (slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

date

Date. This is the requested *date* in the following format: YY-MM-DD, where YY is the year ranging from 00 to 99; MM is the month of the year ranging from 01 to 12; and DD is the day of the month ranging from 01 to 31. This is the requested *date* in the following format: YYYY-MM-DD, where YYYY is the year ranging from 1900 to 2099; MM is the month of the year ranging from 01 to 12; and DD is the day of the month ranging from 01 to 31.

time

Time. This is the requested *time* in the following format: HH-MM-SS, where HH is the hour in a 24 hour format ranging from 00 to 23; MM is the minute ranging from 00 to 59; and SS is the second ranging from 00 to 59. If not specified, *time* remains the same.

spec_block

Specific Parameter Block. The system level attributes to be modified are specified inside the *spec_block*. Parameters within *spec_block* are specified using a *name=value, name=value, . . .* type construct with no constraints on the order of the arrangement of parameters. Constructs such as *name1=value1, name2=, name3=, name4=, name5=value5, . . .* are acceptable and in this example only the parameters *name1* and *name5* will be attempted to be changed at the NE. If the current value of the parameter *name1* is already *value1* in the example just shown, then *name1* will not be changed.

For the **ED-DAT** command, the *spec_block* may contain one or all of more of the following parameters:

tz

Standard Time Zone. **tz** is a string of 3 or less characters.

strtdst

Start Daylight Savings Time. **strtdst** is a date in the following format: MM-DD.

stopdst

Stop Daylight Savings Time. **stopdst** is a date in the following format: MM-DD.

dstz

Daylight Savings Time Zone. **dstz** is a string of 3 or fewer characters.

OUTPUT FORMAT

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

OUTPUT PARAMETERS

sid

Source identifier. This is the system name.

date

Date output message is generated. This has the format YY-MM-DD (year-month-day). Date output message is generated. This has the format YYYY-MM-DD (year-month-day).

This date format applies if the NE is provisioned for four-digit years.

If this message is successful *date* equals the input date.

time

Time output message is generated. This has the format HH:MM:SS (hours:minutes:seconds).

If this message is successful *time* equals the input time plus the time (seconds) required to send the response message.

M

This indicates that the output message is generated in response to a manual command.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

COMPLD

This indicates that the command has been completed.

EXAMPLE INPUT/OUTPUT

For a SONET environment:

```
ed-dat:LT-OLS::xyz123::00-12-31:tz=est,strtddst=04-04,stopdst=10-31;

IP xyz123
<
LT-OLS 00-12-31,09:30:49
M xyz123 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **ED-DAT** command.

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

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid date or time specified */
;
```

The value of DD is also checked for sanity with MM (for example, February 30 can not exist), and for sanity with the year for MM-DD equaling 02-29 for leap years. Also, values of HH=24, MM>59, and/or SS>59 are invalid. If an error of this type occurs, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid date or time specified */
;
```

If the network element receives an **ED-DAT** command with an incorrectly formatted **tz**, **strtddst**, **stopdst** or **dstz spec_block** parameter, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid spec_block parameter */
;
```


If an out of range year is entered in the four-digit format (i.e. YYYY is not in the range of 1900 through 2099), the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, out-of-range year specified */
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

None

ED-PID

ED-PID: Edit Private_Identifier (Password)

The privilege level for this command is REPORTS.

The OSI category for this command is SECURITY.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

ED-PID:*tid:uid:ctag::old_pid,new_pid;*

DESCRIPTION

The **ED-PID** command can be initiated to change the user's password (PID) on the network element.

When the network element receives an **ED-PID** command, the password associated with the given login identifier will be changed on the network element provided that:

- The login identifier is currently active on the access channel on which the command is received;
- The *old_pid* provided matches the current password for the login identifier; and
- The *new_pid* provided satisfies the password requirements of the network element; and
- At least seven (7) calendar days have passed since the last password change for that login.

If password aging is enabled, a non-Privileged user may not change a password unless at least seven (7) calendar days have passed since the last password change of that login.

After the successful completion of an **ENT-NE-SECU** command, a privileged user may change the password only during that session. Any attempt to change a password after ending the session when less than seven days have expired shall also be denied.

If password aging is disabled, a non-Privileged user may change a password without any restrictions.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)

% (percentage)
(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@ (at sign)
\$ (dollar sign)
& (ampersand)
* (star)
- (dash)
_ (underscore)
/ (slash)

uid

User identifier. This is the unique case-sensitive user login identifier for which the **ED-PID** login command is intended.

Grouping and/or ranging of *uid* values for this command is not allowed.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

old_pid

Old private identifier (password). This is included in the command by the user and must exactly match the current PID for the login identifier.

new_pid

Passwords consist of a string of alphabetic, numeric and symbolic characters that contain a minimum of six characters and a maximum of ten characters, where at least two are non-alphabetic and one is symbolic. Passwords are case-sensitive.

Password strings will be encrypted when stored in the network element. They will not be encrypted when transmitted between the network element and the CIT, OS or dumb terminal. Passwords are never transmitted from the network element to the PC or a TL1 channel.



NOTE:

The *new_pid* value must differ from the *old_pid* value in at least one character.

Symbolic characters:

! " % ' () * + - . / < > [] ^ _ { | }

Numeric characters:

0 1 2 3 4 5 6 7 8 9

Alphabetic characters:

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
a b c d e f g h i j k l m n o p q r s t u v w x y z

The special characters defined in the iso8859 character set, character values 161 through 255 decimal.

OUTPUT FORMAT

If the password change request completes successfully, and transitions the state of the login procedure from the "Password_Expired" state to the "Login_Active" state, the following normal completion response is returned:

```
sid date time
M ctag COMPLD
/* Lucent Technologies <system>
<release>
User Privilege Level: <privilege>
    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.
*/
;
```

One of the following strings is used for the <system> value: FT-2000 OC-48 Large Capacity Terminal (LCT) or Optical Line System. The <release> string is of the form:

Release x.y.z-type

where x.y.z reflects the actual software release number and type can be LCT for Large Capacity Terminal (LCT) or OLS for Optical Line System.

The <privilege> shows the user's authorization levels (AL) for each command function category (FC) in the form of **FCAL&FCAL&FCAL&FCAL**.

Multiple FCALs are specified by using single ampersands (&).

Commands are grouped into 4 FCs: Configuration Management (C), Fault Management (F), Performance Monitoring (PM), and Security Management (S).

For each FC, a user can have one of the five AL values. In the descending privilege order, these values are: Expert (level 5), Privileged (level 4), General (level 3), Basic (level 2), Reports (level 1).

The following are possible FCAL values:

C[1-5]

For Configuration Management Authorization Level 1 through 5.

F[1-5]

For Fault Management Authorization Level 1 through 5.

PM[1-5]

For Performance Monitoring Authorization Level 1 through 5.

S[1-5]

For Security Management Authorization Level 1 through 5.

The response just shown is provided by the network element only if the **ED-PID** command is being used to update an expired password upon user login (**ACT-USER**). Otherwise, the following response is provided by the network element. If the password change request completes successfully, the following normal completion response is returned:

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

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

The following example shows a successful password change operation.

```
ED-PID:LT-PF-2000:PeterPan:123456::soup3r+,8_6oober;
IP 123456
<
LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **ED-PID** command.

If the network element receives an **ED-PID** command with a login identifier specified by *uid* that is not currently logged in on the access channel over which the command is received, the following error response is returned to the OS:

```
sid date time
M ctag DENY
PIUI
/* Privilege, Illegal User Identity, user ID not logged in */
;
```

If the network element receives an **ED-PID** command with an *old_pid* value that does not match the currently provisioned *pid* for the associated user login identifier, the following error response is returned to the OS:

```
sid date time
M ctag DENY
PIUI
/* Privilege, Illegal User Identity, invalid OLD_PID */
;
```

If the network element receives an **ED-PID** command with a missing *new_pid*, or a *new_pid* that does not meet the the required attributes of a valid user login identifier password, the following error response is returned to the OS:

```
sid date time
M ctag DENY
PIUI
/* Privilege, Illegal User Identity, invalid NEW_PID */
;
```

If the network element receives an **ED-PID** command with a *new_pid* value equal to the *old_pid* value, the following error response is returned to the OS:

```
sid date time
M ctag DENY
PIUI
/* Privilege, Illegal User Identity, NEW_PID same as OLD_PID */
;
```

If the network element receives an **ED-PID** command before the password aging time period has expired, the following error response is returned to the OS:

```
sid date time
M ctag DENY
PIUI
/* Privilege, Illegal User Identity, insufficient time for
password aging */
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

ACT-USER

CANC-USER

DLT-USER-SECU

ENT-USER-SECU

RTRV-USER-SECU

ED-USER-SECU

ED-USER-SECU

ED-USER-SECU: Edit User Security

The privilege level for this command is PRIVILEGED.

The OSI category for this command is SECURITY.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

ED-USER-SECU:*tid:uid:ctag::[new_uid],[new_pid],,[uap]*
[:keyword_block];



NOTE:

The above single-line command is presented as two lines for ease of reading.

DESCRIPTION

The **ED-USER-SECU** command is used by an appropriate administrator to edit the security parameters associated with a user. This command enables a user with privilege **S4** or higher (Security Management Authorization Level equals to Privilege or higher), to edit the login ID, password, and/or user privileges of any non-expert user, and to alter a temporary visitor login. The user executing the command may not edit any of the user's own login parameters, including *uid*, *pid*, and *uap*. Only an Expert user is allowed to edit the login ID and/or password of the other Expert user.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)

- (dash)
- _ (underscore)
- / (slash)

uid

User Identifier. Its valid values are a case-sensitive alphanumeric string of 1 to 10 characters. This is the *uid* to be changed and/or whose password and/or privilege level are to be changed.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

new_uid

New User Identifier. Its valid values are a case-sensitive alphanumeric string of 1 to 10 characters. If omitted, this parameter is not changed.

new_pid

New Private Identifier. If omitted, this parameter is not changed. Passwords consist of a string of alphabetic, numeric and symbolic characters that contain a minimum of six characters and a maximum of ten characters, where at least two are non-alphabetic and one is symbolic. Passwords are case-sensitive.

Password strings will be encrypted when stored in the network element. They will not be encrypted when transmitted between the network element and the CIT, OS or dumb terminal. Passwords are never transmitted from the network element to the PC or a TL1 channel.

Symbolic characters:

! " % ' () * + - . / < > [] ^ _ { | }

Numeric characters:

0 1 2 3 4 5 6 7 8 9

Alphabetic characters:

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

a b c d e f g h i j k l m n o p q r s t u v w x y z

The special characters defined in the iso8859 character set, character values 161 through 255 decimal.

uap

User Access Privilege. It specifies the user's authorization levels (AL) for each command function category (FC) in the form of **FCAL&FCAL&FCAL&FCAL**.

Multiple FCALs are specified by using single ampersands (&).

Commands are grouped into 4 FCs: Configuration Management (C), Fault Management (F), Performance Monitoring (PM), and Security Management (S). The user access privilege shall be specified in the order of FCs as Cw&Fx&PMY&Sz.

For each FC, a user can be assigned with one of the four AL values. In the descending privilege order, these values are: Privileged (level 4), General (level 3), Basic (level 2), and Reports (level 1). Expert is not allowed for this parameter since Expert users cannot be created in the NE. This is a divergence from TR-833, Issue 5.

The following are possible FCAL values:

C[1-4]

For Configuration Management Authorization Level 1 through 4.

F[1-4]

For Fault Management Authorization Level 1 through 4.

PM[1-4]

For Performance Monitoring Authorization Level 1 through 4.

S[1-4]

For Security Management Authorization Level 1 through 4.

If omitted, the User Access Privilege is not changed.

See the **ACT-USER** command for more information regarding the *uap* values.

keyword_block

Keyword Parameter Block. This parameter field is used for modification of temporary login attributes. Temporary login attributes are applicable to non-Expert users only. Parameters within the *keyword_block* are specified using a name defined construct of: **PARAMETER=va lue** in a comma separated list.

For the **ED-USER-SECU** command, the *keyword_block* may contain neither or both of the following parameters:

TYPE

If a temporary login is desired, this parameter must equal "*VISITOR*".

visitor

Visitor Login. This indicates that this login is assigned for temporary access to the network element.

EXPDAT

Expiration Date. This is the requested **EXPDAT** in the following format: YY-MM-DD, where YY is the last two digits of the year ranging from 00 to 99; MM is the month of the year ranging from 01 to 12; and DD is the day of the month ranging from 01 to 31.

The expiration date must be set if **TYPE=visitor**.

EXPDAT

Expiration Date. This is the requested **EXPDAT** in the following format: YYYY-MM-DD, where YYYY is the year ranging from 1900 through 2099, MM is the month of the year ranging from 01 to 12, and DD is the day of the month ranging from 01 to 31.

OUTPUT FORMAT

If the network element fully complies with the edit user security request, the following normal completion response is returned:

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

If the *uid* is currently logged into any network element through any of the communication interface ports (DTE, DCE, or X.25), when this command is successfully executed, regardless of altering any or none of the login parameters, the user identified by the *uid* is disconnected, and the network element responds to the user who entered the **ED-USER-SECU** with the completion message (shown in the previous screen display).

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

The following example changes the current *uid*, **kjlee**, to a *new_uid*, **Bilf**, and assigns **Bilf** a *new_pid* and a *uap*.

```
ed-user-secu:LT-PF-2000:kjlee:123456::ilf,pass12+, ,C1&F1&PM3&S1;

IP 123456
<
LT-PF-2000 97-10-26 16:42:11
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives an **ED-USER-SECU** command from users trying to change their own *uid* (user identifier) value, the following error response is returned:

```
sid date time
M ctag DENY
PICC
/* Privilege, Illegal Command Code */
;
```

If the network element receives an **ED-USER-SECU** command from users trying to change their own *pid* value, the following error response is returned:

```
sid date time
M ctag DENY
PICC
/* Privilege, Illegal Command Code */
;
```

If the network element receives an **ED-USER-SECU** command from users trying to change their own *uap* (user access privilege) value, the following error response is returned:

```
sid date time
M ctag DENY
PICC
/* Privilege, Illegal Command Code */
;
```

If the network element receives an **ED-USER-SECU** command with an invalid *uid* (user identifier) value, the following error response is returned:

```
sid date time
M ctag DENY
PIUI
/* Privilege, Illegal User Identity, invalid UID */
;
```

If the network element receives an **ED-USER-SECU** command with a *new_uid* (new user identifier) that matches an existing *uid* (user identifier), other than the one specified in the *uid* field, the following error response is returned:

```
sid date time
M ctag DENY
PIUI
/* Privilege, Illegal User Identity, duplicate NEW_UID */
;
```

If the network element receives an **ED-USER-SECU** command with an invalid *new_uid* (new user identifier) value, the following error response is returned:

```
sid date time
M ctag DENY
PIUI
/* Privilege, Illegal User Identity, invalid NEW_UID */
;
```

If the network element receives an **ED-USER-SECU** command with an invalid *new_pid* (password) value, the following error response is returned:

```
sid date time
M ctag DENY
PIUI
/* Privilege, Illegal User Identity, invalid NEW_PID */
;
```

If the network element receives an **ED-USER-SECU** command with a **TYPE** other than *visitor*, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid TYPE */
;
```

If the network element receives an **ED-USER-SECU** command with an invalid *EXPDAT*, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid EXPDAT */
;
```

If the network element receives an **ED-USER-SECU** command without an **EXPDAT** when **TYPE** is specified, **or** without a **TYPE** when **EXPDAT** is specified in the *keyword_block*, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid keyword_block */
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

If an out of range year is entered in the four-digit format (i.e. YYYY is not in the range of 1900 through 2099), the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, out-of-range year specified */
;
```

RELATED TL1 COMMANDS/MESSAGES

ED-PID

DLT-USER-SECU

ENT-USER-SECU

RTRV-USER-SECU

ENT-ASSOC-OTPS

ENT-ASSOC-OTPS: Enter Association OT_Port_Signal

The privilege level for this command is GENERAL.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 3.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

ENT-ASSOC-OTPS:*tid::ctag:::spec_block;*

DESCRIPTION



CAUTION:

Execution of this command may affect alarm reporting.

The **ENT-ASSOC-OTPS** command message can be initiated by a user to request OLS End Terminals to establish associations between OUPSR (optional), OTUs/OTPMs and optical channels. This command is modified significantly in OLS R8.0 and later. In R8.0, two more parameters, *src_tid* and *dest_tid*, and two additional association types are added, **XADD** and **XDROP**, to allow external associations between two OLS end terminals.

The Add association can be provisioned between the following circuit packs:

- Between an OTU/OTPM and an OCHAN. This association allows suppression of signal defect alarms at the optical channel when the signal defect is detected at the OTU/OTPM.
- Between an OUPSR and an OTU/OTPM within the same OLS end terminal. However, if a signal failure alarm is generated by the upstream OUPSR, the alarms at the downstream OTU/OTPM will not be suppressed.
- Between an OUPSR and an OCHAN (R8.2 and later). This association eliminates the add OTUs between the OUPSR outputs and the OMU. This configuration allows a single add OTU between the client system and the OUPSR circuit pack. The signals from OUPSR will be added directly to the OMU without going through an add OTU, thus provide cost savings.

External Add associations can be provisioned between the following circuit packs:

- Between an OUPSR and an OTU/OTPM, only if they reside in two separate OLS end terminals. The external add association should always be performed on the OLS end terminal in which the OUPSR circuit pack resides in, using the

TID of the end terminal in which the OTU/OTPM resides in as the External TID. For instance, if the TIDs for the OLS end terminals in which the OUPSR and the OTU/OTPM reside in are "EAST" and "WEST", respectively, then the provisioning for External ADD association should be performed on "EAST" and use "WEST" as the `src_tid`. External add association does not suppress signal defect alarms at the OTU/OTPM when a signal defect is detected at the OUPSR.

- Between an OUPSR and an external OCHAN. The external add should always be performed on the OLS end terminal in which the OUPSR circuit pack resides in, using the TID of the end terminal in which the ODU resides in as the `dest_tid`.

The **ADD** and **XADD** associations are required for OUPSR protection switching features.

The Drop associations can be provisioned between the following circuit packs:

- Between an OCHAN and an OTU/OTPM, to allow suppression of upstream signal defect alarms at the OTU/OTPM when a signal defect is detected and alarmed or suppressed at the optical channel.
- Between a drop OTU/OTPM and an OUPSR within the same OLS end terminal. However, if a signal failure alarm is generated by the upstream OTU/OTPM, the alarms at the downstream OUPSR will not be suppressed.
- Between an OCHAN and an OUPSR (R8.2 and later). This association eliminates the drop OTUs between the ODU and the OUPSR inputs. This configuration allows a single drop OTU between the client system and the OUPSR circuit pack. This signals from the ODU will be dropped directly to the OUPSR without going through an drop OTU, thus provide cost savings.

External Drop associations can be provisioned between the following circuit packs

- Between a drop OTU/OTPM and an OUPSR only if they reside in two separate OLS end terminals. And the external drop association should always be performed on the OLS end terminal in which the OUPSR circuit pack resides in, using the TID of the end terminal in which the drop OTU/OTPM resides in as the external TID. For instance, if the TIDs for the OLS end terminals in which the drop OTU/OTPM and the OUPSR reside in are "WEST" and "EAST", respectively, then the provisioning for External drop association should be performed on "EAST" and use "WEST" as the `dest_tid`. External drop association does not suppress signal defect alarms at the OUPSR when a signal defect is detected at the drop OTU/OTPM.
- Between an external OCHAN and an OUPSR. The external drop should always be performed on the OLS end terminal in which the OUPSR circuit pack resides in, using the TID of the end terminal in which the ODU resides in as the `src_tid`.

The Drop and External Drop associations associate the drop OTU/OTPM with the OUPSR. The **DROP** and **XDROP** associations are required for the OUPSR circuit pack to switch upon detection of Signal Degradation (SD) conditions if no inhibit conditions exist. The association allows the upstream OTU/OTPM circuit pack to send signal degradation alarms to the downstream OUPSR circuit pack, and

cause the OUPSR tail end switch to switch upon detection of signal degradation alarms.

When a single OTU is used between the client and the OUPSR, this OTU can reside in either the local NE or the companion NE in the case of Dual End Terminal configuration. In the single drop OTU configuration, switching on signal degrade (SD) is not supported.

The **ADD** and **XADD** associations are required for OUPSR protection switching features.

INPUT PARAMETERS

<i>tid</i>	Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set: [A-Z][a-z][0-9] . (period) + (plus) % (percentage) # (pound) { [((open parenthesis))] } (close parenthesis) @ (at sign) \$ (dollar sign) & (ampersand) * (star) - (dash) _ (underscore) / (slash)
<i>ctag</i>	Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for <i>ctag</i> are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.
<i>spec_block</i>	Specific Parameter Block. The system level attributes to be modified are specified inside the <i>spec_block</i>. Parameters within <i>spec_block</i> are specified using a <i>name=value, name=value, . . .</i> type construct with no constraints on the order of parameters. Constructs such as <i>name1=value1, name2=, name3=, name4=,</i>

name5=va lue5, . . . are acceptable and in this example only the parameters *name1* and *name5* will be changed at the network element. If the current value of the parameter *name1* is already *va lue1* in the above example, *name1* will not be changed.

For the **ENT-ASSOC-OTPS** command, the *spec_block* may contain one or more of the following parameters:

src_tid	Source Target identifier. This is the name of the network element in which the external OTU resides. This value must be selectable from a pull down menu in the CIT window, and the user is also allowed to enter any TID they wish, in the case that the TID they wish to use is resetting and thus unavailable from the pull down menu. The TID values in the pull down menu should be composed of the local TID and the COMPANION_TID. It must allow the same character set as the TID parameter. The <i>src_tid</i> parameter is only required in XADD and XDROP association, and should be omitted in all other associations.
src_aid	Source Access Identifier. This is the address of the OUPSR, OTU or OCHAN for which the command is intended. Entity: Single Port (OTU) Legal Values: (OTU)-(1,2)-(1-32)-(1) CenterLink CIT selection options: (OTU)-(1, 2)-(1-32)-(1) Entity: Single Port (OT Port Module) Legal Values: (OTPM)-(1,2)-(1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31)-(1-4)-(1) CenterLink CIT selection options: (OTPM)-(1, 2)-(1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31)-(1-4)-(1) Entity: Single OUPSR port Legal Values: (OUPSR)-(1,2)-(1-32)-(AOUT, BOUT, COUT) Entity: Single OCHAN channel Legal Values: (OCHAN)-(1A, 1B, 2A, 2B)-(1-32) Entity: Port (2DM25) Legal Values: (2DM25)-(ALL), (2DM25)-(1,2)-(ALL,1-32)-(HS, P1, P2) CenterLink CIT selection options: (2DM25)-(ALL, 1, 2)-(ALL, 1-32)-(ALL, HS, P1, P2)
dest_tid	Destination Target identifier. This is the name of the network element in which the external OTU resides. This value must be selectable from a pull down menu in the CIT window, and the user is also allowed to enter any TID they wish, in the case that the TID they wish to use is resetting and thus unavailable from the pull down menu. The TID values in the pull down menu should be composed of the local TID and the

	COMPANION_TID. It must allow the same character set as the TID parameter. The <i>dest_tid</i> parameter is only required in the XADD and XDROP association, and should be omitted in all other associations.
dest_aid	Destination Access Identifier. This is the address of the OUPSR, OTU, or OCHAN, for which the command is intended. Entity: Single Port (OTU) Legal Values: (OTU)-(1,2)-(1-32)-(1) CenterLink CIT selection options: (OTU)-(1, 2)-(1-32)-(1) Entity: Single Port (OT Port Module) Legal Values: (OTPM)-(1,2)-(1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31)-(1-4)-(1) CenterLink CIT selection options: (OTPM)-(1, 2)-(1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31)-(1-4)-(1) Entity: Single OUPSR port Legal Values: (OUPSR)-(1,2)-(1-32)-(AIN, BIN, CIN) Entity: Single OCHAN channel Legal Values: (OCHAN)-(1A, 1B, 2A, 2B)-(1-32) Entity: Port (2DM25) Legal Values: (2DM25)-(ALL), (2DM25)-(1,2)-(ALL,1-32)-(HS, P1, P2) CenterLink CIT selection options: (2DM25)-(ALL, 1, 2)-(ALL, 1-32)-(ALL, HS, P1, P2)
assoc	Association type. This parameter specifies the type of association being requested. It may have one of the following values: "ADD", "DROP", "XADD" or "XDROP". <i>ADD</i> This requests the add association between the transmitting OUPSR and the receiving OTPS, the transmitting OTPS and receiving OCHAN, the transmitting OTPS to the receiving OUPSR, or the transmitting OUPSR to the receiving OCHAN. <i>DROP</i> This requests the drop association between the receiving OTPS and transmitting OCHAN, the receiving OUPSR and the transmitting OTPS, the receiving OUPSR and transmitting OCHAN, or the receiving OTU and transmitting OUPSR. <i>XADD</i> This requests the add association between the transmitting OUPSR and receiving external OTU, transmitting external OTU and receiving OUPSR, or transmitting OUPSR and receiving

external OCHAN. This association is retrievable from both local and companion NE's, but can only be provisioned (enter or delete) from the local NE (the NE with the OUPSR pack).

XDROP

This requests the drop association between the receiving OUPSR and transmitting external OTU, receiving external OTU and transmitting OUPSR, or receiving OUPSR and transmitting external OCHAN. This association is retrievable from both local and companion NE's, but can only be provisioned (enter or delete) from the local NE (the NE with the OUPSR pack).

The validity of an association is dependent on the side configuration. The following is a list of the valid associations for a normal configuration. The term "oupsr-x-y-(AIN, BIN, AOUT, BOUT)" are unidirectional protection ports where "x" is the bay number and "y" is the slot number. The term "OTPM-x-y" are OTPM ports where "x" is the bay number, "y" is the slot number and "z" is the port number. The term "OTU-x-y" are OTU ports where "x" is the bay number and "y" is the slot number. The terms "ochan -(nA, nB)-p" are optical channel access identifiers where "n" is the optical line and "p" is the channel number. This table lists all the valid associations. Any invalid association attempts should be rejected by the CIT.

Table 1. OTU Associations

Assoc	SRC_TID	SRC_AID	DEST_TID	DEST_AID
ADD		OUPSR-x-y-AOUT OUPSR-x-y-BOUT OTU-x-y-1 OTU-x-y-1 OTU-x-y-1 OUPSR-x-y-AOUT OUPSR-x-y-BOUT		OTU-x-y-1 OTU-x-y-1 OCHAN-nA-p OCHAN-nB-p OUPSR-x-y-CIN OCHAN-nA-p OCHAN-nB-p
DROP		OCHAN-nA-p OCHAN-nB-p OTU-x-y-1 OTU-x-y-1 OCHAN-nB-p OCHAN-nA-p OUPSR-x-y-COUT		OTU-x-y-1 OTU-x-y-1 OUPSR-x-y-AIN OUPSR-x-y-BIN OUPSR-x-y-BIN OUPSR-x-y-AIN OTU-x-y-1
XADD	Local TID Local TID External TID Local TID Local TID	OUPSR-x-y-AOUT OUPSR-x-y-BOUT OTU-x-y-1 OUPSR-x-y-AOUT OUPSR-x-y-BOUT	External TID External TID Local TID External TID External TID	OTU-x-y-1 OTU-x-y-1 OUPSR-x-y-CIN OCHAN-nA-p OCHAN-nB-p
XDROP	External TID External TID Local TID External TID External TID	OTU-x-y-1 OTU-x-y-1 OUPSR-x-y-COUT OCHAN-nA-p OCHAN-nB-p	Local TID Local TID External TID Local TID Local TID	OUPSR-x-y-AIN OUPSR-x-y-BIN OTU-x-y-1 OUPSR-x-y-AIN OUPSR-x-y-BIN

Table 2. OTPM Associations

Assoc	SRC_TID	SRC_AID	DEST_TID	DEST_AID
ADD		OUPSR-x-y-AOUT OUPSR-x-y-BOUT OTPM-x-y-z-1 OTPM-x-y-z-1 OTPM-x-y-z-1		OTPM-x-y-z-1 OTPM-x-y-z-1 OCHAN-nA-p OCHAN-nB-p OUPSR-x-y-CIN
DROP		OCHAN-nA-p OCHAN-nB-p OTPM-x-y-z-1 OTPM-x-y-z-1 OUPSR-x-y-COUT		OTPM-x-y-z-1 OTPM-x-y-z-1 OUPSR-x-y-AIN OUPSR-x-y-BIN OTPM-x-y-z-1
XADD	Local TID Local TID External TID	OUPSR-x-y-AOUT OUPSR-x-y-BOUT OTPM-x-y-z-1	External TID External TID Local TID	OTPM-x-y-z-1 OTPM-x-y-z-1 OUPSR-x-y-CIN

XDROP	External TID	OTPM-x-y-z-1	Local TID	OUPSR-x-y-AIN
	External TID	OTPM-x-y-z-1	Local TID	OUPSR-x-y-BIN
	Local TID	OUPSR-x-y-COUT	External TID	OTPM-x-y-z-1

Table 3. 2DM25 (2:1 Data Muxing OTU at 2.5G) OTU Associations

Note that the 2DM25 only supports the OUPSR protection on the high speed side.

Assoc	SRC_TID	SRC_AID	DEST_TID	DEST_AID
ADD		2DM25-x-y-HS 2DM25-x-y-HS 2DM25-x-y-HS		OCHAN-nA-p OCHAN-nB-p OUPSR-x-y-CIN
DROP		OCHAN-nA-p OCHAN-nB-p OUPSR-x-y-COUT		2DM25-x-y-HS 2DM25-x-y-HS 2DM25-x-y-HS
XADD	External TID	2DM25-x-y-HS	Local TID	OUPSR-x-y-CIN
XDROP	Local TID	OUPSR-x-y-COUT	External TID	2DM25-x-y-HS

OUTPUT FORMAT

If the network element fully complies with this command, the following output message is returned:

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

OUTPUT PARAMETERS

Refer to the **RTRV - HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example establishes a drop association between an OTPM ("otpm-1-3-3-1") and an optical channel ("ochan-1a-7") as follows:

```
ent-assoc-otps:LT-PF-2000::123456::src_aid=ochan-1a-7,dest_aid=otpm-1-3-3-1,assoc=drop;
IP 123456
<
  LT-PF-2000-3 93-11-26 16:42:11
M 123456 COMPLD
;
```


The following example establishes an add association from an OUPSR ("oupsr-1-3-A-OUT") to an external OTU (OTU-1-5-1) as follows:

```
ent-assoc-otps:east::123456::src_tid=east,src_aid=oupsr-1-3-bout, dest_tid=west,dest_aid=otu-1-5-1,assoc=xadd;
IP 123456
<
  LT-PF-2000-3 99-11-26 16:42:11
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV - HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with any extra (beyond the input format specification just shown) null or non-null command parameter blocks (:), parameters (not supported by FT-2000, delimited by ","), or termination characters (;), the following error response is returned:

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

If the network element receives this command with association type "**ADD**" and the *src_aid* or *dest_aid* value is missing, or the *src_aid* or *dest_aid* value does not identify a single OUPSR output port, OTU or OTPM signal or a single optical channel, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier,
Source or Destination AID missing or invalid */
;
```

If the network element receives this command with association type "**DROP**" and the *src_aid* or *dest_aid* value is missing, or the *src_aid* or *dest_aid* value does not identify a single OUPSR input port, a single OTU or OTPM signal or a single optical channel, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier,
Source or Destination AID missing or invalid */
;
```

If the network element receives this command without an *dest_tid* value and the association type is **XADD**, or with an invalid *dest_tid*, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Target Identifier,
Source or Destination TID missing or invalid */
;
```

If the network element receives this command without a *src_tid* value and the association type is **XDROP**, or with an invalid *src_tid*, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Target Identifier,
Source or Destination TID missing or invalid */
;
```

If the network element receives this command with any other invalid configurations that is not covered above, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, association is inconsistent
with the transmission direction or system configuration
*/
;
```

If the network element receives this command with an *assoc* value that is not supported, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid ASSOC */
;
```

If an otherwise valid instance of this command is received, but for which the association cannot be made because it would cause associations with different

OTU aids to share the same OCHAN *aid*, the following error response is returned:

```
sid date time
M ctag DENY
SAAS
/* Status, Already Associated,
Establishing this association requires that the existing
associations identified with the addressed OTPS or
optical channel be deleted.
*/
;
```

If an otherwise valid instance of this command is received, but for which the association cannot be made because it would cause associations with one OTU *aid* to different OCHAN aids in the same direction, the following error response is returned:

```
sid date time
M ctag DENY
SAAS
/* Status, Already Associated,
Establishing this association requires that the existing
associations identified with the addressed OTPS or
optical channel be deleted.
*/
;
```

If an otherwise valid instance of this command is received, but for which the association cannot be made because it would be inconsistent with the transmission direction, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, association is inconsistent
with the transmission direction or system configuration
*/
;
```

If an otherwise valid instance of this command is received, but for which the association cannot be made because it would cause the destination *aid* to have a drop and an add association, the following error response is returned:

```
sid date time
M ctag DENY
SAAS
/* Status, Already Associated,
Establishing this association requires that the existing
associations identified with the addressed OTPS or
optical channel be deleted.
*/
;
```

If the external NE can not be reached in a XADD or XDROP association, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed, Source or Destination NE
un-reachable. */
;
```

If an otherwise valid instance of this command is received, but for which the association cannot be made because the OTPM is an ELSBB and it has its **LSBBRATE** value provisioned as *ETR_CLO* , the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, association cannot be set up, ETR or CLO is
provisioned. Establishing this association requires another signal rate type to be provisioned. */
;
```

If an otherwise valid instance of this command is received, but for which the association cannot be made because the OTPM is an UBB and it has its **UBBRATE** value provisioned as *ETR* or *CLO* , the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, association cannot be set up, ETR or CLO is
provisioned. Establishing this association requires another signal rate type to be provisioned. */
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

DLT-ASSOC-OTPS

RTRV-ASSOC-OTPS

ENT-CID-SECU

ENT-CID-SECU: Enter Channel_Identifier Security

The privilege level for this command is PRIVILEGED.

The OSI category for this command is SECURITY.

This command is available starting in OLS Release 2.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

ENT-CID-SECU:*tid:aid:ctag::[:spec_block];*

DESCRIPTION

The **ENT-CID-SECU** command is initiated to set port security parameters for X.25, DTE, DCE, DCC, SER_TLM1, and LAN ports.

When the **ENT-CID-SECU** command is issued to change the OS type of a port that is enabled and currently active, the session is terminated.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access Identifier. This is the address of the communication ports for which parameters need to be set. A null value is not allowed.

Entity: Single Port (COM)

Legal Values: (DCE, DTE, DCC, X25, SER_TLM1, LAN)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific block. This optional parameter field is used for most basic capabilities of the **ENT-CID-SECU** command. Parameters set within the specific block are positionally independent and are set using a construct such as: **PARAMETER=value** in a comma-separated list. The specific block may have zero or more of the following parameters set within it. Furthermore, each parameter listed below may appear at most once within the specific block for a single **ENT-CID-SECU** command.

TMOUT

This parameter sets the time out interval for the DCE, DTE, and DCC ports. It has an integer value in the range 0-999 minutes. A value of 0 disables the time out mechanism. When a null value is provided, **TMOUT** is unchanged.

PORTACC

This parameter sets the port access for DTE, DCC, SER_TLM1, or LAN port and has one of the following values: "ENABLE" or "DISABLE". When port access to a port becomes disabled, any active session is terminated. When the port access is disabled on the DTE port, the DTR and RTS leads should be reset. Likewise, when the port access is enabled on the DTE port, the DTR and RTS leads should be asserted.

BAUDRATE

This parameter sets the baud rate of the DTE port or DCE port. It has one of the following values: "1200", "2400", "4800", or "9600". The baud rate of the DTE port or DCE port from CenterLink must be "9600".

CHAN

This parameter sets the channel type of the X.25 port and has one of the following values: "PVC_1", "PVC_2", "TBL_1", "TBL_2", "TBL_3", "TBL_4", "TBL_5", "TBL_6", "TBL_7", "TBL_8", "TBL_9", "TBL_10", "TBL_11", "TBL_12", "TBL_13", "TBL_14", "TBL_15", or "TBL_16". TBL_{1-16} are the provisioning table entries of the TL1 calling address table. This parameter has no default value.

OSTYPE

This parameter sets the OS type for the virtual circuit of the X.25 port. It has one of the following values (MT, MA, CMDR, OTHR, RST) for **pvc**; and (MT, MA, CMDR, OTHR, RST, NONE) for **tbl** (that is, the table entry corresponding to X.25 switched channels [**svc**] of X.25).

MT means maintenance, MA means memry-admin, CMDR means cmd-resp, OTHR means other, NONE means none, and RST means restoration.

CALLADDR

This parameter sets the calling address of the OS for a table entry **tbl** corresponding to the **svc** of the X.25 port if the OS type is other than NONE. It has a value of a string of digits up to a maximum of 15 digits.

YEARFMT

This parameter sets the format of the year field of all dates of all TL1 command responses and autonomous messages for this user. It has one of the following values, "2-DIGIT" "4-DIGIT"

2-DIGIT sets two-digit years and 4-DIGIT sets four-digit years.

OUTPUT FORMAT

If the network element fully complies with the **ENT-CID-SECU** request, the following normal completion response is returned:

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

If the **ENT-CID-SECU** command does not alter the existing attributes, the network element will not deny the command. Instead the system will respond with the completion message (shown in the previous screen display.)

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows an **ENT-CID-SECU** command that provisions security parameter for a **tbl** entry corresponding to a X.25 **svc**.



NOTE:

The below single-line command (**bold** type) is presented in more than one line for ease of reading.

```
ENT-CID-SECU:LT-PF-2000:x25:123456:::CHAN=tbl_3,OSTYPE=MA,
CALLADDR=0123456789;
IP 123456
<
LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```

The following example shows an **ENT-CID-SECU** command that provisions security parameters for a DTE port.



NOTE:

The below single-line command (**bold** type) is presented in more than one line for ease of reading.

```
ENT-CID-SECU:LT-PF-2000:dte:123456:::TMOUT=10,PORTACC=enable,
BAUDRATE=9600;
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```

The following example shows an **ENT-CID-SECU** command that provisions security parameters for a DCE port.

```
ENT-CID-SECU:LT-PF-2000:dce:123456:::TMOUT=10;
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```

The following example shows an **ENT-CID-SECU** command that provisions security parameters for a DCE port with four-digit year format.

```
ENT-CID-SECU:LT-PF-2000:dce:123456:::TMOUT=10,,,,,YEARFMT=4;
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```

The following example shows an **ENT-CID-SECU** command that provisions security parameters for a SER_TLM1 port.

```
ENT-CID-SECU:LT-PF-2000:SER_TLM1:123456:::PORTACC=enable;
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```


ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the command is received with an invalid *aid*, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier */
;
```

If an **ENT-CID-SECU** command is received with an invalid **TMOUT** parameter, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid TMOUT parameter */
;
```

If an **ENT-CID-SECU** command is received with an invalid **PORTACC** parameter, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid PORTACC parameter */
;
```

If an **ENT-CID-SECU** command is received with an invalid **BAUDRATE** parameter, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid BAUDRATE parameter */
;
```

If an **ENT - CID - SECU** command is received with an invalid **CHAN** parameter, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid CHAN parameter */
;
```

If this command is received with an invalid **OSTYPE** parameter, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid OSTYPE parameter */
;
```

If an **ENT - CID - SECU** command is received with an invalid **CALLADDR** parameter, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid CALLADDR parameter */
;
```

If an **ENT - CID - SECU** command is received with an invalid **YEARFMT** parameter, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid YEARFMT parameter */
;
```

If an **ENT - CID - SECU** command is received with a **TMOUT** which does not apply to given AID, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, TMOUT does not apply to given AID*/
;
```

If an **ENT-CID-SECU** command is received with a **PORTACC** which does not apply to given AID, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, PORTACC does not apply to given AID*/
;
```

If an **ENT-CID-SECU** command is received with a **BAUDRATE** specified for port other than **dte** or **dce** the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, BAUDRATE does not apply to given AID*/
;
```

If an **ENT-CID-SECU** command is received with a **CHAN** specified for a port other than X.25 the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, CHAN does not apply to given AID*/
;
```

If an **ENT-CID-SECU** command is received with an **OSTYPE** specified for a port other than **x25** the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, OSTYPE does not apply to given AID*/
;
```

If an **ENT-CID-SECU** command is received with a **CALLADDR** specified for CHAN other than **tbl-{1-16}** the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, CALLADDR does not apply to given CHAN*/
;
```

If an **ENT-CID-SECU** command is received with a valid **TMOUT** but has an AID of **x25**, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, TMOUT does not apply to given AID */
;
```

If an **ENT-CID-SECU** command is received with a **YEARFMT** specified for a port other than DCE, DTE, or X25 the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, YEARFMT does not apply to given AID*/
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-CID-SECU

ENT-CMS

ENT-CMS: Enter Customer_Maintenance_Signal

The privilege level for this command is PRIVILEGED.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

ENT-CMS:*tid:aid:ctag:[:[type][::pst[,sst]]];*

DESCRIPTION

The **ENT-CMS** command messages can be initiated by a user to request OLS to provision various parameters of the Customer Maintenance Signal (CMS) ports.

When OLS receives an **ENT-CMS** command from the user, OLS will provision the appropriate CMS according to the parameter settings in the command.

The provisioned values remain active until modified (for example, by another command).

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)

- (dash)

_ (underscore)

/ (slash)

aid

Access identifier. Access identifier. This is the address of the facility for which this command is intended.

Entity: CMS Port [End Terminals and Repeaters]

Legal Values: (CMS)-(ALL, 1A, 1B, 2A, 2B)

tag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *tag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

type

Type. A value for this parameter is neither expected nor allowed.

pst

Primary state. This parameter must have no value.

sst

Secondary state. This parameter is used to set the secondary state of the OLS CMS port(s) addressed by the *aid* field for the purpose of defining the signal monitoring state of the CMS port in the *mux* (that is, towards the Optical line) direction **only**. The secondary state parameter is position defined.



NOTE:

Currently, OLS does not support the setting of the *primary state* using the **ENT - CMS** command to define the signal monitoring state of the CMS port in the *demux* (from the optical line) direction.

OLS allows for user provisioning of 2 basic states: AUTO and NM0N. When an OLS CMS port *sst* is provisioned in the AUTO state, it will automatically transition to the in-service (IS) state upon any detection on the low speed port of a valid input in the *mux* direction. When an OLS CMS port *sst* is provisioned in the NM0N state, the monitoring of incoming signals is disabled in the *mux* direction. The port exits this state to the AUTO state through either another **ENT - CMS** or **UPDATE** command. If provided at all, the *sst* must have one of the following two values:

00S-MA-AS

Out of service, memory administration, assigned. This *sst* value places the port(s) in the AUTO state (in the terminology of OLS). This is the default *sst* value.

00S

Out of service ("for Memory Administration" implied). This *sst* value places the port(s) in the NM0N state (in the terminology of OLS).

If no value is provided for this parameter, its value is left unchanged.

A (non-provisionable) third secondary port state is supported by OLS, IS ("in service"). OLS CMS ports in the AUTO state will automatically transition to the IS state upon detecting a valid incoming signal (towards the high speed line) of the facility type they support.

OUTPUT FORMAT

If the network element fully complies with this command, the following output message is returned:

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

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV - HDR**.

EXAMPLE INPUT/OUTPUT

The following example provisions the OLS CMS port "cms-1a" with a secondary state of **00S-MA-AS**.

```
ent-cms:LT-OLS:cms-1a:123456:::,00S-MA-AS;
IP 123456
<
  LT-OLS 93-10-26 16:42:11
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV - HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

In addition to the non-message-specific error responses listed in the **RTRV - HDR ERROR RESPONSES** section, the following error responses are listed in the order and priority that OLS checks for each condition.

If the network element receives this command with any extra (beyond the input format specification above) command parameter blocks (:), parameters (not supported by OLS, delimited by ","), or termination characters (;), the following error response is returned:

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

If the network element receives this command with the same parameter specified more than once, the following error response is returned:

```
sid date time
M ctag DENY
IISP
/* Input, Invalid Syntax or Punctuation, parameter(s) multiply
defined */
;
```

If OLS receives this command without an *aid* value or with an *aid* value that is invalid for the *modifier* provided, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier, AID missing or inconsistent
with modifier value */
;
```

If the network element receives this command with an invalid *type* value, the following error response is returned:

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

If the network element receives this command with a *primary state* value that is not supported by the network element, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid PST */
;
```

If the network element receives this command with a *secondary state* value that is not supported by the network element, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid SST */
;
```


If the network element receives an **ENT-CMS** command with otherwise valid *spec_block* parameter(s), but for which, **CMS** and the parameter(s) are not in agreement, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, parameter settings inconsistent with
modifier value */
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-CMS

ENT-FECOM

ENT-FECOM: Enter Far_End_Communications

The privilege level for this command is PRIVILEGED.

The OSI category for this command is SECURITY.

This command is available starting in OLS Release 2.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

ENT-FECOM:*tid::ctag[::spec_block];*

DESCRIPTION

The **ENT-FECOM** command can be initiated by users to enable/disable remote access capabilities over the DCC and alarms associated with DCC failures.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters

comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. The system level attributes to be modified are specified inside the *spec_block*. Parameters within *spec_block* are specified using a *name=value, name=value, . . .* type construct with no constraints on the order of parameters. Constructs such as *name1=value1, name2=, name3=, name4=, name5=value5, . . .* are acceptable and in this example only the parameters *name1* and *name5* will be changed at the network element. If the current value of the parameter *name1* is already *value1* in the above example, *name1* will not be changed.

For the **ENT-FECOM** command, the *spec_block* may contain one or more of the following parameters:

RAR

Remote Activity Reporting. The **RAR** is the reporting of activity from other network elements in the ring via the **RTRV-ALM-NTWK** command and the FE ACTY LED is enabled or disabled. The allowable values for this parameter are: "ENABLED" or "DISABLED".

ROA

Remote Office Alarm. If enabled, the remote office alarms will also cause local alarms (alarm contacts). If disabled, the remote office alarms will not cause local office alarms. The allowable values for this parameter are: "ENABLED" or "DISABLED".

OUTPUT FORMAT

If the network element fully complies with the **ENT-FECOM** request, the following normal completion response is returned:

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

If the **ENT-FECOM** command does not alter the existing attributes, the network element will not deny the command. Instead the system will respond with the completion message (in the screen display just shown).

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows an **ENT - FECOM** command:

```
ent - fecom:LT-PF-2000::123456::RAR=Enabled,ROA=Enabled;  
IP 123456  
<  
  LT-PF-2000 93-10-26 16:42:11  
M 123456 COMPLD  
;
```

ERROR RESPONSES

Refer to the **RTRV - HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

The network element returns the following error response if the **RAR** value is invalid.

```
sid date time  
M ctag DENY  
IDNV  
/* Input, Data Not Valid, invalid RAR */  
;
```

The network element returns the following error response if the **ROA** value is invalid.

```
sid date time  
M ctag DENY  
IDNV  
/* Input, Data Not Valid, invalid ROA */  
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time  
M ctag DENY  
SROF  
/* Status, Requested Operation Failed */  
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV - FECOM

ENT-IP-MAP

ENT-IP-MAP: Enter OS IP address and the application context identifier to be used for each OS to access control map (also called application context ID map).

The privilege level for this command is PRIVILEGED.

The OSI category for this command is SECURITY.

This command is available starting in OLS Release 8.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

ENT-IP-MAP:*tid::ctag::spec_block;*

DESCRIPTION



NOTE:

While this command is allowed at all network elements in the subnetwork, only the map at the enabled TL1 TCP/IP-OSI GNE node is valid. The maps at disabled TL1 TCP/IP-OSI GNE nodes can be modified, but they have no effect. The **ENT-SYS** command **IPGNE** parameter enables/disables the GNE functionality.

ENT-IP-MAP command can be initiated by a user to request the provisioning a list of OSs which specifies the application context identifier to be used for each OS. This list of OSs doubles as an access control list. If the OS does not appear in the list the incoming TCP connection is refused. The list contains the IP addresses of the OSs, host names of the OSs (optional field) and the application context identifier to be used for each OS.

This command creates one OS entry of the access control list each time. More than one OS entry can be created by executing the command multiple times.

The provisioned values remain active until modified.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)
\$ (dollar sign)
& (ampersand)
* (star)
- (dash)
_ (underscore)
/ (slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. Parameters set within the specific block are positionally independent and are set using a construct such as: *PARAMETER=value* in a comma-separated list. The specific block may have zero or more of the following parameters set within it. Furthermore, each parameter listed below may appear at most once within the specific block for a single command.

For each of the following parameters there is listed one or more parameter values. If a particular parameter does not appear in the *spec_block*, its value remains unchanged as a result of this command. The use of the term "null" in the descriptions below implies that the parameter does not appear in the command.

IP_AD

IP Address. This is the 32-bit IPv4 address of the OS. It is made up of four dot-separated decimal numbers ranging from 0 to 255.

This parameter is required.

HOST

Host name. This is the host name of the OS. The host name consists of 1 to 15 alphanumeric characters. Note that the host name does not include the domain name.

This parameter is optional.

ACID

OS application context identifier. This is a value of up to four alphanumeric characters, which is the application context ID to be assigned to the particular IP address. If this parameter is omitted, the default value is assigned. **ACID** has one of the following values:

MT, MA, CMDR, OTHR, RST.

MT means maintenance, *MA* means memory-administration, *CMDR* means command-response-only, *OTHR* means other, and *RST* means restoration.

The default **ACID** value is *MT*. The same **ACID** can be mapped to more than one address.

OUTPUT FORMAT

If the network element fully complies with this command, the following output message is returned:

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

If the requested command provisions parameters that have the same values as those currently provisioned, the command does not alter the existing parameter values and the network element responds with a COMPLD message.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV - HDR**.

EXAMPLE INPUT/OUTPUT

The following example shows a successful completion of the command by the network element:

```
ent-ip-map:LT-PF-2000::123456:::ip_ad=198.78.46.8,host=os1,acid=cmdr;

IP 123456
<

LT-PF-2000 01-10-26 16:42:11
M 123456 COMPLD
;
```

The following example shows another successful completion of the command by the network element without optional field **host**:

```
ent-ip-map:LT-PF-2000::123456:::ip_ad=198.78.46.8,acid=cmdr;

IP 123456
<

LT-PF-2000 01-10-26 16:42:11
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV - HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If an error is detected in any of the command parameters, the entire command is denied;

If there are errors in more than one command parameter, an error is detected and reported in only one of the parameters. The parameter for which the error is detected may not be the first parameter in the command that is in error.

In addition to the non-message-specific error responses listed in the **RTRV - HDR ERROR RESPONSES** section, the following error responses are listed in the order and priority that the network element checks for each condition.

If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (not supported by the network element, delimited by ","), or termination characters (;), the following error response is returned:

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

If the network element receives this command with the same parameter specified more than once, the following error response is returned:

```
sid date time
M ctag DENY
IISP
/* Input, Invalid Syntax or Punctuation, parameter(s) multiply
defined */
;
```

If the network element receives this command with invalid or missing **IP_AD** value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid or missing IP_AD */
;
```

If the network element receives this command with an invalid **HOST** value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid HOST */
;
```

If the network element receives this command with an invalid **ACID** value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid ACID */
;
```

If a user attempts to enter an additional IP address when the maximum supported number already exists, the following error response is returned:

```
sid date time
M ctag DENY
ICNV
/* Status, List Exceeds Maximum, maximum IP entries already reached */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-IP-MAP

DLT-IP-MAP

ENT-SYS

RTRV-SYS

ENT-NE-SECU

ENT-NE-SECU: Enter Network_Element Security

The privilege level for this command is PRIVILEGED.

The OSI category for this command is SECURITY.

This command is available starting in OLS Release 2.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

ENT-NE-SECU:*tid::ctag::spec_block;*

DESCRIPTION

The **ENT-NE-SECU** command can be initiated by users to set the global security parameters of the system, like password aging period, login aging period and logins allowed.

When logins are disallowed using this command, any currently active non-Expert session will immediately be disconnected.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. The system level attributes to be modified are specified inside the *spec_block*. Parameters within *spec_block* are specified using a *NAME=value, NAME=value, . . .* type construct with no constraints on the order of parameters. Constructs such as *NAME1=value1, NAME3=value3, . . .* are acceptable and in this example only the parameters *NAME1* and *NAME3* will be changed at the network element. If the current value of the parameter *NAME1* is already *value1* in the example just shown, *NAME1* will not be changed.

For the **ENT-NE-SECU** command, the *spec_block* must contain one or more of the following parameters:

ALW_UID

This parameter allows or disallows non-expert logins into the network element. This parameter can take one of the two values: "YES" or "NO". If this parameter is omitted (null), the currently effective value remains in effect.

When logins are disallowed using this command, any currently active non-Expert session will immediately be disconnected.

PAGE

Password Aging Interval. This parameter specifies the period in days after which the user has to change the password of his or her account. It can take a value between 7 and 999 days, or 0, which disables the password aging mechanism. If the parameter is omitted (null), the currently effective value remains in effect.

UOUT

This parameter specifies the period in days during which a user had to login at least once to retain the login. It can take a value between 7 and 999 days, or 0, which disables the login aging mechanism. If the parameter is omitted (null), the currently effective value remains in effect.

OUTPUT FORMAT

If the network element fully complies with the **ENT-NE-SECU** request, the following normal completion response is returned:

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

If the **ENT-NE-SECU** command does not alter the existing attributes, the network element will not deny the command. Instead the system will respond with the completion message (in the screen display just shown).

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows an **ENT-NE-SECU** command that provisions the network element's security parameters.

```
ent-ne-secu:LT-PF-2000::CTAG::ALW_UID=Yes,PAGE=60,UOUT=90;  
IP CTAG  
<  
  LT-PF-2000 93-10-26 16:42:11  
M CTAG COMPLD  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If an **ENT-NE-SECU** command is received with an invalid **alw_uid** parameter, the following error response is returned:

```
sid date time  
M ctag DENY  
IDNV  
/* Input, Data Not Valid, invalid ALW_UID */  
;
```

If an **ENT-NE-SECU** command is received with an invalid **page** parameter, the following error response is returned:

```
sid date time  
M ctag DENY  
IDNV  
/* Input, Data Not Valid, invalid PAGE */  
;
```

If an **ENT-NE-SECU** command is received with an invalid **uout** parameter, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid UOUT */
;
```

If an **ENT-NE-SECU** command is received with a null *spec_block* parameter, the following error response is returned:

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

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-NE-SECU

ENT-OCHAN

ENT-OCHAN: Enter Optical_Channel

The privilege level for this command is PRIVILEGED.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

ENT-OCHAN:*tid:aid:ctag:[:[type][::pst]]];*

DESCRIPTION

The **ENT-OCHAN** command messages can be initiated by a user to request OLS to provision various parameters of the optical channels.

When OLS receives an **ENT-OCHAN** command from the user, OLS will provision the appropriate optical channel according to the parameter settings in the command.

The provisioned values remain active until modified (for example, by another TL1 command **ENT-OCHAN** command).

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)

- (dash)

_ (underscore)

/ (slash)

aid

Access identifier. This is the address of the facility for which this command is intended.

Entity: Optical Channel

Legal Values: (OCHAN)-(ALL), (OCHAN)-(1A,1B,2A,2B)-(ALL,1-32)

CenterLink CIT selection options: (OCHAN)-(ALL, 1A, 1B, 2A, 2B)-(ALL, 1-32)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

type

Type. A value for this parameter is neither expected nor allowed.

pst

Primary state. This parameter is used to set the primary state of the OLS optical channel addressed by the *aid* field for the purpose of defining the signal monitoring state of the optical channel. The primary state parameter is position defined.

As optical channels are unidirectional entities, OLS supports the setting of the primary state to define the signal monitoring state of the optical channels only.

OLS allows for user provisioning of 2 basic states: AUTO and NMON. When an OLS optical channel is provisioned in the AUTO state, it will automatically transition to the in-service (IS) state upon any detection on the low speed port of a valid input in the demux direction. AUTO is the default state. When an OLS optical channel *pst* is provisioned in the NMON state, the monitoring of incoming signals is disabled in the demux direction. The port exits this state to the AUTO state through either another **ENT-OCHAN** command. The *pst* may be null or have one of the following two values.

OOS-MA-AS

Out of service, memory administration, assigned. This *pst* value places the port(s) in the AUTO state (in the terminology of OLS). This is the default *pst* value.

OOS

Out of service ("for Memory Administration" implied). This *pst* value places the port(s) in the NMON state (in the terminology of OLS).

A (non-provisionable) third primary port state is supported by OLS, IS ("in service"). OLS optical channels in the AUTO will automatically transition to the IS state upon detecting a valid signal of the facility type they support.

OUTPUT FORMAT

If the network element fully complies with this command, the following output message is returned:

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

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV - HDR**.

EXAMPLE INPUT/OUTPUT

The following example provisions the OLS optical channel "ochan-1a-1" primary state as OOS-MA-AS.

```
ent-ochan:LT-OLS:ochan-1a-1:123456:::OOS-MA-AS;
IP 123456
<
  LT-OLS 93-10-26 16:42:11
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV - HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

In addition to the non-message-specific error responses listed in the **RTRV - HDR ERROR RESPONSES** section, the following error responses are listed in the order and priority that OLS checks for each condition.

If the network element receives this command with any extra (beyond the input format specification above) command parameter blocks (:), parameters (not supported by OLS, delimited by ","), or termination characters (;), the following error response is returned:

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

If the network element receives this command with the same parameter specified more than once, the following error response is returned:

```
sid date time
M ctag DENY
IISP
/* Input, Invalid Syntax or Punctuation, parameter(s) multiply
defined */
;
```

If OLS receives this command without an *aid* value or with an *aid* value that is invalid for the modifier provided, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier, AID missing or inconsistent
with modifier value */
;
```

If the network element receives this command with an invalid *type* value, the following error response is returned:

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

If the network element receives this command with a primary *state* value that is not supported by the network element, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid PST */
;
```

If the network element receives an **ENT-OCHAN** command with otherwise valid *spec_block* parameter(s), but for which, OCHAN and the parameter(s) are not in agreement, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, parameter settings inconsistent with
modifier value */
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-OCHAN

ENT-OLINE

ENT-OLINE: Enter Optical Line

The privilege level for this command is PRIVILEGED.

The OSI category for this command is CONFIGURATION.

This command is available starting in Metropolis® EON Release 8.2.

INPUT FORMAT

ENT-OLINE:*tid*:[*aid*]:*ctag*[:::*spec_block*];

DESCRIPTION

The **ENT-OLINE** command can be initiated by users to set operating parameters in the optical amplifiers.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. The *aid* value, if supplied, specifies that system parameters are to be modified.

Entity: Optical Line

The allowable value is: (**OLINE**)-(ALL, 1A, 1B, 2A, 2B)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. The system level attributes to be modified are specified inside the *spec_block*. Parameters within *spec_block* are specified using a *name=value, name=value, ...* type construct with no constraints on the order of parameters. Constructs such as *name1=value1, name2=, name3=, name4=, name5=value5, ...* are acceptable and in this example only the parameters *name1* and *name5* will be changed at the network element. If the current value of the parameter *name1* is already *value1* in the above example, *name1* will not be changed.

For the **ENT-OLINE** command, the *spec_block* may contain one or more of the following parameters:

DCM_LOSS

The **DCM_LOSS** parameter provides the loss in dB to compensate between the DCM OUT and DCM IN ports of the OA3. The allowed values are in the range "0.5" to "11.0". This parameter is only used by the OA3 circuit pack but can be entered for all equipped OA types.

DCM_TILT

The **DCM_TILT** parameter provides the amount of slope across the wavelength band in dB to compensate between the DCM OUT and DCM IN ports of the OA3. The allowed values are in the range "-1.8" to "0.9". This parameter is only used by the OA3 circuit pack but can be entered for all equipped OA types.

OA_GAIN

The **OA_GAIN** parameter provides the amount of gain between the IN and OUT ports of the OA3 in dB. The allowed values are **NORMAL** or **HIGH**. The default value is **NORMAL**. This parameter is only used by the OA2 or OA3 circuit pack but can be entered for all equipped OA types.

If the *spec_block* is null, the currently effective attributes at the network element system prevails.

OUTPUT FORMAT

If the network element fully complies with the **ENT - OLINE** request, the following completion response is returned.

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

If the **ENT - OLINE** command does not alter the existing system level attributes, the network element will not deny the command. Instead the system will respond with the completion message (shown in the previous screen display).

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV - HDR**.

EXAMPLE INPUT/OUTPUT

The following example shows a command to modify dcm_loss and dcm_tilt:

```
ent-online:LT-PF-2000:sytem:123456:::dcm_loss=3.2, dcm_tilt=0.8;
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```

The following example shows a command to modify the OA gain:

```
ent-online:LT-PF-2000:sytem:123456:::oa_gain=25;
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV - HDR ERROR RESPONSES** section. The error responses listed there also apply to the **ENT - OLINE** command.

If the network element receives this command with an invalid **dcm_loss** value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, dcm_loss out of range */
;
```

If the network element receives this command with an invalid **dcm_tilt** value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, dcm_tilt out of range */
;
```

If the network element receives this command with an invalid **oa_gain** value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, oa_gain out of range */
;
```

If the network element receives a **RTRV** command without an *aid* value or with an *aid* value that is invalid for this command, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier, AID missing or inconsistent
with modifier value */
;
```

If a network element receives an **ENT-OLINE** command with a *spec_block* parameter attribute that does not match the *aid*, or that parameter is not supported by the

particular software release in the receiving system, the following error response is returned:

```
sid date time
M ctag DENY
ICNV
/* Input, Command Not Valid, invalid spec_block parameter */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-OLINE

ENT-OSI

ENT-OSI: Enter OSI

The privilege level for this command is PRIVILEGED.

The OSI category for this command is SECURITY.

This command is available starting in OLS Release 4.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

ENT-OSI:*tid::ctag:[gen_block][:[:[spec_block]]];*

DESCRIPTION



CAUTION:

Execution of this command may affect alarm reporting.



CAUTION:

Execution of this command may reset the TOHCTL.



CAUTION:

Execution of this command may affect TOHCTL service.

ENT-OSI command messages can be initiated by a user to request the provisioning of area address lists that affect the data communications control aspects of the Agent.

When an OLS receives an **ENT-OSI** command from the user, the OLS shall provision the appropriate area addresses and NODE and LAN ISIS protocol according to the parameter settings in the command.

The provisioned values remain active until modified.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)
)] } (close parenthesis)
@ (at sign)
\$ (dollar sign)
& (ampersand)
* (star)
- (dash)
_ (underscore)
/ (slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

gen_block

General block. This optional parameter field provides the capability to extend the usefulness of this command beyond the limits of those fields specified in Bellcore TR-199, Issue 1. For FT-2000 applications, the general block must be null.

spec_block

Specific Parameter Block. Parameters set within the specific block are positionally independent and are set using a construct such as: *PARAMETER=value* in a comma-separated list. The specific block may have zero or more of the following parameters set within it. Furthermore, each parameter listed below may appear at most once within the specific block for a single command.

For each of the following parameters there is listed one or more parameter values. If a particular parameter does not appear in the *spec_block*, its value remains unchanged as a result of this command. The use of the term "null" in the descriptions below implies that the parameter does not appear in the command.

LOCALADDRESS

Local Area Address. This is used to identify the area to which this node belongs. Areas may be introduced to reduce the mutual exchange of routing information between nodes, so that larger management networks are possible.

The local area address is a variable length string of maximum 13 bytes. The address is a string whose value ranges between the hexadecimal numbers 00 to FFFFFFFFFFFFFFFFFFFFFFFF. Each byte is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid address starts with two digits (ranging from 01 to 13) specifying the length of the address followed by the string representing the address.

A total of 14 bytes is required to provision the local area address parameter.

If the number of digits entered is less than the number of digits specified in the first byte, the rest of the bytes shall be populated with zeros. For example, the local area address entered as 03AB08FA signifies a 3 byte address with first byte of 0xAB, second byte of 0x08 and the third byte of 0xFA, and The local area address entered as 03AB08F is interpreted as 03AB08F0.

PROV_SID

Provisioned System Identifier. This parameter is the new value to replace the current "Operational SID" stored in the sysctl EEPROM. The uniqueness of this value must be confirmed prior to provisioning. The Provisioned SID replaces the Operational SID upon execution of the INIT-SYS ph 3 command. IT IS HIGHLY RECOMMENDED THAT THE ORIGINAL SID BE LEFT UNCHANGED. CUSTOMERS ARE EXPECTED TO ASSUME FULL RESPONSIBILITY TO ENSURE THE UNIQUENESS OF THE NEW NUMBER BEFORE MAKING ANY CHANGE TO THIS PARAMETER. An empty string means that the Operational SID is used.

LANISISLVL

LAN ISIS Level. This parameter is used to identify the LAN ISIS protocol (as part of layer-3 of the OSI protocol stack).

This parameter must have one of the following values:

Level-1

Level-1 of the ISIS protocol provides interconnectivity between nodes in an area.

Level-2

Level-2 of the ISIS protocol provides connectivity between areas.

Follow-NODEISISLVL

The IS/IS level on the LAN will follow the IS/IS level on the node (see **NODEISISLVL**).

NODEISISLVL

NODE ISIS Level. This parameter is used to identify the ISIS protocol (as part of layer-3 of the OSI protocol stack).

This parameter must have one of the following values:

Level-1

Level-1 of the ISIS protocol provides interconnectivity between nodes in an area.

Level-2

Level-2 of the ISIS protocol provides connectivity between areas.

If this parameter is not set, then the current level is assumed.

DRP

Designated Router Priority. This is used to identify the designated router priority of a node. The value of this parameter is used for selection of the designated routers per area on a LAN. The node with the highest priority will fulfill the designated router function.

A level-2 designated router is selected from one of the level-2 nodes on the LAN. The level-2 node with the highest priority will be selected.

The value is in the range of 0 (lowest priority) to 127 (highest priority). The designated router priority only applies if the LAN or the node IS/IS level is Level-2.

TRANSFERMODE

transfer mode of the SDCC.

This parameter must have the following value:

UITS

Unacknowledged Information Transfer Service.

OUTPUT FORMAT

If the network element fully complies with this command, the following output message is returned:

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

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV - HDR**.

EXAMPLE INPUT/OUTPUT

The following example shows a command to provision the OSI aspects of the Agent. Input lines are broken here only for the convenience of the reader. Note that the local address provided in the example is a 4-byte string; the field begins with the required size of the string.

```
ent-osi:LT-PF-2000::123456:::localaddress=0439000080,
lanisislvl=level-1,nodeisislvl=level-2,drp=64,transfermode=UITS;
IP 123456
<
LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV - HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

In addition to the non-message-specific error responses listed in the **RTRV - HDR ERROR RESPONSES** section, the following error responses are listed in the order and priority that the network element checks for each condition.

If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (not supported by the network element, delimited by ","), or termination characters (;), the following error response is returned:

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

If the network element receives this command with the same parameter specified more than once, the following error response is returned:

```
sid date time
M ctag DENY
IISP
/* Input, Invalid Syntax or Punctuation, parameter(s) multiply
defined */
;
```

If the network element receives this command with an invalid *localaddress* value, or one that is out of the supported range, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid LOCALADDRESS */
;
```

If the network element receives this command with an *SID* value, which is not in hexadecimal format, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid prov_sid */
;
```

If the network element receives this command with a *nodeisislvl* value that is not **level-1** or **level-2**, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid NODEISISLVL */
;
```

If the network element receives this command with a *drp* value that is out of the supported range, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid DRP */
;
```

If the network element receives this command with a *lanisislvl* value that is not supported by the network element, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid LANISISLVL */
;
```

If the network element receives this command with an invalid *transfermode*, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid TRANSFERMODE */
;
```

If the network element receives this command with otherwise valid *spec_block* parameter(s), but for which the modifier and the parameter(s) are not in agreement, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, parameter settings inconsistent with
modifier value */
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SR0F
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-OSI

ENT-OTPS

ENT-OTPS: Enter OT_Port_Signal

The privilege level for this command is GENERAL.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 3.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

ENT-OTPS:*tid:aid:ctag:[gen_block][:[:[spec_block][:pst]]];*

DESCRIPTION



CAUTION:

Execution of this command may affect alarm reporting.

The **ENT-OTPS** command messages can be initiated by a user to request the provisioning of various port parameters related to optical translator port signal (OTPS) facilities.

When an OLS receives an **ENT-OTPS** command from the user, the OLS shall provision the appropriate OT port signal according to the parameter settings in the command.

The provisioned values remain active until modified.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)

- (dash)

_ (underscore)
/ (slash)

aid

Access Identifier. This is the address of the optical translator port for which the command is intended.

Entity: Port (OTU)

Legal Values: (OTU)-(ALL), (OTU)-(1,2)-(ALL,1-32)-(1)

CenterLink CIT selection options: (OTU)-(ALL, 1, 2)-(ALL, 1-32)-(1)

Entity: Port (OT Port Module)

Legal Values: (OTPM)-(ALL),
(OTPM)-(1,2)-(ALL,1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31)-(ALL,1-4)-(1)

CenterLink CIT selection options: (OTPM)-(ALL, 1, 2)-(ALL, 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31)-(ALL, 1-4)-(1)

Entity: Port (2DM25)

Legal Values: (2DM25)-(ALL), (2DM25)-(1,2)-(ALL), (2DM25)-(1,2)-(1-32)-(ALL, HS, P1, P2)

CenterLink CIT selection options: (2DM25)-(ALL, 1, 2)-(ALL, 1-32)-(ALL, HS,P1,P2)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

gen_block

General block. This optional parameter field provides the capability to extend the usefulness of this command beyond the limits of those fields specified in Bellcore TR-199, Issue 1. For OLS applications, the general block must be null.

spec_block

Specific Parameter Block. Parameters set within the specific block are positionally independent and are set using a construct such as: **PARAMETER=va lue** in a comma-separated list. The specific block may have zero or more of the following parameters set within it. Furthermore, each parameter listed below may appear at most once within the specific block for a single command.

For each of the following parameters there is listed one or more parameter values. If a particular parameter does not appear in the *spec_block*, its value remains unchanged as a result of this command. The use of the term "null" in the descriptions below implies that the parameter does not appear in the command.

LSBbrate

Low Speed Broad Band Bit Rate. This parameter is used to set the bit rate of the Low Speed Broad Band (LSBB) OTPM.

If included in the *spec_block* at all, this parameter must have one of the following values: "*High_Band*", or "*Low_Band*".

The original value is "*High_Band*".

NOTE: No **lsbbrate** value is reported for OTU port signals.

NOTE: The 1.0 Gb/s (GbE-1) is considered "*High_Band*".

This parameter is also used to set the bit rate for the Enhanced Low Speed Broad Band (ELSBB)

OTPM. Besides the "*High_Band*" and "*Low_Band*" values, ELSBB allows two additional values:

"*ETR_CLO*", and "*ISC*". The following provides explanation on each of the values:

ETR_CLO

External Timing Reference or Control Link Oscillator. These are IBM Mainframe protocol with a data rate of 16Mb/s. Note that when "*ETR_CLO*" is being provisioned, OUPSR protection for the signal is prohibited. If the signal is ETR or CLO, then this value should be used, rather than "*Low_Band*".

ISC

Inter-System Channel. Inter-System Channel can be the ISC and ISC-2 signals. These are versions of the IBM Mainframe protocol with a data rate of 1.062Gb/s with the support of Open Fiber Control (OFC). Open Fiber Control is an optics safety interlock scheme supported by some data signals. This is generally associated with Fibre Channel type signals. If the signal is ISC or ISC-2, then this value should be used, rather than "*High_Band*".

High_Band

Any signal rate between from over 430Mb/s to 1.062Gb/s. This is the default value.

Low_Band

Any signal rate between from 16Mb/s to 430Mb/s.

UBBRATE

Universal Broad Band Bit Rate. This parameter is used to provision the incoming signal's expected data bit rate of the Universal Broad Band (UBB) OTPM.

If included in the *spec_block* at all, this parameter must have one of the following values:

ETR

External Timing Reference. An IBM Mainframe protocol with a data rate of 16Mb/s. Note that when "*ETR*" is being provisioned, OUPSR protection for the signal is prohibited.

CLO

Control Link Oscillator. An IBM Mainframe protocol with a data rate of 16Mb/s. Note that when "CLO" is being provisioned, OUPSR protection for the signal is prohibited.

ESCON

Enterprise System CONnection. An IBM Mainframe protocol with a data rate of 200Mb/s and 8B/10B encoding.

ISC-3

Inter-System Channel-3. An IBM Mainframe protocol with a data rate of either 1.062Gb/s or 2.13Gb/s. This value is only for the IBM ISC-3 signal when it runs at Peer Mode, which is at the 2.13Gb/s rate without Open Fiber Control (OFC). Note that UBB does not support ISC, ISC-2 or ISC-3 at Compatibility Mode, of which all of them run at 1.062Gb/s with OFC.

FICON

Fiber CONnection. An IBM Mainframe protocol with a data rate of 1.062Gb/s and 8B/10B encoding.

FX

100Base-FX. Fast Ethernet with a data rate of 125Mb/s and 4B/5B encoding.

GbE-1

1000Base-LX. Gigabit Ethernet with a data rate of 1.25Gb/s and 8B/10B encoding.

FDDI

Fiber Distributed Data Interface with a data rate of 125Mb/s and 4B/5B encoding.

FC-12

Fiber Channel with a data rate of 133Mb/s and 8B/10B encoding.

FC-25

Fiber Channel with a data rate of 266Mb/s and 8B/10B encoding.

FC-50

Fiber Channel with a data rate of 531Mb/s and 8B/10B encoding.

FC-100

Fiber Channel with a data rate of 1.062Gb/s and 8B/10B encoding.

D1-V

Video signal with a data rate of 270Mb/s.

DV6000

Digital Video signal with a data rate of 2.38Gb/s.

OC3

SONET OC3 signal.

OC12

SONET OC3 signal.

OC48

SONET OC48 signal.

STM1

SDH STM1o signal.

STM4

SDH STM4o signal.

STM16

SDH STM16o signal.

UNKNOWN

An unknown signal with data rate in the 50Mb/s to 2.5Gb/s range. This is the default value for **UBBRATE**.

NOTE: No **UBBRATE** value is reported for OTU port signals.

UBBDRMNC

Universal Broad Band Data Rate Mismatch Notification Code. The **UBBDRMNC** parameter is used to set the alarm level (i.e. notification code) of the signal data rate mismatch notification of the addressed UBB OTPM aid (UBB Add circuit pack only). When the measured data rate of the incoming signal differs from the provisioned data rate by 5%, such a notification is generated. This parameter is not applicable to the UBB Drop circuit pack.

If included in the *spec_block* at all, this parameter must have one of the following values: "CR", "MJ", "MN", "NA", "NR", "NO", "CR_Prompt", "MJ_Prompt", "MN_Deferred", "NA_No_Alarm", "NR_No_Report", and "NO_Not_Indicated". The default value of **UBBDRMNC** is "MN_Deferred" for SDH applications and "MN" for all other applications.

CR

Critical. If provisioned as *CR*, a data rate mismatch failure on the addressed port will result in an autonomous REPT ALM message with a notification code of CR being generated and sent to the user.

MJ

Major. If provisioned as *MJ*, a data rate mismatch failure on the addressed port will result in an autonomous REPT ALM message with a notification code of MJ being generated and sent to the user.

MN

Minor. If provisioned as *MN*, a data rate mismatch failure on the addressed port will result in an autonomous REPT ALM message with a notification code of MN being generated and sent to the user.

NA

Not alarmed. If provisioned as *NA*, a data rate mismatch failure on the addressed port will result in an autonomous REPT EVT message being generated and sent to the user.

NR

Not reported. If provisioned as *NR*, a data rate mismatch failure on the addressed port will result in no autonomous message being generated and sent to the user. If this condition remains active when an appropriate **RTRV-COND** TL1 message is received by the network element, it will be reported in the response.

NO

Not indicated. If provisioned as *NO*, a data rate mismatch failure on the addressed port will result in no failure indication being generated whatsoever for the underlying failure condition. No report, autonomous or otherwise will be generated and sent to the user.

CR_Prompt

Critical/Prompt. If provisioned as *CR_Prompt*, a data rate mismatch failure on the addressed port will result in an autonomous REPT ALM message with a notification code of *CR_Prompt* being generated and sent to the user.

MJ_Prompt

Major/Prompt. If provisioned as *MJ_Prompt*, a data rate mismatch failure on the addressed port will result in an autonomous REPT ALM message with a notification code of *MJ_Prompt* being generated and sent to the user.

MN_Deferred

Minor/Deferred. If provisioned as *MN_Deferred*, a data rate mismatch failure on the addressed port will result in an autonomous REPT ALM message with a notification code of *MN_Deferred* being generated and sent to the user.

NA_No_Alarm

Not Alarmed/No_Alarm. If provisioned as *NA_No_Alarm*, a data rate mismatch failure on the addressed port will result in an autonomous REPT EVT message being generated and sent to the user.

NR_No_Report

Not Reported/No_Report. If provisioned as *NR_No_Report*, a data rate mismatch failure on the addressed port will result in no autonomous message being generated and sent to the user. If this condition remains active when an appropriate **RTRV-COND** TL1 message is received by the network element, it will be reported in the response.

NO_Not_Indicated

Not indicated. If provisioned as *Not_Indicated*, a data rate mismatch failure on the addressed port will result in no failure indication being generated whatsoever for the underlying failure condition. No report, autonomous or otherwise will be generated and sent to the user.

OC192IN

OC-192 Input. This parameter indicates whether the expected input is a standard OC-192 signal or an OCh 10G signal (OC-192 signal with digital wrapper overhead information added). The allowable values for this parameter are "OC192", "OCH" and "DEFAULT". The original value is "DEFAULT". The Strong Forward Error Correction is enabled if the **OC192IN** parameter is set to "OCH".

When the value of the **OC192IN** parameter is provisioned to be "DEFAULT", the operation is as follows, regardless of the value of **OC192OUT**:

- n If the OTU circuit pack in the related slot is an add-type OTU, the behavior will be as if OC192IN was set "OC192" and OC192OUT was set to "OCH". That is, the OTU will operate as an optical channel overhead source.
- n If the OTU circuit pack in the related slot is a through-type OTU, the behavior will be as if OC192IN was set to "OCH" and OC192OUT was set to "OCH". That is, the OTU will operate as an optical channel overhead repeater.
- n If the OTU circuit pack in the related slot is an drop-type OTU, the behavior will be as if OC192IN was set to "OCH" and OC192OUT was set "OC192". That is, the OTU will operate as an optical channel overhead sink.

OC192OUT

OC-192 Output. This parameter indicates whether the output signal is to be a standard OC-192 signal or an OC-192 signal with optical channel (OCH) overhead information added. The allowable values for this parameter are "OC192" and "OCH". The default value is "OC192".

CEXP2DM25

2DM25 Client Expected Input. This parameter is used to provision the incoming signal's expected data bit rate of the 2:1 Data Muxing OTU at 2.5G (2DM25).

If included in the *spec_block*, this parameter must have one of the following values:

ESCON

Enterprise System CONnection. An IBM Mainframe protocol with a data rate of 200Mb/s and 8B/10B encoding.

ISC_CF

Inter-System Channel or Coupling Facility. These are IBM Mainframe protocol with a data rate of 1.062Gb/s.

FICON

Fiber CONnection. An IBM Mainframe protocol with a data rate of 1.062Gb/s and 8B/10B encoding.

GbE-1

1000Base-LX. Gigabit Ethernet with a data rate of 1.25Gb/s and 8B/10B encoding.

FC-100

Fiber Channel with a data rate of 1.062Gb/s and 8B/10B encoding.

UNEQPT

Un-equipped. This is the default value.

CW2DM25

2DM25 Client wavelength. This parameter is used to provision the input client wavelength of the 2:1 Data Muxing OTU at 2.5G.

If included in the *spec_block*, this parameter must have one of the following values:

MM850nm

The input wavelength is Multimode 850 nm.

MM1310nm

The input wavelength is Multimode 1310 nm.

SM1310nm

The input wavelength is Single mode 1310 nm.

The default value is MM850nm.

NOTE: The parameters LSBBRATE, UBBRATE, UBBDRMNC, OC192IN, OC192OUT, CEXP2DM25 and CW2DM25 are specific to a circuit pack, thus a request to provision a parameter that does not agree to the actual circuit pack inserted will be denied.

NOTE: All parameters supports preprovisioning. If a circuit pack specific parameter is provisioned (i.e., UBBRATE), but a different circuit pack is inserted (i.e., 10G OTU), then the default values for the parameters applicable to the inserted circuit pack (i.e., OC192IN and OC192OUT) will be used.

NTFCNCDE

Notification code. The **NTFCNCDE** parameter is used to set the alarm level of facility failures carried by the addressed aid.

If included in the *spec_block* at all, this parameter must have one of the following values: "CR", "MJ", "MN", "NA", "NR", "NO", "CR_Prompt", "MJ_Prompt", "MN_Deferred", "NA_No_Alarm", "NR_No_Report", and "NO_Not_Indicated".

CR

Critical. If provisioned as *CR*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of CR being generated and sent to the user.

MJ

Major. If provisioned as *MJ*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of MJ being generated and sent to the user.

MN

Minor. If provisioned as *MN*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of MN being generated and sent to the user.

NA

Not alarmed. If provisioned as *NA*, a facility failure on the addressed port will result in an autonomous REPT EVT message being generated and sent to the user.

NR

Not reported. If provisioned as *NR*, a facility failure on the addressed port will result in no autonomous message being generated and sent to the user. If this condition remains active when an appropriate **RTRV-COND** TL1 message is received by the network element, it will be reported in the response.

NO

Not indicated. If provisioned as *NO*, a optical low speed facility failure on the addressed port will result in no failure indication being generated whatsoever for the underlying failure condition. No report, autonomous or otherwise will be generated and sent to the user.

CR_Prompt

Critical/Prompt. If provisioned as *CR_Prompt*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of CR_Prompt being generated and sent to the user.

MJ_Prompt

Major/Prompt. If provisioned as *MJ_Prompt*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of MJ_Prompt being generated and sent to the user.

MN_Deferred

Minor/Deferred. If provisioned as *MN_Deferred*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of MN_Deferred being generated and sent to the user.

NA_No_Alarm

Not Alarmed/No_Alarm. If provisioned as *NA_No_Alarm*, a facility failure on the addressed port will result in an autonomous REPT EVT message being generated and sent to the user.

NR_No_Report

Not Reported/No_Report. If provisioned as *NR_No_Report*, a facility failure on the addressed port will result in no autonomous message being generated and sent to the user. If this condition remains active when an appropriate **RTRV-COND** TL1 message is received by the network element, it will be reported in the response.

NO_Not_Indicated

Not indicated. If provisioned as *Not_Indicated*, a optical low speed facility failure on the addressed port will result in no failure indication being generated whatsoever for the underlying failure condition. No report, autonomous or otherwise will be generated and sent to the user.

pst

Primary state. This parameter is used to set the primary state of the port(s) (that is, the optical signal input). The primary state parameter is position defined.

The OTU allows for user provisioning of two basic states: AUTO and NMON. When an OTU low speed port *pst* is provisioned in the AUTO state, it will automatically transition to the in-service (IS) state upon any detection on the low speed port of a valid input. When an OTU low speed port *pst* is provisioned in the NMON state, the monitoring of incoming signals is disabled. The port exits this state to the AUTO state through either another **ENT** command or **UPDATE**.

The *pst* must be null or have one of the following two values: "**OOS-MA-AS**" or "**OOS**".

OOS-MA-AS

Out of service, memory administration, assigned. This *pst* value places the port(s) in the AUTO state. This is the default *pst* value.

OOS

Out of service ("*for Memory Administration*" implied). This *pst* value places the port(s) in the NMON state.

OUTPUT FORMAT

If the network element fully complies with this command, the following output message is returned:

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

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

The following example shows a command to provision an OC192 OTU signal in slot three of OT bay one to an alarm level of *MJ_Prompt*:

```
ent-otps:LT-PF-2000:otu-1-3-1:123456:::oc192in=och,oc192out=oc192,ntfc-
ncde=mj_prompt;
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```

The following example shows a command to provision an 2DM25 OTU signal in slot ten of OT bay one to expect GbE-1 as port 1 input:

```
ent-otps:EON:2DM25-1-10-p1:123456:::cexp2dm25=GbE-1;
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

In addition to the non-message-specific error responses listed in the **RTRV-HDR ERROR RESPONSES** section, the following error responses are listed in the order and priority that the network element checks for each condition.

If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (not supported by the network element, delimited by ","), or termination characters (;), the following error response is returned:

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

If the network element receives this command with the same parameter specified more than once, the following error response is returned:

```
sid date time
M ctag DENY
IISP
/* Input, Invalid Syntax or Punctuation, parameter(s) multiply
defined */
;
```

If the network element receives this command without an *aid* value or with an *aid* value that is invalid for the *modifier* provided, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier, AID missing or inconsistent
with modifier value */
;
```

If the network element receives this command with an invalid **LSBBRATE** value (note that *ETR_CLO* and *ISC* are considered invalid **LSBBRATE** value if the pack is an LSBB, not an ELSBB), or the AID does not refer to a LSBB or an ELSBB circuit pack (if inserted), the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid LSBBRATE */
;
```

If the network element receives this command with an **LSBBRATE** value with an OTU *aid*, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier */
;
```


If the network element receives this command with *ETR_CLO* as the **LSBBRATE** value and it is determined that the circuit pack is an ELSBB pack (if inserted), but there is an existing OUPSR association for that OTPM, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, ETR or CLO can't be provisioned due to
established OUPSR association. Establishing this provision requires the OUPSR
association to be deleted first.*/
;
```

If the network element receives this command with an invalid **UBBRATE** value, or the AID does not refer to a UBB circuit pack (if inserted), the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid UBBRATE */
;
```

If the network element receives this command with an **UBBRATE** value for an OTU *aid*, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier */
;
```

If the network element receives this command with *ETR* or *CLO* as the **UBBRATE** value and it is determined that the circuit pack is an UBB pack (if inserted), but there is an existing OUPSR association for that OTPM, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, ETR or CLO can't be provisioned due to
established OUPSR association. Establishing this provision requires the OUPSR
association to be deleted first.*/
;
```

If the network element receives this command with a **UBBDRMNC** value that is not supported by network element, or the AID does not refer to a UBB circuit pack (if inserted), the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid UBBDRMNC */
;
```

If the network element receives this command with an **UBBDRMNC** value for an UBB Drop circuit pack, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid UBBDRMNC */
;
```

If the network element receives this command with an **UBBDRMNC** value for an OTU *aid*, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier */
;
```

If the network element is provisioned as SDH and receives this command with a SONET **UBBDRMNC** value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid UBBDRMNC */
;
```

If the network element receives this command with a **OC192IN** value that is not supported by the network element, or the AID does not refer to a 10G OTU circuit pack (if inserted), the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid OC192IN */
;
```

If the network element receives this command with a **OC192OUT** value that is not supported by the network element, or the AID does not refer to a 10G OTU circuit pack (if inserted), the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid OC192OUT */
;
```

If the network element receives this command with a **CEXP2DM25** value that is not supported by the network element, or the AID does not refer to a 2DM25 circuit pack (if inserted), the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid CEXP2DM25 */
;
```

If the network element receives this command with a **CW2DM25** value that is not supported by the network element, or the AID does not refer to a 2DM25 circuit pack (if inserted), the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid CW2DM25 */
;
```

If the network element receives this command with a **NTFCNCDE** value that is not supported by network element, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid NTFCNCDE */
;
```

If the network element is provisioned as SDH and receives this command with a SONET **NTFCNCDE** value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid NTFCNCDE */
;
```

If the network element receives this command with a *primary state* value that is not supported by the network element, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid PST */
;
```

If the network element receives this command with otherwise valid *spec_block* parameter(s), but for which the modifier and the parameter(s) are not in agreement, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, parameter settings inconsistent with
modifier value */
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-OTPS

ENT-PATHTRC

ENT - PATHTRC: Enter Path_Trace

The privilege level for this command is PRIVILEGED.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 8.2.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

ENT - PATHTRC:*tid:aid:ctag:::[spec_block];*

DESCRIPTION

The **ENT - PATHTRC** commands can be initiated by users to assign user-settable strings to the transmit and receive path trace fields (J1 byte) of a SONET path terminating signal at the addressed entity. This command can also be initiated by the users to assign a user-settable text string to the expected received path trace at the addressed entity.

This command is utilized only by MUX OTUs.

INPUT PARAMETERS

<i>tid</i>	Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set: [A-Z][a-z][0-9] . (period) + (plus) % (percentage) # (pound) { [((open parenthesis))] } (close parenthesis) @ (at sign) \$ (dollar sign) & (ampersand) * (star)

- (dash)
_ (underscore)
/ (slash)

aid Access identifier. This is the address of the entity for which the report is requested.
Entity: Port (2DM25)
Legal Values: (2DM25)-(1,2)-(1-32)-(HS,P1,P2)
CenterLink CIT selection options: (2DM25)-(1, 2)-(1-32)-(HS,P1,P2)

ctag Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block Specific Parameter Block. This parameter field is used to enter the user-settable strings to the transmit and receive path trace fields of a SONET path terminating signal. Parameters within the *spec_block* are specified using a name-defined construct of: *PARAMETER=value* in a comma separated list.

For the **ENT-PATHTRC** command, the *spec_block* may contain zero or more of the following parameters:

Furthermore, each parameter listed below may appear at most once within the *spec_block* for a single **ENT-PATHTRC** command.

TXPATHTRC Transmitted path trace overhead message. The **TXPATHTRC** is a string of up to 15 ASCII alphanumeric and special characters as specified below. The message must be enclosed using delimiters. The delimiter to be used is \" [that is, backslash followed by double-quotes].

An **TXPATHTRC** of less than 15 characters is padded out to the right to 15 unprintable characters whose Hex representation is 00.

If **TXPATHTRC** is not specified, the previously provisioned value is not changed.

This parameter is used only when addressing an MUX OTU high speed egress signal, where the client low speed input signals are mapped into the high-speed output signal for transmitting in the EON system. It will be denied for the low-speed ports.

The user is allowed to enter any combination of up to 15 ASCII characters as the **TXPATHTRC**. The allowed ASCII characters are letters "A" through "Z" and "a" through "z",

numbers "0" through "9", and special characters: "#" (pound), "\$" (dollar), "%" (percent), "&" (ampersand), "*" (asterisk), "(" (open parenthesis), ")" (close parenthesis), "+" (plus), "|" (pipe), "-" (hyphen), "[" (open square bracket), "]" (close square bracket), "{" (open bracket), "}" (close bracket), "'" (apostrophe), "" (grave accent), "." (period), "/" (slash), "<" (less than), and ">" (greater than).

The string "RESET_PATHTRC" is the original value of **TXPATHTRC**.

For any value of the TXPATHTRC composed of characters from all the allowable character set plus 0x00 pad bytes, including the original value "RESET_PATHTRC", the software causes the MUX OTU to transmit this as the path trace overhead (J1 byte) in accordance with ITU recommendation G.831 and G.707. That is, the first byte of the 16 bytes is used for CRC7 calculation. The other 15 bytes are used to transmit the J1 byte information according to recommendation T.50 and ITU-T Recommendations G.831 and G.707).

EXPPATHTRC

Expected incoming Path trace message. This indicates the expected Path Trace (J1) Byte content. The **EXPPATHTRC** is a string of up to 15 ASCII alphanumeric and special characters as specified below. The message must be enclosed using delimiters. The delimiter to be used is \" [that is, backslash followed by double-quotes].

An **EXPPATHTRC** of less than 15 characters is padded out to the right to 15 unprintable characters whose Hex representation is 00.

If **EXPPATHTRC** is not specified, the previously provisioned value is not changed.

This parameter is used only when addressing a MUX OTU high speed incoming signal, which is de-multiplexed into low speed client output signals to be sent to the client equipment. It will be denied for the low-speed ports.

The allowable character set for **EXPPATHTRC** is the same character set defined above for **TXPATHTRC**.

The string "RESET_PATHTRC" is reserved to reset the value of **EXPPATHTRC** to its original value.

If the user enters any other string than "RESET_PATHTRC" as the value for **EXPPATHTRC**, the software causes the Network Element to expect to receive the J1 byte string in accordance with ITU recommendation G.831 (The first byte of 16 bytes is used for CRC7 calculation. The other 15 bytes are

used to transmit the J1 byte information according to recommendation T.50 and ITU-T Recommendations G.831 and G.707).

NTFCNCDE

Notification code. The **NTFCNCDE** parameter is used to set the alarm level of facility failures carried by the addressed aid.

If included in the spec_block at all, this parameter must have one of the following values: "CR", "MJ", "MN", "NA", "NR", "NO", "CR_Prompt", "MJ_Prompt", "MN_Deferred", "NA_No_Alarm", "NR_No_Report", and "NO_Not_Indicated".

CR

Critical. If provisioned as *CR*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of CR being generated and sent to the user.

MJ

Major. If provisioned as *MJ*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of MJ being generated and sent to the user.

MN

Minor. If provisioned as *MN*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of MN being generated and sent to the user.

NA

Not alarmed. If provisioned as *NA*, a facility failure on the addressed port will result in an autonomous REPT EVT message being generated and sent to the user.

NR

Not reported. If provisioned as *NR*, a facility failure on the addressed port will result in no autonomous message being generated and sent to the user. If this condition remains active when an appropriate **RTRV-COND** TL1 message is received by the network element, it will be reported in the response.

NO

Not indicated. If provisioned as *NO*, a optical low speed facility failure on the addressed port will result in no failure indication being generated whatsoever for the underlying failure condition. No report, autonomous or otherwise will be generated and sent to the user.

CR_Prompt

Critical/Prompt. If provisioned as *CR_Prompt*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of CR_Prompt being generated and sent to the user.

MJ_Prompt

Major/Prompt. If provisioned as *MJ_Prompt*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of MJ_Prompt being generated and sent to the user.

MN_Deferred

Minor/Deferred. If provisioned as *MN_Deferred*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of MN_Deferred being generated and sent to the user.

NA_No_Alarm

Not Alarmed/No_Alarm. If provisioned as *NA_No_Alarm*, a facility failure on the addressed port will result in an autonomous REPT EVT message being generated and sent to the user.

NR_No_Report

Not Reported/No_Report. If provisioned as *NR_No_Report*, a facility failure on the addressed port will result in no autonomous message being generated and sent to the user. If this condition remains active when an appropriate **RTRV-COND** TL1 message is received by the network element, it will be reported in the response.

NO_Not_Indicated

Not indicated. If provisioned as *Not_Indicated*, a optical low speed facility failure on the addressed port will result in no failure indication being generated whatsoever for the underlying failure condition. No report, autonomous or otherwise will be generated and sent to the user.

The original parameter value for ntfncdc is *NA_No_Alarm*.

If there is no *spec_block* entry, the currently effective path trace strings provisioned in the network element prevail.

OUTPUT FORMAT

If the network element fully complies with the **ENT-PATHTRC** request, the following normal completion response is returned:

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

If the **ENT-PATHTRC** command does not alter the existing path trace strings, the network element provides a normal completion response.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

```
ENT-PATHTRC:EON:2dm25-1-32-hs:123456:::EXPPATHTRC="\ExptSectTrc1234\";
IP 123456
<
LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives an **ENT-PATHTRC** command with an invalid *aid* value, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier */
;
```

If the network element receives an **ENT-PATHTRC** command with an invalid *spec_block* parameter(s) in an **ENT-PATHTRC** command, the following error response is returned:

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

If this command is received with an invalid **TXPATHTRC** value, including missing leading and/or trailing escaped quotes (\") and/or more than 15 characters in the string and/or unallowed space character in the string, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid TXPATHTRC */
;
```

If this command is received with an invalid **EXPPATHTRC** value, including missing leading and/or trailing escaped quotes (\") and/or more than 15 characters in the string and/or unallowed space character in the string, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid EXPPATHTRC */
;
```

This error message will be displayed when one or more spaces are specified and are double quoted.

If the network element receives this command with a **NTFCNCDE** value that is not supported by network element, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid NTFCNCDE */
;
```

If the network element is provisioned as SDH and receives this command with a SONET **NTFCNCDE** value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid NTFCNCDE */
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV - SECTRC

ENT-SECTRC

ENT-SECTRC: Enter Section_Trace

The privilege level for this command is PRIVILEGED.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 3.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

ENT-SECTRC:*tid:aid:ctag:::[spec_block];*

DESCRIPTION

The **ENT-SECTRC** commands can be initiated by users to assign user-settable strings to the transmit and receive section trace fields (J0 byte) of a SONET section terminating signal.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This is the address of the entity for which the report is requested.

Entity: Single Port (OTU)

Legal Values: (OTU)-(1,2)-(1-32)-(1)

CenterLink CIT selection options: (OTU)-(1, 2)-(1-32)-(1)

Entity: Single Port (OT Port Module)

Legal Values: (OTPM)-(1,2)-(1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31)-(1-4)-(1)

CenterLink CIT selection options: (OTPM)-(1,2)-(1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31)-(1-4)-(1)

Entity: Port (2DM25)

Legal Values: (2DM25)-(1,2)-(1-32)-(HS)

CenterLink CIT selection options: (2DM25)-(1, 2)-(1-32)-(HS)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. This parameter field is used to enter the user-settable strings to the transmit and receive section trace fields of a SONET section terminating signal. Parameters within the *spec_block* are specified using a name-defined construct of: **PARAMETER=va lue** in a comma separated list.

For the **ENT-SECTRC** command, the *spec_block* may contain zero or more of the following parameters:

Furthermore, each parameter listed below may appear at most once within the *spec_block* for a single **ENT-SECTRC** command

EXPSECTRC

Expected incoming Section trace message. This indicates the expected Path Trace (J0) Byte content. The **EXPSECTRC** is a string of up to 15 ASCII alphanumeric and special characters as specified below. The message must be enclosed using delimiters. The delimiter to be used is \" [that is, backslash followed by double-quotes].

An **EXPSECTRC** of less than 15 characters is padded out to the right to 15 unprintable characters whose Hex representation is 00.

If **EXPSECTRC** is not specified, the previously provisioned value is not changed.

The user is allowed to enter any combination of up to 15 ASCII characters as the **EXPSECTRC**. The allowed ASCII characters are letters "A" through "Z" and "a" through "z", numbers "0" through "9", and special characters: "#" (pound), "\$" (dollar), "%" (percent), "&" (ampersand), "*" (asterisk), "(" (open parenthesis), ")" (close parenthesis), "+" (plus), "|" (pipe), "-" (hyphen), "[" (open square bracket), "]" (close square bracket), "{" (open bracket), "}" (close bracket), "'" (apostrophe), "`" (grave accent), "." (period), "/" (slash), "<" (less than), and ">" (greater than).

The string **EXPSECTRC="RESET_SECTRC"** is reserved to reset the value of **EXPSECTRC** to its original value.

ITU Recommendation G.707 (ITU) defines the J0 as follows:

- The section access point identifier may use either a single byte (containing the code 0-255)
- The access point identifier format as defined in section 3 of ITU-T Recommendation G.831 and ITU-T Recommendation G.707.

The received section trace is as follows:

The Network Element must have the capability to recognize both types of J0 section trace formats:

- In the receive end, when the network element receives any single constant byte string in the J0 byte position of the Section Overhead of the first STS-1 of an STS-N, the network element has the capability to recognize it as a valid string. The software has the capability to compare the value of this constant incoming string against the original parameter of **EXPSECTRC**.
- When the user provisions the parameter **EXPSECTRC** as "RESET_SECTRC", the software causes the Network Element to expect a constant single byte in the J0 byte position of the Section Overhead of the first STS-1 of an STS-N, whose Hex representation value is 01 (1 is the LEAST Significant Bit). This constant string is the original value of **EXPSECTRC**.
- If the user enters any other string than "RESET_SECTRC" as the value for **EXPSECTRC**, the software causes the Network Element to expect to receive the J0 byte string in accordance with ITU recommendation G.831 (The first byte of 16 bytes is used for CRC7 calculation. The other 15 bytes are used to transmit the J0 byte information according to recommendation T.50 and ITU-T Recommendations G.831 and G.707).

NTFCNCDE

Notification code. The **NTFCNCDE** parameter is used to set the alarm level of facility failures carried by the addressed aid.

If included in the spec_block at all, this parameter must have one of the following values: "CR", "MJ", "MN", "NA", "NR", "NO", "CR_Prompt", "MJ_Prompt", "MN_Deferred", "NA_No_Alarm", "NR_No_Report", and "NO_Not_Indicated".

CR

Critical. If provisioned as *CR*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of CR being generated and sent to the user.

MJ

Major. If provisioned as *MJ*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of MJ being generated and sent to the user.

MN

Minor. If provisioned as *MN*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of MN being generated and sent to the user.

NA

Not alarmed. If provisioned as *NA*, a facility failure on the addressed port will result in an autonomous REPT EVT message being generated and sent to the user.

NR

Not reported. If provisioned as *NR*, a facility failure on the addressed port will result in no autonomous message being generated and sent to the user. If this condition remains active when an appropriate **RTRV-COND** TL1 message is received by the network element, it will be reported in the response.

NO

Not indicated. If provisioned as *NO*, a optical low speed facility failure on the addressed port will result in no failure indication being generated whatsoever for the underlying failure condition. No report, autonomous or otherwise will be generated and sent to the user.

CR_Prompt

Critical/Prompt. If provisioned as *CR_Prompt*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of *CR_Prompt* being generated and sent to the user.

MJ_Prompt

Major/Prompt. If provisioned as *MJ_Prompt*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of *MJ_Prompt* being generated and sent to the user.

MN_Deferred

Minor/Deferred. If provisioned as *MN_Deferred*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of *MN_Deferred* being generated and sent to the user.

NA_No_Alarm

Not Alarmed/No_Alarm. If provisioned as *NA_No_Alarm*, a facility failure on the addressed port will result in an autonomous REPT EVT message being generated and sent to the user.

NR_No_Report

Not Reported/No_Report. If provisioned as *NR_No_Report*, a facility failure on the addressed port will result in no autonomous message being generated and sent to the user. If this condition remains active when an appropriate **RTRV-COND** TL1 message is received by the network element, it will be reported in the response.

NO_Not_Indicated

Not indicated. If provisioned as *Not_Indicated*, a optical low speed facility failure on the addressed port will result in no failure indication being generated whatsoever for the underlying failure condition. No report, autonomous or otherwise will be generated and sent to the user.

The original parameter value for *ntfcncde* is *NA_No_Alarm*.

If there is no *spec_block* entry, the currently effective section trace strings provisioned in the network element prevail.

OUTPUT FORMAT

If the network element fully complies with the **ENT-SECTRC** request, the following normal completion response is returned:

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

If the **ENT-SECTRC** command does not alter the existing section trace strings, the network element provides a normal completion response.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

```
ENT-SECTRC:LT-PF-2000:otu-1-32-1:123456:::EXPSECTRC="\
ExptSectTrc1234\";
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives an **ENT-SECTRC** command with an invalid *aid* value, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier */
;
```

If the network element receives an **ENT-SECTRC** command with an invalid *spec_block* parameter(s), in an **ENT-SECTRC** command, the following error response is returned:

```
sid date time
M ctag DENY
IISP
/* Input, Data Not Valid, invalid punctuation or syntax.
*/
;
```

If this command is received with an invalid **EXPSECTRC** value, including missing leading and/or trailing escaped quotes (\") and/or more than 15 characters in the string and/or unallowed space character in the string, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid EXPSECTRC */
;
```

This error message will be displayed when one or more spaces are specified and are double quoted.

If the network element receives this command with a **NTFCNCDE** value that is not supported by network element, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid NTFCNCDE */
;
```

If the network element is provisioned as SDH and receives this command with a SONET **NTFCNCDE** value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid NTFCNCDE */
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-SECTRC

ENT-SUPR

ENT-SUPR: Enter Supervisory

The privilege level for this command is PRIVILEGED.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

ENT-SUPR:*tid:aid:ctag:[:[type][:[spec_block]]];*

DESCRIPTION

The **ENT-SUPR** command messages can be initiated by a user to request OLS to provision various parameters of the supervisory channel.

When OLS receives an **ENT-SUPR** command from the user, OLS will provision the appropriate supervisory channel according to the parameter settings in the command.

The provisioned values remain active until modified (for example, by another command).

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)

- (dash)

_ (underscore)

/ (slash)

aid

Access identifier. This is the address of the facility for which this command is intended.

Entity: Supervisory Channel [End terminals and Repeaters]

Legal Values: (SUPR)-(ALL, 1A, 1B, 2A, 2B)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

type

Type. A value for this parameter is neither expected nor allowed.

spec_block

Specific Parameter Block. Parameters set within the specific block are positionally independent and are set using a construct such as: **PARAMETER**=*value* in a comma-separated list. The specific block may have zero or more of the following parameters set within it. Furthermore, each parameter listed below may appear at most once within the specific block for a single command.

For each of the following parameters there is listed one or more parameter values. If a particular parameter does not appear in the *spec_block*, its value remains unchanged as a result of this command. The use of the term "null" in the descriptions below implies that the parameter does not appear in the command.

NTFCNCDE

Notification code. The **NTFCNCDE** parameter is used to set the alarm level of facility failures carried by the addressed aid.

If included in the *spec_block* at all, this parameter must have one of the following values: "CR", "MJ", "MN", "NA", "NR", "NO", "CR_Prompt", "MJ_Prompt", "MN_Deferred", "NA_No_Alarm", "NR_No_Report", and "NO_Not_Indicated".

CR

Critical. If provisioned as *CR*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of CR being generated and sent to the user.

MJ

Major. If provisioned as *MJ*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of MJ being generated and sent to the user.

MN

Minor. If provisioned as *MN*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of MN being generated and sent to the user.

NA

Not alarmed. If provisioned as *NA*, a facility failure on the addressed port will result in an autonomous REPT EVT message being generated and sent to the user.

NR

Not reported. If provisioned as *NR*, a facility failure on the addressed port will result in no autonomous message being generated and sent to the user. If this condition remains active when an appropriate **RTRV - COND** TL1 message is received by the network element, it will be reported in the response.

NO

Not indicated. If provisioned as *NO*, a optical low speed facility failure on the addressed port will result in no failure indication being generated whatsoever for the underlying failure condition. No report, autonomous or otherwise will be generated and sent to the user.

CR_Prompt

Critical/Prompt. If provisioned as *CR_Prompt*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of CR_Prompt being generated and sent to the user.

MJ_Prompt

Major/Prompt. If provisioned as *MJ_Prompt*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of MJ_Prompt being generated and sent to the user.

MN_Deferred

Minor/Deferred. If provisioned as *MN_Deferred*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of MN_Deferred being generated and sent to the user.

NA_No_Alarm

Not Alarmed/No_Alarm. If provisioned as *NA_No_Alarm*, a facility failure on the addressed port will result in an autonomous REPT EVT message being generated and sent to the user.

NR_No_Report

Not Reported/No_Report. If provisioned as *NR_No_Report*, a facility failure on the addressed port will result in no autonomous message being generated and sent to the user. If this condition remains active when an appropriate **RTRV - COND** TL1 message is received by the network element, it will be reported in the response.

NO_Not_Indicated

Not indicated. If provisioned as *Not_Indicated*, a optical low speed facility failure on the addressed port will result in no failure indication being generated whatsoever for the underlying failure condition. No report, autonomous or otherwise will be generated and sent to the user.

SDTHR

Signal degrade threshold. This parameter is used to set the signal degrade threshold in terms of Bit Error Rate (BER) for the supervisory channel(s) addresses by the aid

If included in the spec_block at all, SDTHR may have one of the following values: "-9", "-8", "-7", "-6", or "-5".

-9

This sets the signal degrade threshold at a BER of 10^{-9} .

-8

This sets the signal degrade threshold at a BER of 10^{-8} .

-7

This sets the signal degrade threshold at a BER of 10^{-7} .

-6

This sets the signal degrade threshold at a BER of 10^{-6} .

-5

This sets the signal degrade threshold at a BER of 10^{-5} .

OUTPUT FORMAT

If the network element fully complies with this command, the following output message is returned:

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

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV - HDR**.

EXAMPLE INPUT/OUTPUT

The following example provisions the OLS supervisory signal "supr-1a" provisioning as follows:

— Signal Degrade Threshold of 10^{-6}

— Supv. Failure Alarm Level of MN

```
ent-supr:LT-OLS:supr-1a:123456:::SDTHR=-6,NTFCNCDE=MN;
IP 123456
<
  LT-OLS 93-10-26 16:42:11
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

In addition to the non-message-specific error responses listed in the **RTRV-HDR ERROR RESPONSES** section, the following error responses are listed in the order and priority that OLS checks for each condition.

If the network element receives this command with any extra (beyond the input format specification above) command parameter blocks (:), parameters (not supported by OLS, delimited by ","), or termination characters (;), the following error response is returned:

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

If the network element receives this command with the same parameter specified more than once, the following error response is returned:

```
sid date time
M ctag DENY
IISP
/* Input, Invalid Syntax or Punctuation, parameter(s) multiply
defined */
;
```

If OLS receives this command without an *aid* value or with an *aid* value that is invalid for the modifier provided, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier, AID missing or inconsistent
with modifier value */
;
```

If the network element receives this command with an invalid *type* value, the following error response is returned:

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

If the network element receives this command with a **NTFCNCDE** value that is not supported by network element, the following error response is returned:

```
sid date time
M ctag DENY
  IDNV
/* Input, Data Not Valid, invalid NTFCNCDE */
;
```

If the network element is provisioned as SDH and receives this command with a SONET **NTFCNCDE** value, the following error response is returned:

```
sid date time
M ctag DENY
  IDNV
/* Input, Data Not Valid, invalid NTFCNCDE */
;
```

If the network element receives an **ENT-SUPR** command with otherwise valid *spec_block* parameter(s), but for which, **SUPR** and the parameter(s) are not in agreement, the following error response is returned:

```
sid date time
M ctag DENY
  IDNV
/* Input, Data Not Valid, parameter settings inconsistent with
modifier value */
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SR0F
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-SUPR

ENT-SYS

ENT-SYS: Enter System

The privilege level for this command is PRIVILEGED.

The OSI category for this command is SECURITY.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

ENT-SYS:*tid:[aid]:ctag[:::spec_block];*

DESCRIPTION

The **ENT-SYS** command can be initiated by users to modify system attributes associated with the network element at the system level or X.25 attributes, but is not associated with any particular facility or equipment unit. Only the attributes specified in the command will be changed; those attributes not in the command will remain as before.

The **ENT-SYS** command can also be initiated by users to modify the alarm status and service condition of the optical line. Only the attributes specified in the command will be changed; those attributes not in the command will remain as before.

When a network element receives an **ENT-SYS** command from a user, the network element will modify its system level or X.25 attributes with the received attributes if the received attributes are different from the currently effective attributes at the system. If the command requests a change in the **dsne** designation, the tributary overhead controller circuit pack in the network element will restart its program.



NOTE:

System level attributes remain in effect until modified (for example, by another execution of the TL1 command **ENT-SYS**) until overridden by system initialization.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)
@ (at sign)
\$ (dollar sign)
& (ampersand)
* (star)
- (dash)
_ (underscore)
/ (slash)

aid

Access identifier. The *aid* value, if supplied, specifies that system parameters are to be modified.

Entity: System

The allowable value is: (**SYSTEM**)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. The system level attributes to be modified are specified inside the *spec_block*. Parameters within *spec_block* are specified using a *name=value, name=value, ...* type construct with no constraints on the order of parameters. Constructs such as *name1=value1, name2=, name3=, name4=, name5=value5, ...* are acceptable and in this example only the parameters *name1* and *name5* will be changed at the network element. If the current value of the parameter *name1* is already *value1* in the above example, *name1* will not be changed.

For the **ENT-SYS** command, the *spec_block* may contain one or more of the following parameters:

NEW_TID

New Target Identifier. The **new_tid** is the new name of the network element to which the command is addressed.

STD

Standard. This parameter has one of two values: "SONET" or "SDH".

SONET indicates that the network element is provisioned to operate in a SONET environment.

SDH indicates that the network element is provisioned to operate in a SDH environment. In **SDH** mode, the network element indicators map to SONET network element indicators as follows:

■ Alarm Indicators:

SONET	SDH
Critical(CR)	Critical
Major(MJ)	Prompt
Minor(MN)	Deferred
Not Alarmed(NA)	No Alarm
Not Reported (NR)	No Report
Not Indicated (NO)	Not Indicated

■ Status indicators/ACO[Suppress] button:

SONET	SDH
ABN	Abnormal
ACO	Suppress
NE Acty	Info-N
FE Acty	Info-F

The alarm level philosophy of SDH terminals and SONET terminals is different for reporting service affecting conditions. Service affecting conditions in a SONET terminal are deemed as "Critical" while most service affecting alarms in a SDH terminal are "Prompt". All controller failures in SONET terminals lead to "Major" alarms while SDH terminals deem them as "Prompt" as well.

For OLS a straightforward mapping between "Major" alarms and "Prompt" alarms works as all conflicting conditions that are reported as "Critical" in SONET world and "Prompt" in SDH world are deemed as "Minor" in OLS.

All SONET "Minor" alarms map to SDH "Deferred" alarm. All status conditions reported as "NE Acty" or "FE Acty" in SONET are reported as "Info" in SDH terminal. The telemetry packs shall be capable of interfacing with AU4 mapped STM-1 signals at the CMS ports, if applicable.

This requires the ability to handle "S" bit in the pointer word in the output CMS signal. The SONET and SDH specification for this bit is opposite. SONET equipment ignores the "S" bit setting. However, SDH equipment raises a LOP (loss of pointer) defect if the unexpected value is received.

The Telemetry pack will not use the "S" bit to generate LOP defects.

APSD

Automatic Power shut down. This parameter has one of two values: "ENABLE" or "DISABLE". *ENABLE* indicates that for incoming loss of power in optical line, the automatic power shut down (APSD) feature will bring down all affected power outputs in the network to safe levels.

DISABLE indicates that the APSD feature has been disabled.

TX_OTU_DELAY

Transmit optical translator units Turn-On/Off Delay. This parameter has one of two values, with "ENABLE" as default: "ENABLE" or "DISABLE". *ENABLE* indicates a variable turn-on/off delay.

DISABLE indicates a zero turn-on/off delay.

OLLOS_SEV

The **OLLOS_SEV** (optical line LOS severity) parameter shall be provisionable. "CR", "MJ", "MN", "CR_Prompt", "MJ_Prompt", "MN_Deferred". This parameter sets the alarm level for the incoming optical line LOS, OA high input power, and DCM input LOS alarms.

CR

Critical. If provisioned as *CR*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of CR being generated and sent to the user.

MJ

Major. If provisioned as *MJ*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of MJ being generated and sent to the user.

MN

Minor. If provisioned as *MN*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of MN being generated and sent to the user.

CR_Prompt

Critical/Prompt. If provisioned as *CR_Prompt*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of CR_Prompt being generated and sent to the user.

MJ_Prompt

Major/Prompt. If provisioned as *MJ_Prompt*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of MJ_Prompt being generated and sent to the user.

MN_Deferred

Minor/Deferred. If provisioned as *MN_Deferred*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of MN_Deferred being generated and sent to the user.

OMONLOS_SEV

The **OMONLOS_SEV** (optical monitor LOS severity) parameter shall be provisionable. "CR", "MJ", "MN", "CR_Prompt", "MJ_Prompt", "MN_Deferred".

CR

Critical. If provisioned as *CR*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of CR being generated and sent to the user.

MJ

Major. If provisioned as *MJ*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of MJ being generated and sent to the user.

MN

Minor. If provisioned as *MN*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of MN being generated and sent to the user.

CR_Prompt

Critical/Prompt. If provisioned as *CR_Prompt*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of CR_Prompt being generated and sent to the user.

MJ_Prompt

Major/Prompt. If provisioned as *MJ_Prompt*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of MJ_Prompt being generated and sent to the user.

MN_Deferred

Minor/Deferred. If provisioned as *MN_Deferred*, a facility failure on the addressed port will result in an autonomous REPT ALM message with a notification code of MN_Deferred being generated and sent to the user.

SYSTEM_TYPE

System Type. This parameter is no longer supported.

DSNE

Directory Service-Network Element. This parameter has one of the two values: "YES" or "NO". **YES** indicates that the system specified by the tid is a Directory Service-Network Element (DS-NE).

IPGNE

TCP/IP-OSI TL1 Gateway NE. This parameter enables or disables the TL1 Translation Device (T-TD) and IAOLAN for IP. The allowed values are:

YES

This allows the NE accept and respond to TL1 messages using a TCP/IP connection over the IAOLAN port.

NOTE: Prior to setting this value, the following conditions should be satisfied. Otherwise, the command will be denied.

- 1) The system is an End Terminal (including Dual and THRU), not a Repeater.
- 2) The IAOLAN is enabled. (For the End Terminal, IAOLAN is enabled by default). If it's disabled, user shall use **ENT-CID-SECU** command to enable it.
- 3) The system's IP address, subnet mask and default router must be set using the **ENT-TCPIP** command.

NO

This prevents the NE from accepting and responding to TL1 messages using a TCP/IP connection over the IAOLAN port. This is the initial value.

AGNE

Alarm Gateway Network Element. This parameter has one of two values: "YES" or "NO". YES indicates that the system specified by the *tid* is an Alarm Gateway Network Element (AGNE). One AGNE is needed for each Alarm Group to support message communications for network element status features (FE activity, Office Alarms, Parallel Telemetry, Miscellaneous discretes, remote ACO and FE user panel status). Any member of the Alarm Group can be an AGNE but some may be preferred because of their position in the subnetwork or location near a maintenance center. Another network element of the same Alarm Group may be provisioned as a backup (dual) AGNE if required.

ALMGRP

The alarm group (also known as SONET Maintenance Sub-Branch or SMSB) has an integer value between 0 and 255 (inclusive). Zero (0) indicates that the local network element does not exchange remote alarm information with any other network elements. Any other value for this parameter means that the local network element will exchange remote alarm information with all other network elements in the maintenance subnetwork which share the same alarm group value. All network elements in the given DCC domain (subnetwork), whether nearby or not, that have the same alarm group number are members of the same group.

All members of the alarm group will share network element Status information with each other but not with network elements of different alarm groups though they may also be in the same DCC domain. Sharing the network element status information between network elements in different alarm groups is made possible through the use of alarm servers.

X25PS

X.25 Packet Size. This parameter may be set to one of two values: "256" or "128". This parameter determines the TL1 packet size for the X.25 interface.



NOTE:

Changing the X.25 packet size parameter at a network element with active X.25 link will cause that X.25 link to be reset and all active TL1 logins will be automatically dropped. All established services on the affected X.25 link will have to be reestablished.

PVC2_REDIRECT

Permanent Virtual Circuit (PVC2) traffic redirect in the case of fiber cut on high speed lines. This parameter has one of two values: "YES" or "NO". YES indicates that the DCC traffic will be redirected to the X.25 network.

PASS_THRU

The **PASS_THRU** parameter adjusts the window of channel detection within the OA circuit pack. This will configure the system to operate in PASS_THRU mode or full add/drop mode. The default mode should be "NO". This parameter has one of two values: "YES" or "NO". YES indicates that the system is configured to operate in PASS_THRU mode and the window of channel detection within the OA will be set to a narrower range than the no pass-through range to prevent failure detection of non-existing channels.

CHAN_DET

This parameter determines if the optical amplifiers will use tone based channel detection or OMON based channel detection. This parameter has one of two values: "TONE" or "OMON". TONE, the default, indicates tone based channel detection. OMON indicates OMON based channel detection.

DIRN

Direction. For single facing end terminals, this parameter has one of eight values: "1A-TX", "1A-TX-THRU", "1A-TX-32", "1A-TX-THRU-32", "1A-RCV", "1A-RCV-THRU", "1A-RCV-32" or "1A-RCV-THRU-32". For dual facing end terminals, this parameter must have the value "DUAL".

The **DIRN** values are NOT case-sensitive. When **DIRN** is modified at an end terminal, the TOHCTL reboots to reconfigure routing tables.

1A-TX indicates that the optical lines 1A, 2A are carrying traffic in the transmit direction (out of OLS) and optical lines 1B, 2B are carrying traffic in receive direction (that is, into OLS). This parameter is significant in OLS end terminals (but not in OLS repeaters). An OLS end terminal provisioned as 1A-TX indicates that the output from TLM-1A pack is connected to the OA-1A circuit pack and the input is connected to OA-1B pack (that is, optical line 1A is carrying traffic in transmit direction). At the other end terminal the TLM-1A pack should have reverse orientation in the sense, that as it is receiving traffic on line 1A its input should be connected to OA-1A pack and its output should be connected to OA-1B pack. Hence, this particular end terminal should be provisioned as 1A-RCV.

1A-TX-THRU also indicates that the optical lines 1A, 2A are carrying traffic in the transmit direction (out of OLS) and optical lines 1B, 2B are carrying traffic in receive direction (that is, into OLS). Also the output from the telemetry pack in slot TLM-1A is connected to the OA-1A circuit pack and the input is connected to OA-1B circuit pack. The only difference in 1A-TX-THRU provisioned end terminal is that TLM-1B pack is equipped and its input/output are connected to output/input of another TLM-1B pack of adjacent OLS terminal provisioned as 1A-RCV-THRU. The two adjacent OLS terminals are usually co-located in a central office. However, from transmission point of view they could be as far as 40 km.

1A-TX-32 and 1A-TX-THRU-32 are like 1A-TX and 1A-TX-THRU and in addition, allow equipping optical lines 1A and 1B for 32 channel operation in a future release. Shelves provisioned for 32 channel operation only support optical lines 1A and 1B. OMU/ODU slots for lines 2A and 2B are used for channels 17-32 of optical line 1A and 1B.

1A-RCV-THRU indicates that the optical lines 1B and 2B are carrying traffic in the transmit direction (out of OLS) and optical lines 1A and 2A are carrying traffic in receive direction (that is, into OLS). Also the output from the TLM-1A is connected to the OA-1B circuit pack and the input is connected to OA-1A circuit pack. *1A-RCV-THRU* provisioned end terminal also has an equipped TLM-1B slot with its input/output connected to output/input of another TLM-1B pack of adjacent OLS terminal provisioned as *1A-TX-THRU*.

1A-RCV-32 and *1A-RCV-THRU-32* are like *1A-RCV* and *1A-RCV-THRU* and in addition, allow equipping optical lines 1A and 1B for 32 channel operation in a future release. Shelves provisioned for 32 channel operation only support optical lines 1A and 1B. OMU/ODU slots for lines 2A and 2B are used for channels 17-32 of optical line 1A and 1B.

DUAL indicates an end terminal that faces in both the east and west directions. In this configuration, optical line 1B is carrying traffic in the transmit direction (out of OLS) on side 1 (east). and that the optical line 2A is carrying traffic in transmit direction (out of OLS) on side 2 (west). Also, optical line 1A is carrying traffic in receive direction (that is, into OLS) on side 1(east) and optical line 2B is carrying traffic in receive directions (that is, into OLS) on side 2 (west). An OLS end terminal provisioned as *DUAL* indicates that the optical line 1 and TLM 1A are connected as in "*1A-RCV*" mode while optical line 2 and TLM 2A are connected as in "*1A-TX*" mode. An OLS end terminal provisioned as *DUAL* will support adding or dropping 16 channels on optical line 1A/1B and 16 channels on optical line 2A/2B.

For systems with LEA207 OA2, LEA209 LIRCV, or LEA211 LITX, the telemetry connections for 1_OA, or 0_OA configurations are the same as the 2_OA connections. For single OA configurations when using a 606B or 606D ODU, a terminal in "*1A-TX*" mode has the telemetry output from TLM xA going to OA circuit pack in slot oa-xB. For non dual end terminal x=1-2, for dual end terminal x=2. Similarly, a terminal in "*1A-RCV*" mode has the telemetry output from TLM yA going to OA circuit pack in slot oa-ya. For non dual end terminal x=1-2, for dual end terminal x=1.

The **DIRN** values are NOT case-sensitive.

PROTOCOL



NOTE:

Protocol is not a valid parameter starting in Release 2.0. The equivalent functionality is covered by the **ENT-CID-SECU** command.

SIDE1_SYS

Side 1 System Type. This parameter provisions side 1 of network element for a specific configuration. Side 1 of a network element refers to optical line pairs 1-2 on a regular end terminal or repeater. It refers to optical line 1 if the terminal is provisioned as "*DUAL*". This parameter can have the following values: "A", "B", "C", "1_OA", "0_OA". The value A sets all optical amplifiers in side 1 in their default mode.

The applications supported by all values is determined by the equipped optical amplifier pack type. Changing system type from "1_OA" to any other setting may cause all packs in the affected optical line to reset.

The optical line reset condition occurs if and only if an OA pack is missing during the above configuration change or when an optical line transitions from AUTO to IS.

OLS shall support the following outside plant loss configurations. To support any configuration, a specific OA and provisioning value for the "side" shall be required:

OA	Side Config	# of spans	Span loss(dB)		Max No. of Wavelengths	Bit rates
			min	max		
LEA207	A	1	19	26	32	<= 2.5Gb/s
		2	19	25		
		3	19	23		
		4	18	21		
		5	17	20		
		6	16	19		
		7	14	17		
		8	14	15		
	1_OA	1	19	23	32	<= 10Gb/s
		2	18	22		
		3	17	20		
	1_OA	1	0	15/17 ^a		<= 2.5Gb/s
		1	0	9/11 ^a		<= 10Gb/s
LEA307	A	1	22	33	32	<= 10Gb/s
		2	22	32		
		3	22	30		
		4	22	28		
		5	21	26		
		6	21	25		
		7	17	24		
		8	17	22		
	1_OA	1	22	33	16	<= 10Gb/s
		2	22	33		
		3	22	33		
		4	22	31		
		5	21	27		
	1_OA	1	0	17/19 ^a	32	<= 2.5Gb/s
		1	0	14/16 ^a		<= 10Gb/s

OA	Side Config	# of spans	Span loss(dB)		Max No. of Wavelengths	Bit rates
			min	max		
LEA7 or LEA7B	A	1	22	33	16	OC48/12/3
		2	22	30		
		3	22	28		
	B	4	22	27		
		5	21	26		
	C	6	21	26		
		7	17	22		
		8	17	22		
	1_OA	1	0	12		
LEA105	A	1	14	18	16	OC48/12/3
	1_OA	1	0	12		
		1	0	12		OC48/12
		1	0	13		OC48/3
		1	0	16		OC12/3
		1	0	13		OC48
		1	0	16		OC12
		1	0	20		OC3
LEA104 or LEA107B	A	1	22	35	16	OC48/12/3
		2	22	34		
		3	22	33		
	B	4	26	31		
		5	23	27		
LEA6	A	1	22	35	8	OC48/12/3
		2	22	34		
		3	22	33		
	B	4	26	31		
		5	26	30		
	A	1	22	33		
					16	

a. Using 8dB/5.5dB ODU

Dual facing terminal shall be capable of supporting different OAs on each side of the terminal. This implies the OAs in optical line 1 (side 1) could be different than the OAs in the optical line 2 (side 2).

All OA in a side shall be of the same code. Otherwise, an alarm is raised.

Since (non-dual) end terminals and repeaters have only side 1, all OAs in the terminal should have the same code.

If the equipage is not consistent with the provisioned system configuration, an alarm shall be raised.

The inconsistent OA pack shall continue to operate with unchanged setting. If rebooted or booting for the first time, the OA pack shall operate with original value setting.

Single OA Operation

For side 1 (of dual and non dual terminals) provisioned to operate in single OA mode, OLS shall operate in single OA mode if and only if Optical Line 1 has:

- an LEA105 OA, LEA7 OA, LEA7B OA, or no circuit pack, in the OA slot associated with ODU through backplane connection. The NE suppresses the equipage inconsistent with provisioned mode alarm for transmit OA pack associated with ODU through backplane.
- an LEA207 OA or no circuit pack in the slot associated with the OMU through backplane connection and an LEA209 LIRCV or no circuit pack in the slot associated with the ODU through backplane connection.

For these configurations, operating mode is always consistent with provisioned mode.

If a side is equipped correctly and provisioned for single OA mode, the operating mode is reported as "1_OA". If a side is not equipped correctly but is provisioned for single OA mode, the operating mode is reported as "2_OA".

An OA in a side operating in single OA mode assumes pump power setting consistent with single OA mode. If a side provisioned as single OA is not operating in single OA mode, an alarm is raised.

If operating mode is inconsistent with provisioned mode, all OAs in the side operate with unchanged settings. On booting for the first time, the packs will assume original value settings.

Zero OA Operation

For side 1 (of dual and non dual terminals) provisioned to operate in zero OA mode, OLS shall operate in zero OA mode if and only if Optical Line 1 has an LEA211 LITX or no circuit pack in the slot associated with the OMU through backplane connection and an LEA209 LIRCV or no circuit pack in the slot associated with the ODU through backplane connection. For this configuration, operating mode is always consistent with provisioned mode.

If a side is equipped correctly and provisioned for zero OA mode, the operating mode is reported as "0_OA". If a side is not equipped correctly but is provisioned for zero OA mode, the operating mode is reported as "2_OA".

SIDE2_SYS

Side 2 System Type. This parameter provisions the side 2 of network element for a specific configuration. Side 2 implies optical line pair 2 on a terminal provisioned as a dual facing terminal. The parameter is ignored if the terminal is not provisioned as dual facing terminal. This parameter can have the following values: "A","B","C","1_OA","0_OA". The value A sets all optical amplifiers in side 2 in their default mode.

The applications supported by all values is determined by the equipped optical amplifier pack type. Changing system type from "1_OA" to any other setting may cause all packs in the affected optical line to reset.

The optical line reset condition occurs if and only if an OA pack is missing during the above configuration change or when an optical line transitions from AUTO to IS.

OLS shall support various outside plant loss configurations. To support any configuration, a specific OA and provisioning value for the "side" shall be required. Refer to the table under **SIDE1_SYS**.

Dual facing terminal shall be capable of supporting different OAs on each side of the terminal. This implies the OAs in optical line 1 (side 1) could be different than the OAs in the optical line 2 (side 2).

All OA in a side shall be of the same code. Otherwise, an alarm is raised.

If the equipage is not consistent with the provisioned system configuration, an alarm shall be raised.

The inconsistent OA pack shall continue to operate with unchanged setting. If rebooted or booting for the first time, the OA pack shall operate with original value setting.

Single OA Operation

For side 2 (of dual facing terminal) provisioned to operate in single OA mode, OLS shall operate in single OA mode if and only if Optical Line 1 has:

- an LEA105 OA, LEA7 OA, LEA7B OA, or no circuit pack, in the OA slot associated with ODU through backplane connection. The NE suppresses the equipage inconsistent with provisioned mode alarm for transmit OA pack associated with ODU through backplane.
- an LEA207 OA or no circuit pack in the slot associated with the OMU through backplane connection and an LEA209 LIRCV or no circuit pack in the slot associated with the ODU through backplane connection.

For these configurations, operating mode is always consistent with provisioned mode.

If a side is equipped correctly and provisioned for single OA mode, the operating mode is reported as "1_OA". If a side is not equipped correctly but is provisioned for single OA mode, the operating mode is reported as "2_OA".

An OA in a side operating in single OA mode assumes pump power setting consistent with single OA mode. If a side provisioned as single OA is not operating in single OA mode, an alarm is raised.

If operating mode is inconsistent with provisioned mode, all OAs in the side operate with unchanged settings. On booting for the first time, the packs will assume original value settings.

Zero OA Operation

For side 2 (of dual facing terminal) provisioned to operate in zero OA mode, OLS shall operate in zero OA mode if and only if Optical Line 2 has an LEA211 LITX or no circuit pack in the slot associated with the OMU through backplane connection and an LEA209 LIRCV or no circuit pack in the slot associated with the ODU through backplane connection. For this configuration, operating mode is always consistent with provisioned mode.

If a side is equipped correctly and provisioned for zero OA mode, the operating mode is reported as "0_OA". If a side is not equipped correctly but is provisioned for zero OA mode, the operating mode is reported as "2_OA".

COMPANION_TID

Companion System's Target Identifier. The companion tid is the name of the local network element's companion network element. In a ring or linear application, there are configurations in which back-to-back dual end terminal systems instead of single dual facing shelf system are used. The back-to-back dual end terminal systems consist of west facing end terminal and east facing end terminal. The west facing end terminal is the companion network element of the east facing end terminal, and vice versa. The back-to-back dual end terminal systems shall be connected either by Ethernet LAN or Telemetry Circuit Pack (TLM feed-through) for operations communications between the west facing end terminal and east facing end terminal, with the Ethernet LAN connection being a cost saving way. If the Ethernet LAN connection is used, a correct ring map is able to be discovered only the **COMPANION_TID** is entered. Note that only if TLM feed-through is used, then **DIRN** of the system shall be provisioned as one of the following: "1A-TX-THRU", "1A-TX-THRU-32", "1A-RCV-THRU" or "1A-RCV-THRU-32", otherwise, the system shall be provisioned as one of the following: "1A-TX", "1A-TX-32", "1A-RCV" or "1A-RCV-32". The default value of the **COMPANION_TID** is "NULL".

If the *spec_block* is null, the currently effective attributes at the network element system prevails.

OUTPUT FORMAT

If the network element fully complies with the **ENT-SYS** request, the following completion response is returned.

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

If the **ENT-SYS** command does not alter the existing system level attributes, the network element will not deny the command. Instead the system will respond with the completion message (shown in the previous screen display). An example of this is when the system addressed by the *tid* is already a designated *dsne* and **ENT-SYS** command is received to set that system as a **dsne**.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

The following example shows a command to modify the system name to 1-BROAD-STREET-CO and make the network element the DS-NE:

```
ent-sys:LT-PF-2000:sytem:123456:::new_tid=1-BROAD-STREET-CO,dsne=yes;  
IP 123456  
<  
1-BROAD-STREET-CO 93-10-26 16:42:11  
M 123456 COMPLD  
;
```

Note here that changing the **dsne** designation has caused the system to restart the program causing the response to the command to be incomplete.

The following example shows a command to modify the system name to 1-BROAD-STREET-CO and make the network element the **IPGNE**:

```
ent-sys:LT-PF-2000:system:123456:::new_tid=1-BROAD-STREET-CO,ipgne=yes;  
  
IP 123456  
<  
  
1-BROAD-STREET-CO 93-10-26 16:42:11  
M 123456 COMPLD  
;
```

The following example shows a command to modify the X.25 Packet Size:

```
ent-sys:LT-PF-2000:::123456:::x25ps=128;  
IP 123456  
<  
LT-PF-2000 93-10-26 16:42:11  
M 123456 COMPLD  
;
```

The following example shows a command to alter the SMSB from its original value of 255 and to make the local NE an AGNE.

```
ent-sys:LT-PF-2000:::123456:::almgrp=248,agne=yes;  
IP 123456  
<  
LT-PF-2000 93-10-26 16:42:11  
M 123456 COMPLD  
;
```

The following example shows a command to modify the **system** name to 1-BROAD-STREET-CO and provision the **dirn** parameter as 1A-RCV:

```
ent-sys:LT-OLS:system:123456:::new_tid=1-BROAD-STREET-CO,dirn=1A-RCV;

IP 123456
<
  1-BROAD-STREET-CO 93-10-26 16:42:11
M 123456 COMPLD
;
```

The following example shows a command to modify the **PVC2_REDIRECT**:

```
ent-sys:LT-PF-2000::123456:::pvc2_redirect=yes;
IP 123456
<

  lt-pf-2000 01-01-16 16:42:11
M 123456 compld
;
```

The following example shows a command to modify the **PASS_THRU**:

```
ent-sys:LT-PF-2000::123456:::pass_thru=yes;
IP 123456
<

  lt-pf-2000 01-01-31 16:42:11
M 123456 compld
;
```

The following example shows a command to enter the **COMPANION_TID**:

```
ent-sys:LT-PF-2000::123456:::companion_tid=EON1;
IP 123456
<

  lt-pf-2000 01-01-31 16:42:11
M 123456 compld
;
```

The following example shows a command to modify the system name to 1-BROAD-STREET-CO and make the network element the DS-NE:

```
ent-online:LT-PF-2000:sytem:123456:::chan_det=OMON;
IP 123456
<
  1-BROAD-STREET-CO 93-10-26 16:42:11
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **ENT-SYS** command.

If a network element receives an **ENT-SYS** command with a **new_tid** value that is not valid, the following error response is returned:

```
sid date time
M ctag DENY
IITA
/* Input, Invalid Target Identifier, invalid NEW_TID */
;
```

If a network element receives an **ENT-SYS** command with a **companion_tid** value that is not valid, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid COMPANION_TID */
;
```

If the network element receives this command with an invalid **ollos_sev** value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid ollos_sev */
;
```

If the network element receives this command with an invalid **omonlos_sev** value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid omonlos_sev */
;
```

If the network element receives this command with an invalid **chan_det** value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid chan_det */
;
```

If a network element receives an **ENT-SYS** command with a **dsne** value other than *yes* or *no*, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid DSNE */
;
```

If a network element receives an **ENT-SYS** command with a **IPGNE** value other than *yes* or *no*, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid IPGNE */
;
```

If a network element receives an **ENT-SYS** command with a **IPGNE** value *yes*, but it is not an End Terminal, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, Should be End Terminal */
;
```

If a network element receives an **ENT-SYS** command with a **IPGNE** value *yes*, but IAOLAN is not enabled, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, Should enable IAOLAN */
;
```

If a network element receives an **ENT-SYS** command with a **IPGNE** value *yes*, but without setting the system's IP address, subnet mask and default router using the **ENT-TCPIP** command, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, Should setting system's IP address, subnet mask
and default router */
;
```

If a network element receives an **ENT-SYS** command with a **pvc2_redirect** value other than *yes* or *no*, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid PVC2_REDIRECT */
;
```

If a network element receives an **ENT-SYS** command with a **pass_thru** value other than *yes* or *no*, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid PASS_THRU */
;
```

If a network element receives an **ENT-SYS** command with an **almgrp** value that is not an integer between 0 and 255, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid ALMGRP */
;
```

If a network element receives an **ENT-SYS** command with an **agne** value other than *yes* or *no*, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid AGNE */
;
```

If a network element receives an **ENT-SYS** command with an **x25ps** value other than 256 or 128, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid X25PS */
;
```

If an OLS End Terminal receives an **ENT-SYS** command with a **dirn** value other than *1A-TX*, *1A-TX-THRU*, *1A-TX-32*, *1A-TX-THRU-32*, *1A-RCV*, *1A-RCV-THRU*, *1A-RCV-32*, *1A-RCV-THRU-32* or *DUAL*, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid DIRN */
;
```

If a network element receives an **ENT-SYS** command with a **SIDE1_SYS** value other than *A*, *B*, *C*, *1_OA*, or *0_OA*, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid SIDE1_SYS */
;
```

If a network element receives an **ENT-SYS** command with a **SIDE2_SYS** value other than *A*, *B*, *C*, *1_OA*, or *0_OA*, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid SIDE2_SYS */
;
```

If a network element receives an **ENT-SYS** command with a **STD** value other than *SONET* or *SDH*, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid STD */
;
```

If a network element receives an **ENT-SYS** command with an **APSD** value other than *ENABLE* or *DISABLE*, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid APSD */
;
```

If a network element that does not support **dirn** (OLS repeater) receives an **ENT-SYS** command with a **dirn** parameter, the following error response is returned:

```
sid date time
M ctag DENY
ICNV
/* Input, Command Not Valid, invalid spec_block parameter */
;
```

If an **ENT-SYS** command is received with an invalid *aid* value, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier */
;
```

If a network element receives an **ENT-SYS** command with a *spec_block* parameter attribute that does not match the *aid*, or that parameter is not supported by the particular software release in the receiving system, the following error response is returned:

```
sid date time
M ctag DENY
ICNV
/* Input, Command Not Valid, invalid spec_block parameter */
;
```


If the network directory in the local subnet, that is, the DIB, is locked, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed, the local subnet's
Network Directory is locked */
;
```

The DIB may be locked due to either the presence of multiple DSNEs in the local subnet or the DSNE being in the initial registration state.

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-SYS

SET-SID

ENT-TCPIP

ENT-TCPIP: Enter TCP/IP

The privilege level for this command is PRIVILEGED.

The OSI category for this command is SECURITY.

This command is available starting in OLS Release 8.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

ENT-TCPIP:*tid::ctag::spec_block;*

DESCRIPTION



CAUTION:

Execution of this command may affect alarm reporting.



CAUTION:

Execution of this command may reset the TOHCTL.



CAUTION:

Execution of this command may affect TOHCTL service.

ENT-TCPIP command can be initiated by a user to request the provisioning fields in the Transmission Control Protocol/Internet Protocol (TCP/IP). TCP/IP provisioning consists of setting the IP address, subnet mask, and default router address.

The provisioned values remain active until modified.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)
\$ (dollar sign)
& (ampersand)
* (star)
- (dash)
_ (underscore)
/ (slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. Parameters set within the specific block are positionally independent and are set using a construct such as: *PARAMETER=value* in a comma-separated list. The specific block may have zero or more of the following parameters set within it. Furthermore, each parameter listed below may appear at most once within the specific block for a single command.

For each of the following parameters there is listed one or more parameter values. If a particular parameter does not appear in the *spec_block*, its value remains unchanged as a result of this command. The use of the term "null" in the descriptions below implies that the parameter does not appear in the command.

IP_AD

IP Address. This is the 32-bit IPv4 address of the system. It is made up of four dot-separated decimal numbers ranging from 0 to 255.

This parameter is required.

IP_SNM

IP Subnet Mask. This is the 32-bit IPv4 subnet mask of the system. It is made up of four dot-separated decimal numbers ranging from 0 to 255.

This parameter is required.

IP_DRAD

IP Default Router Address. This is the 32-bit IPv4 default router address of the system. It is made up of four dot-separated decimal ranging from 0 to 255.

This parameter is required.

OUTPUT FORMAT

If the network element fully complies with this command, the following output message is returned:

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

If the requested command provisions parameters that have the same values as those currently provisioned, the command does not alter the existing parameter values and the network element responds with a COMPLD message.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV - HDR**.

EXAMPLE INPUT/OUTPUT

The following example shows the successful completion of the command by the network element: Input lines are broken here **only** for the convenience of the reader.

```
ent - tcpip:LT-PF-2000::123456:::ip_ad=198.78.46.8,ip_snm=255.255.255.128,
ip_drad=198.84.65.20;

IP 123456
<

LT-PF-2000 01-10-26 16:42:11
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV - HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If an error is detected in any of the command parameters, the entire command is denied.

If there are errors in more than one command parameter, an error is detected and reported in only one of the parameters. The parameter for which the error is detected may not be the first parameter in the command that is in error.

In addition to the non-message-specific error responses listed in the **RTRV - HDR ERROR RESPONSES** section, the following error responses are listed in the order and priority that the network element checks for each condition.

If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (not

supported by the network element, delimited by ",", or termination characters (;), the following error response is returned:

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

If the network element receives this command with the same parameter specified more than once, the following error response is returned:

```
sid date time
M ctag DENY
IISP
/* Input, Invalid Syntax or Punctuation, parameter(s) multiply
defined */
;
```

If the network element receives this command with invalid or missing **IP_AD** value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid or missing IP_AD */
;
```

If the network element receives this command with invalid or missing **IP_SNM** value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid or missing IP_SNM */
;
```

If the network element receives this command with invalid or missing **IP_DRAD** value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid or missing IP_DRAD */
;
```

The **IP_AD**, **IP_SNM** and **IP_DRAD** fields are required fields. If one field is specified (or two fields are specified) without specifying other two (or another one), the following error response is returned:

```
sid date time
M ctag DENY
ICNV
/* Input, Command Not Valid, IP_AD, IP_SNM, IP_DRAD are required together
*/
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-TCPIP

ENT-USER-SECU

ENT-USER-SECU: Enter User Security

The privilege level for this command is PRIVILEGED.

The OSI category for this command is SECURITY.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

ENT-USER-SECU:*tid:uid:ctag::pid,,uap[:keyword_block];*

DESCRIPTION

The **ENT-USER-SECU** command is used by an appropriate administrator to enter the security parameters associated with a user.

This command is available only to the users for all CIT, DCC or TL1 ports on the NE.

If password aging is enabled, a non-Privileged user may not change a password unless at least seven (7) calendar days have passed since the last password change of that login.

After the successful completion of an **ENT-NE-SECU** command, a privileged user may change the password only during that session. Any attempt to change a password after ending the session when less than seven days have expired shall also be denied.

If password aging is disabled, a non-Privileged user may change a password without any restrictions.

The NE will keep track of the date of the last time each user password changed. When a user logs in, this date will be compared with the current date. If the current date is more than the provisioned number of days after the last changed date¹, then the NE considers the password expired. A user's password will also be considered expired the first time² a user logs in successfully after the login was created. This is to force users to select a password different from the one entered by the privileged user when the login was created.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

1. Note: it is entirely possible that a privileged user changed the NE date and time via **ED-DAT** command so that this is the case even though the number calendar days since the last password change is less. The NE shall always behave as if the corresponding number of calendar days have passed.
2. Note that this does **not** apply to the two Expert logins, LT01 and LT02, after initial software installation.

[A-Z][a-z][0-9]
 . (period)
 + (plus)
 % (percentage)
 # (pound)
 { [((open parenthesis)
)] } (close parenthesis)
 @ (at sign)
 \$ (dollar sign)
 & (ampersand)
 * (star)
 - (dash)
 _ (underscore)
 / (slash)

uid

This is the User Identifier of a user. Valid values are a case-sensitive alphanumeric string of 1 to 10 characters. The UID will support the special characters defined in the iso8859 character set, character values 161 through 255 decimal.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

pid

Passwords consist of a string of alphabetic, numeric and symbolic characters that contain a minimum of six characters and a maximum of ten characters, where at least two are non-alphabetic and one is symbolic. Passwords are case-sensitive.

Password strings will be encrypted when stored in the network element. They will not be encrypted when transmitted between the network element and the CIT, OS or dumb terminal. Passwords are never transmitted from the network element to the PC or a TL1 channel.

Symbolic characters:

! " % ' () * + - . / < > [] ^ _ { | }

Numeric characters:

0 1 2 3 4 5 6 7 8 9

Alphabetic characters:

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

a b c d e f g h i j k l m n o p q r s t u v w x y z

The special characters defined in the iso8859 character set, character values 161 through 255 decimal.

uap

User Access Privilege. It specifies the user's authorization levels (AL) for each command function category (FC) in the form of **FCAL&FCAL&FCAL&FCAL**.

Multiple FCALs are specified by using single ampersands (&).

Commands are grouped into 4 FCs: Configuration Management (C), Fault Management (F), Performance Monitoring (PM), and Security Management (S). The user access privilege shall be specified in the order of FCs as Cw&Fx&PMY&Sz.

For each FC, a user can be assigned with one of the four AL values. In the descending privilege order, these values are: Privileged (level 4), General (level 3), Basic (level 2), and Reports (level 1). Expert is not allowed for this parameter since Expert users cannot be created in the NE. This is a divergence from TR-833, Issue 5.

The following are possible FCAL values:

C[1-4]

For Configuration Management Authorization Level 1 through 4.

F[1-4]

For Fault Management Authorization Level 1 through 4.

PM[1-4]

For Performance Monitoring Authorization Level 1 through 4.

S[1-4]

For Security Management Authorization Level 1 through 4.

keyword_block

Keyword Parameter Block. Temporary login attributes to be modified are specified inside the *keyword_block*. Parameters within *keyword_block* are specified using a *name=value, name=value, . . .* type construct with no constraints on the order of the arrangement of parameters. Constructs such as *name1=value1, name2=, . . .* are acceptable and in this example only the parameter *name1* will be attempted to be changed at the network element. If the current value of the parameter *name1* is already *value1* in the above example, *name1* will not be changed.

For the **ENT-USER-SECU** command, the *keyword_block* may contain neither or both of the following parameters:

TYPE

If a temporary login is desired, this parameter must be "VISITOR".

visitor

Visitor Login. This indicates that this login is assigned for temporary access to the network element.

EXPDAT

Expiration Date. This is the requested **EXPDAT** in the following format:
YY-MM-DD, where YY is the last two digits of the year ranging from 00 to 99;
MM is the month of the year ranging from 01 to 12; and DD is the day of the
month ranging from 01 to 31.

The expiration date must be set if **TYPE=visitor**.

EXPDAT

Expiration Date. This is the requested **EXPDAT** in the following format:
YYYY-MM-DD, where YYYY is the year ranging from 1900 through 2099, MM
is the month of the year ranging from 01 to 12; and DD is the day of the month
ranging from 01 to 31.

OUTPUT FORMAT

If the network element fully complies with the enter user security request, the following
normal completion response is returned:

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

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the
OUTPUT PARAMETERS section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

```
ENT-USER-SECU:LT-PF-2000:kjlee:123456::pass12+, ,C4&F3&PM1&S2;  
IP 123456  
<  
LT-PF-2000 97-10-26 16:42:11  
M 123456 COMPLD  
;
```



NOTE:

The below single-line command (**bold** type) is presented in more than one line for ease of reading.

```
ENT-USER-SECU:LT-PF-2000:kjlee:123456::pass12+, ,general:TYPE=visitor,  
EXPDAT=93-12-31;  
IP 123456  
<  
LT-PF-2000 93-10-26 16:42:11  
M 123456 COMPLD  
;
```



NOTE:

The below single-line command (**bold** type) is presented in more than one line for ease of reading.

```
ENT-USER-SECU:LT-PF-2000:kjlee:123456::pass12+, ,C4&F3&PM1&S2:  
TYPE=visitor,EXPDAT=97-12-31;  
IP 123456  
<  
LT-PF-2000 97-10-26 16:42:11  
M 123456 COMPLD  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives an **ENT-USER-SECU** command from a user trying to enter his or her own *uid* (user identifier) and/or *uap* (privilege) value, the following error response is returned:

```
sid date time
M ctag DENY
PICC
/* Privilege, Illegal Command Code */
;
```

If the network element receives an **ENT-USER-SECU** command with an existing *uid* (user identifier) that is not that user's own *uid*, the following error response is returned:

```
sid date time
M ctag DENY
PIUI
/* Privilege, Illegal User Identity */
;
```

If the network element receives an **ENT-USER-SECU** command when it already has reached its maximum user logins the following error response is returned:

```
sid date time
M ctag DENY
SLEM
/* Status, List Exceeds Maximum */
;
```

If the network element receives an **ENT-USER-SECU** command with an invalid *pid* (password) value, the following error response is returned:

```
sid date time
M ctag DENY
PIUI
/* Privilege, Illegal User Identity, invalid PID */
;
```

If the network element receives an **ENT-USER-SECU** command with an invalid *uap* (user access privilege) value, the following error response is returned:

```
sid date time
M ctag DENY
PIUC
/* Privilege, Illegal User Code, invalid UAP */
;
```

If the network element receives an **ENT-USER-SECU** command with a **TYPE** other than *VISITOR*, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid TYPE */
;
```

If the network element receives an **ENT-USER-SECU** command with an invalid **EXPDAT**, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid EXPDAT */
;
```

If the network element receives an **ENT-USER-SECU** command without an **EXPDAT** when **TYPE** specified in the *keyword_block*, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid keyword_block */
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

If an out of range year is entered in the four-digit format (i.e. YYYY is not in the range of 1900 through 2099), the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, out-of-range year specified */
;
```

RELATED TL1 COMMANDS/MESSAGES

DLT-USER-SECU

ED-USER-SECU

RTRV-USER-SECU

INH-MSG-EQPT

INH-MSG-EQPT : Inhibit Message Equipment

The privilege level for this command is PRIVILEGED.

The OSI category for this command is SECURITY.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

INH-MSG-EQPT :*tid:aid:ctag*[::,,];

DESCRIPTION



CAUTION:

This command will suppress autonomous indications of failures at office alarms, parallel telemetry, and/or X.25 based OS interfaces.

The **INH-MSG-EQPT** command is initiated by users to inhibit transmission of all autonomous TL1 messages, office alarms, and/or parallel telemetry from a network element.

When a network element receives an **INH-MSG-EQPT** command, the network element inhibits transmission of all of its autonomous messages, except office alarms, and/or parallel telemetry, if autonomous message and alarm reporting has not already been inhibited.

When autonomous message reporting is inhibited, the network element reports an abnormal status condition in an autonomous REPT EVT message.

This REPT EVT message, containing the abnormal status condition report, would be the last autonomous message sent before the **INH-MSG-EQPT** command takes effect.

While autonomous message reporting is inhibited, the network element continues to respond fully to all command messages, specifically **RTRV-ALM** and **RTRV-COND**.

All new autonomous messages are inhibited. All autonomous messages that are in queue prior to the normal completion of the **INH-MSG-EQPT** command are reported.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)
(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@ (at sign)
\$ (dollar sign)
& (ampersand)
* (star)
- (dash)
_ (underscore)
/ (slash)

aid

Access identifier. The *aid* value can be one of the following values: "ALL", "OFFICE ALMS", "PAR TLM", "TL1".

all

This specifies that reporting for all of the parameters below is to resume on the network element.

office alms

This specifies that reporting of office alarms is to resume on the network element.

par tlm

This specifies that reporting of alarms over the parallel telemetry is to resume on the network element.

tl1

This specifies that autonomous message reporting is to resume on all TL1 ports on the network element.

If no value is provided for *aid*, **all** is assumed.

tag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *tag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the **INH-MSG-EQPT** request, the following normal completion response is returned:

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

If the network element receives an **INH-MSG-EQPT** command message from a user when transmission of all autonomous messages, office alarms, and/or parallel telemetry had already been inhibited, the network element provides a normal completion response.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

```
inh-msg-eqpt:LT-OLS:all:123xyz;
IP 123xyz
<
  LT-OLS 96-01-06,09:30:49
M 123xyz COMPLD
;
```

```
inh-msg-eqpt:LT-PF-2000:all:123xyz;
IP 123xyz
<
  LT-PF-2000 96-06-06,09:30:49
M 123xyz COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **INH-MSG-EQPT** command.

If an **INH-MSG-EQPT** command is received with an invalid aidvalue, the following error

response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier */
;
```

RELATED TL1 COMMANDS/MESSAGES

ALW-MSG-EQPT

INIT-REG-ALL

INIT-REG-ALL: Initialize Register All

The privilege level for this command is GENERAL.

The OSI category for this command is PERFORMANCE.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

INIT-REG-ALL:*tid*:*[aid]*:*ctag*::,,,,*tmper*[,,];

DESCRIPTION



CAUTION:

Current day and/or current 15-minute performance monitoring data storage registers for all digital parameters of the addressed aid will be corrupted as a result of this command.

The **INIT-REG-ALL** command is initiated to request the network element to initialize all current day and/or all current 15-minute digital performance-monitoring storage registers.

PM registers for previous day and previous 15-minute time periods are not affected.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)

- (dash)

_ (underscore)
/ (slash)

aid

Access identifier. Because all current daily and/or 15-minute PM registers are initialized, the *aid* value must be **"ALL"** or null (default = **ALL**).

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

tper

Time period. This requests that digital performance monitoring registers for a specified time interval be initialized. This parameter must have one of the values: **"15-MIN"**, **"1-DAY"**, or **"ALL"**.

15-MIN

This requests that 15-minute PM digital registers be initialized.

1-DAY

This requests that daily PM digital registers be initialized.

ALL

This requests that 15-minute and daily PM digital registers be initialized.

OUTPUT FORMAT

If the network element fully complies with the initialize register request, the following normal completion response is returned:

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

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

```
INIT-REG-ALL:LT-PF-2000:all:123456::,,,15-MIN;  
IP 123456  
<  
  LT-PF-2000 93-10-26 16:42:11  
M 123456 COMPLD  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with an invalid *aid* value, the following error response is returned:

```
sid date time  
M ctag DENY  
  IIAC  
  /* Input, Invalid Access Identifier */  
;
```

If the network element receives an **INIT-REG-ALL** command with an invalid *tper* value (that is, anything other than **15-MIN**, **1-DAY** or **ALL**), the following error response is returned:

```
sid date time  
M ctag DENY  
  IDNV  
  /* Input, Data Not Valid, invalid TPER */  
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-BASELINE

INIT-REG-OLINE

INIT-REG-OLINE: Initialize Register Optical_Line

The privilege level for this command is GENERAL

The OSI category for this command is PERFORMANCE.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

INIT-REG-OLINE:*tid:aid:ctag::[reason,[ochan_aid]],,[,,];*

DESCRIPTION

The **INIT-REG-OLINE** command can be initiated to request the network element to baseline certain optical parameters for each optical line in a network element. Currently, it is used to baseline SPR-C of all optical channels and the TOPR-OL and TOPT-OL in the addressed optical line.

The **INIT-REG-OLINE** command will require the user to provide a "reason" for baseline. If the reason for initiating **INIT-REG-OLINE** command is a dropped optical channel, the optical channel aid is needed as well.

The **INIT-REG-OLINE** command will corrupt current day and/or current 15-minute performance-monitoring (PM) storage registers for TOPR-OL of the addressed optical line, and SPR-C of all optical channels in that optical line.

PM registers for previous day and previous 15-minute time periods are not affected.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)

- (dash)
- _ (underscore)
- / (slash)

aid

Access identifier. This identifies the optical line for which optical parameters need to be baselined.

Entity: Optical Line

Legal Values: (OLINE)-(ALL, 1A, 1B, 2A, 2B)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

reason

The reason states the reason for executing **INIT-REG-OLINE** command on the addressed optical line. This field can take one of the following values:

"OA_REPLACED", "OSP_REPLACED", "OCHAN_DROPPED", "0", "1", "2", "3", "4", "5", "6", "7", "8", or "9".

ochan_aid

Optical Channel Access Identifier. If the *reason* for baseline is **OCHAN_DROPPED**, this parameter gives the optical channel access identifier of the channel dropped. This parameter has no default value when reason is **OCHAN_DROPPED**.

The *ochan_aid* should be NULL if the *reason* parameter has any other valid string.

Entity: Single Optical Channel

Legal Values: (OCHAN)-(1A, 1B, 2A, 2B)-(1-32)

OUTPUT FORMAT

If the network element fully complies with the initialize register request, the following normal completion response is returned:

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

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

```
INIT-REG-OLINE:LT-OLS:oline-1a:123456::OCHAN_dropped,ochan-1a-1;  
IP 123456  
<  
  LT-OLS 93-10-26 16:42:11  
M 123456 COMPLD  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with an invalid *aid* value, the following error response is returned:

```
sid date time  
M ctag DENY  
IIAC  
/* Input, Invalid Access Identifier */  
;
```

If the network element receives this command with an invalid *reason* or a NULL entry, then the following error response is returned:

```
sid date time  
M ctag DENY  
IDNV  
/* Input, Data Not Valid, invalid REASON */  
;
```

If the network element receives an **INIT-REG-OLINE** command with an invalid *ochan_aid* or a NULL entry when *reason*="OCHAN_DROPPED", then the following error response is returned:

```
sid date time  
M ctag DENY  
IDNV  
/* Input, Data Not Valid, invalid OCHAN_AID */  
;
```

If the network element receives an **INIT-REG-OLINE** command with any non-null *ochan_aid* entry when "*reason*" is other than "**OCHAN_DROPPED**", then the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid OCHAN_AID */
;
```

If the network element receives an **INIT-REG-OLINE** command with an invalid *tmper* value (that is, anything other than NULL), the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid TMPER */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-PM-OLINE
SET-TH-OLINE
RTRV-TH-OLINE
RTRV-BASELINE

INIT-SYS

INIT-SYS: Initialize System

The privilege level for this command is GENERAL.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

INIT-SYS:*tid:aid:ctag::ph;*

DESCRIPTION



WARNING:

Execution of this command may affect service.

The **INIT-SYS** command with the *ph* parameter set to **9** initializes the system. The **INIT-SYS** command with the *ph* parameter set to **3** resets the system. Initializing the system initializes the provisionable parameters to their original values whereas resetting the system resets the software without changing the provisioned parameters values.

The command **INIT-SYS** with the **all aid** should NOT be used on an in-service system when the *ph* is set to **9**. With the *ph* set to the highest level, the highest phase of initialization takes place; with this setting, this command should only be used at the end of system installation before system turnup.



CAUTION:

Execution of this command at any network element will also affect the OS communication with that network element and all OS users logged into that network element will be logged out.

With the phase set to the highest level (**9**), this command initializes provisionable parameters to their original values. The time and date parameters are not affected by this command.

To reset the system, the **INIT-SYS** command can be used with the phase parameter set to **3**. This command with the phase set to **3** resets the system software without changing parameters.



CAUTION:

INIT-SYS with *ph=3* will wipe out the history log.

Protection switches will be frozen until the reset is completed.

After entering the **INIT-SYS** command, with the phase set to the highest level (**9**), the system will show transient DCC failures that are recorded in the Alarm and History reports. This is a normal, expected system behavior.

This command is available to privileged users for both initializing the system when the phase value is set to **9** and for resetting the system when the phase value is set to **3**.

This command is available to general users only for resetting the system when the phase value is set to **3** and NOT for initializing the system. If a general user attempts to initialize the system by setting the phase value to **9**, the command is denied.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. *aid* is a required parameter and can have only one value, "**ALL**" for both system initialization (*ph*=**9**) and system reset (*ph*=**3**).

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

ph

Phase. This field specifies the level of the system initialization. This parameter must be one of the following values: "**3**" or "**9**".

9

This is the highest phase of initialization and specifies an initialization of system parameters and a start of systems software. This command with *ph=9* is used only at the end of installation of a new system and is never used on an in-service system.

3

This is an interim level of initialization that resets the system software without affecting the setting of parameters. It does cause the history and performance monitoring data to be lost.

A user with authorization level "general" for this command function category is allowed to select a phase value of **3** only. A user with authorization level "privileged" or above for this command function category is allowed to select a phase value of **3** or **9**.

OUTPUT FORMAT

If the network element fully complies with this command, the following output message is returned:

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

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

Since a full system initialization (phase parameter set to **9**) initializes the SYSCTL or the entire system, it will drop all user sessions including the one on the X.25 interface, and COMPLD message may or may not be conveyed back to the TL1 user.

Since a full system initialization occurs in the entire system, it will drop all user sessions including the one on the X.25 interface.

The following example initializes the system:

```
init-sys:LT-PF-2000:all:123456::9;
IP 123456
<
LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```

The following example resets the system:

```
init-sys:LT-PF2000:all:123456::3;  
IP 123456  
<  
  LT-PF2000 96-10-26 16:42:11  
M 123456 COMPLD  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives an **INIT-SYS** command without an *aid* or with an *aid* field other than **all**, the following error response is returned:

```
sid date time  
M ctag DENY  
IIAC  
/* Input, Invalid Access Identifier, AID is missing, wrong or  
inconsistent with modifier */  
;
```

If the network element receives an **INIT-SYS** command with a missing or unsupported *ph* value, the following error response is returned:

```
sid date time  
M ctag DENY  
IDNV  
/* Input, Data Not Valid, invalid or missing PH */  
;
```

If the network element receives an **INIT-SYS** command with a *ph* value of **9** from a general user, the following error response is returned:

```
sid date time  
M ctag DENY  
IDNV  
/* Input, Data Not Valid, unallowed PH value for a general user */  
;
```


If the network element receives an **INIT-SYS** command with PH=9 or PH=3 while SW download to this NE from another network element is in progress, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed
The system is not able to access the original parameter values
in SYSMEM because a software download is currently in progress.
Please try again later.
*/
;
```

If an **INIT-SYS** command with PH=9 is received while a remote software copy from the NE to another NE is in progress, the command is denied with the following error response.

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed
The system is not able to access the original parameter values
in SYSMEM because a remote software copy from the network element
to another network element is currently in progress.
Please try again later.
*/
;
```



NOTE:

If an **INIT-SYS** command with PH=3 is received while a remote software copy from the NE to another NE is in progress, the command is completed with a normal completion response. However, the remote software copy to the other NE is disrupted and the other NE could be left in an unknown state.

If an **INIT-SYS** command with *PH=9* or *PH=3* is received while a remote software copy from the NE to another NE is in progress, the command is denied with the following error response.

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed
The system is not able to access the original parameter values
in SYSMEM because a remote software copy from the network element
to another network element is currently in progress.
Please try again later.
*/
;
```

If the network element receives an **INIT-SYS** command while the SYSMEM is corrupted with bad checksum, the command shall be denied and the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed
The execution of this command stopped because of an unrecognizable
code problem in SYSMEM.
*/
;
```

If the network element receives an **INIT-SYS** command with *ph=9* while the SYSCTL and SYSMEM have incompatible software versions, the following error response is returned:

If the network element receives an **INIT-SYS** command with *ph=3* while the executable code in the SYSCTL and SYSMEM are for different network element types, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed
The execution of this command stopped because the SYSMEM and
SYSCTL contain software for different network element types.
*/
;
```

RELATED TL1 COMMANDS/MESSAGES

None

OPR-ACO-ALL

OPR-ACO-ALL: Operate Alarm_Cutoff All

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

OPR-ACO-ALL :*tid*:*[aid]*:*ctag*;

DESCRIPTION

The **OPR-ACO-ALL** command can be initiated to request the network element to operate the alarm cutoff (ACO) to silence the audible office alarms. Alarms remain silent until a new alarm condition arises.

This command is available to maintenance and reports-only users.

If this command is executed while there is an active alarm condition in the system, it will:

- Silence active audible office alarms
- Light the ACO LED on the user panel

This command is equivalent to pushing the ACO button on the user panel or activating the TBOS ACO control point.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)

_ (underscore)
/ (slash)

aid

Access identifier. Because the ACO function applies to the whole system, the *aid* value must be **all** or null (default = **all**).

Entity: All

Legal Values: (ALL)

tag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *tag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the operate ACO request, the following normal completion response is returned:

```
sid date time
M tag COMPLD
;
```

If the network element receives a valid **OPR-ACO-ALL** command, but no alarm condition exists or existing alarms have already been ACO'ed, the network element provides a normal completion response.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

```
OPR-ACO-ALL:LT-PF-2000:all:123456;
IP 123456
<
LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **OPR-ACO-ALL** command.

If the network element receives an **OPR-ACO** command with a command code modifier other than **ALL**, the following error response is returned:

```
sid date time
M ctag DENY
ICNV
/* Input, Command Not Valid, invalid modifier */
;
```

If the network element receives an **OPR-ACO-ALL** command with an invalid *aid* value (that is, anything other than **all** or null), the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier */
;
```

RELATED TL1 COMMANDS/MESSAGES

None

OPR-EXT-CONT

OPR-EXT-CONT: Operate External Control

The privilege level for this command is GENERAL.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

OPR-EXT-CONT :*tid:aid:ctag::[dur];*

DESCRIPTION

The **OPR-EXT-CONT** command can be initiated by users to operate an external discrete control, such as a relay activation, a fan, a light, or sprinkler.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. The *aid* identifies the external miscellaneous discrete control for which a description is being provisioned. The *aid* value cannot be null and cannot be CONT-ALL.

Entity: Single Point (Control)

Legal Values: (CONT)-(1-36)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

dur

These systems can operate remote controls either continuously ("**CONTS**") or momentarily ("**MNTRY**"). The default value is **MNTRY** when *dur* is null. The duration for the momentary operation is 300ms.

OUTPUT FORMAT

To use the **OPR-EXT-CONT** command, please note that the **ENT-CID-SECU** command must first be executed to enable the SER_TLM port. If the network element fully complies with the **OPR-EXT-CONT** request, the following normal completion response is returned.

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

If the **OPR-EXT-CONT** command does not alter the existing attributes, that is, the control referenced by the *aid* is already being operated, the network element will not deny the command. The system will respond with the completion message shown above.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows a command for a PF-2000 system to operate discrete control 1.

```
OPR-EXT-CONT:LT-PF-2000:CONT-1:123456::conts;
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```


The following example shows a command for a PF-2000 system to operate discrete control 4 using a default value (**MNTRY**) for *dur*.

```
OPR-EXT-CONT:LT-PF-2000:CONT-4:123456::;  
IP 123456  
<  
  LT-PF-2000 93-10-26 16:42:11  
M 123456 COMPLD  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The error responses listed there also apply to this command.

If an **OPR-EXT-CONT** command is received with an invalid access identifier, the following error response is returned:

```
sid date time  
M ctag DENY  
IIAC  
/* Input, Invalid Access Identifier */  
;
```

If an **OPR-EXT-CONT** command is received with an invalid duration parameter, the following error response is returned:

```
sid date time  
M ctag DENY  
IDNV  
/* Input, Data Not Valid, invalid DUR */  
;
```

If this command is received while the SER_TLM port is disabled and the AID is outside of the range CONT(1-4), the following error response is returned:

```
sid date time  
M ctag DENY  
SROF  
/* Status, Requested Operation Failed */  
;
```

NOTE: This error response shall not be returned when the AID is CONT1, CONT2, CONT2, or CONT4, regardless of whether or not the SER_TLM port is enabled.

If this command is received while the EMDU is not present, the following error response is returned for access identifiers CONT-5 through CONT-36:

```
sid date time
M ctag DENY
SR0F
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-ATTR-CONT

RLS-EXT-CONT

RTRV-ALL

OPR-PROTNSW-OUPSR

OPR-PROTNSW-OUPSR: Operate Unidirectional Path_Switch OUPSR

The privilege level for this command is GENERAL.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 8.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

OPR-PROTNSW-OUPSR:*tid:aid:ctag::sc;*

DESCRIPTION

The **OPR-PROTNSW-OUPSR** command executes a manual switch, a forced switch or an inhibit protection switching on an Optical Unidirectional Path Switch.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access Identifier. This is the address of the optical protection switch.

Entity: Single Slot (OUPSR)

Legal Values: (OUPSR)-(1, 2)-(1-32)-(AIN,BIN)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

sc

Switch command. This specifies the type of protection switching that is to be executed.

The terminology used in the description of *sc* is:

path

There are two OUPSR optical paths. One is 'Path A' and the other is 'Path B'.

active

The optical (receive) line currently selected by the receiving end is said to be the active line.

standby

The optical (receive) line not currently selected by the receiving end is said to be the standby line.

The *sc* parameter must have one of the following values: "**INH**", "**FS**", or "**MS**".

INH

This requests that protection switching be inhibited, freezing the protection switching mechanism so that the current active line remains selected (until released) regardless of any subsequent failures or switch requests.

A switch inhibit is of higher priority than forced or auto switch requests. If the active line is in a signal fail condition, the switch inhibit may be service affecting.

FS

This requests a forced protection switch.

The forced switching will be completed provided there is not already a forced switch request active, and there is not an inhibit switch request active. That path remains selected until released.

Forced switches are higher priority than auto switch requests. If the path being switched to is in a signal fail condition, the forced switch may be service affecting.

MS

This requests a manual protection switch.

The command is completed provided that the path being switched to is good, there is not a forced switch request active, and there is not an inhibit switch request active.

For reporting purposes and status retrieval, manual switches are treated and reported as transient conditions (TC).

OUTPUT FORMAT

If the system fully complies with the protection switching request, the following output message is returned:

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

If the protection switching request contained within the command does not alter the existing protection switching state or priority, the network element will not deny the command. Instead the system will respond with the completion message (shown previously).

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

```
opr-protnsw-OUPSR:LT-FT-2000:OTU-1-7:123456::MS;
IP 123456
<
LT-FT-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The error responses listed there also apply to this command.

If this command is received with an invalid access identifier, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier */
;
```

If this command is received with an unsupported *sc* value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid SC */
;
```

If this command is received with an otherwise valid *aid*, but for which the command is directed to a slot in the AUTO state, or to a slot not equipped with an OUPSR circuit pack, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, AID value inconsistent with
current equipage */
;
```

If the command cannot be executed because of a hardware problem, the following error response is returned:

```
sid date time
M ctag DENY
SPFA
/* Status, Protection unit Failed,
hardware problem with protection switching mechanism. */
;
```

If the command cannot be executed because of a control system failure, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed, control system
failure */
;
```

If an equal or higher priority protection switching request already exists, the following error response is returned:

```
sid date time
M ctag DENY
SSRD
/* Status, Switch Request Denied,
Equal or higher-priority switch request exists
*/
;
```

If a manual switch command cannot be executed because the "switch to" line is failed, the following error response is returned:

```
sid date time
M ctag DENY
SSRD
/* Status, Switch Request Denied,
Loss of Signal condition exists on alternate line
*/
;
```

If this command is received with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (,), or termination characters (;), the following error response is returned:

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

RELATED TL1 COMMANDS/MESSAGES

RLS-PROTNSW-OUPSR

REPT ALM

REPT ALM: Report Alarm

This autonomous message is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

DESCRIPTION

The REPT ALM messages are generated autonomously by the network element to report an event that requires immediate attention by the craft at the OS. Each alarm message has an alarm severity associated with it.

If a condition defaults or is provisioned to have an alarm level of critical, major, or minor, the occurrence (and clearing) of that condition will be reported in a REPT ALM message.

An alarm condition reported to the OS via the REPT ALM message has a corresponding REPT ALM clearance message that is generated when the alarm condition clears.

OUTPUT FORMAT

```
sid date time
almcde atag REPT ALM modifier
"aid:ntfcncde,condtype,srveff,ocrdat,ocrtm,,,[thlev]:
\"conddescr\",:[,tblislt]"
;
```

OUTPUT PARAMETERS

sid

Source identifier. This is the system name.

date

Date output message is generated. This has the format
YY-MM-DD (year-month-day).

time

Time output message is generated. This has the format HH:MM:SS
(hours:minutes:seconds).

almcde

Alarm code. This has one of the following values:

***C**

Critical alarm

Major alarm

Minor alarm

A

Automatic message (nonalarm) (This is used only to report a cleared alarm.)

atag

Automatic Tag. *atag* is used for message sequencing. The number is incremented by one for each autonomous message sent by the network element. The network element uses whole numbers from 000 through 999.

modifier

This is a message modifier to the REPT ALM command. It has one of the following values:

COM

Common. This reports an event that is not an equipment or facility condition but applies to the whole network element system.

OCHAN

Channel. This reports a facility-related event at the channel level in OLS.

CMS

CMS is the incoming customer maintenance signal [OC3 format.] This reports a facility-related event on the CMS part of the telemetry pack [OC3 format.]

EQPT

This reports an equipment-related event for an OLS.

OLINE

This reports a facility-related event on the optical line in OLS.

SUPR

This reports a facility-related event on the supervisory channel in the optical line in OLS.

OTPS

This reports a signal-related event at the OTU/OTPM level.

aid

Access identifier. This is the address of the equipment component, for which an alarm is being reported.

ntfncnde

Notification code. This is the alarm level and will have one of the following values:

CR

Critical alarm

MJ

Major alarm

MN

Minor alarm

CL

Cleared alarm

Prompt

Prompt (if provisioned for SDH)

Deferred

Deferred (if provisioned for SDH)

condtype

Condition type. This is the type of the condition. There are several types of conditions.

The values for this parameter can be found in the various **RTRV-COND** command pages associated with the *modifier* output in the message. For example, condition types associated with the **COM** modifier are listed in the **RTRV-COND-COM** command page.

srveff

Service effect. This indicates the effect of the reported alarm on service and has one of the following values:

SA

Service-affecting condition

NSA

Non-service-affecting condition

A message reporting the clearing of an alarm has the same *srveff* value as the one reporting the alarm.

ocrdat

Occurrence date. This indicates the date of the event being reported and has the format MM-DD (month-day).

ocrtm

Occurrence time. This indicates the time of the event being reported and has the format HH-MM-SS (hours-minutes-seconds).

thlev

Threshold level. For **CMS** and **SUPR** modifier type alarms only, if an incoming facility degradation or failure (or clear) is reported, the *thlev* parameter value is the bit error ratio (BER) threshold level, in integer form, representing the closest negative power of 10 to the BER. Otherwise, this parameter is not reported.

conddescr

Condition description. This is the text description of the reported condition.

The following table contains the condition descriptions that can be output.



CAUTION:

The following table is for information only and must not be used for trouble clearing. Refer to the 365-575-201 User/Service Manual, Operation and Maintenance (TOP) section for trouble clearing information.

Alarm Conditions Descriptions

Description	Meaning
AITs mode is non-operational	The Acknowledged Information Transfer Service mode is not in operation on the DCC.
APSD active - NE	The automatic power shut down feature has been activated because of the detection of a LOS at the local terminal.
APSD active - FE	The automatic power shut down feature has been activated because of the detection of a LOS at the far end terminal.
BC LAN 1 failure	The board controller (BC) LAN 1 circuitry on a circuit pack is failed in such a way as to affect BC LAN 1.
BC LAN 2 failure	The board controller (BC) LAN 2 circuitry on a circuit pack is failed in such a way as to affect BC LAN 2.
CMISE interface not ready	The CMISE interface hardware and software is in the process of initialization.
CP reset in progress	A circuit pack has been installed and the necessary software is being downloaded to the circuit pack.
CP (unknown type) failure	The circuit pack in the indicated slot has failed but its type is unknown.
CP (unknown type) removed	The circuit pack in the indicated slot has been removed but its type is unknown.
CPYPGM:IP tid	Copy program in progress.
DCC APS data error	An error has been detected in the DCC APS byte.
DCC startup in progress	The DCC is starting up.
different OA types in side	All of the OA circuit packs on a side of the end terminal must be the same code. (When the system is provisioned for the dual facing end terminal, the circuit pack codes on one side need not be the same as the circuit pack codes on the other side.)
DS-NE not reachable	One of the network elements in the ring network has not been provisioned "DS-NE", far end communications has been disabled to the "DS-NE", or communication to the provisioned "DS-NE" has been interrupted.
duplicate TID defined	A recently entered target identifier (TID) value is a duplicate of the TID of another network element in the ring network.
equipage/prov mode inconsistent	The OA, LI, and TLM circuit packs equipped are not compatible with the provisioned terminal configuration mode.
fuse/power failure A	The network element has a blown fuse in feeder A, A power failure to a shelf, or a power failure within the shelves. Likely causes: A blown 10A fuse or a defective filter board in the filter panel.
fuse/power failure A and B	The network element has a blown fuse in feeder A and feeder B, a power failure to a shelf, or a power failure within the shelves. Likely causes: A blown 10A fuse or a defective filter board in the filter panel.
fuse/power failure B	The network element has a blown fuse in feeder B, a power failure to a shelf, or a power failure within the shelves. Likely causes: A blown 10A fuse or a defective filter board in the filter panel.

Alarm Conditions Descriptions (Continued)

Description	Meaning
incoming CMS LOF	A CMS loss-of-frame (LOF) condition has been detected on an incoming CMS line. Likely cause: Failure of the far end customer equipment or the local TLM circuit pack.
incoming CMS LOS	A CMS loss-of-signal (LOS) condition has been detected on an incoming CMS line. Likely causes: Failure of the far end customer equipment, the incoming CMS line (receive fiber), or the local TLM circuit pack.
incoming CMS SD	A signal degrade (SD) condition has been detected on an incoming CMS line. The line parity error rate threshold setting has been exceeded (10^{-5} through 10^{-9} with an original value of 10^{-6}). Likely causes: Failure of the far end customer equipment or the local TLM circuit pack.
incoming CMS SF	A signal failure (SF) condition has been detected on an incoming CMS line. Likely causes: Failure of the far end customer equipment, the incoming CMS line (receive fiber, or the local TLM circuit pack.
inc. (from Supr) DCC failure	The local network element cannot communicate through the supervisory signal data communications channel (DCC).
client loss of signal	An client LOS has been detected on an incoming 2DM25 port. Likely causes: Failure of the far end 2DM25 circuit pack, the incoming 2DM25 line (receive fiber) or the local 2DM25 circuit pack.
loss of packet delineation	An 2DM25 LPD condition has been detected on an incoming 2DM25 port. Likely causes: Dirty fiber, fiber bent, or fiber crack.
payload type mismatch	A data rate mismatch has been detected on an incoming 2DM25 client port. The signal type of the income data stream does not match the signal type provisioned by the user.
port provisioning inconsistent	The client wavelength provisioned by the user does not match the actual wavelength module inserted into the 2DM25 circuit pack.
incoming LAN failure	An LAN failure has been detected on an IAO LAN port.
incoming LSBB failure	An LSBB failure has been detected on an incoming LSBB port. Likely causes: Failure of the far end LSBB circuit pack, the incoming LSBB line (receive fiber) or the local QOTU circuit pack or LSBB OTPM.
incoming OC12 failure	An OC12 failure has been detected on an incoming OC12 port. Likely causes: Failure of the far end OC12 circuit pack, the incoming OC12 line (receive fiber) or the local QOTU circuit pack or OC12 OTPM.
incoming OC12 signal degrade	An OC12 signal degrade condition has been detected on an incoming OC12 port.
incoming OC3 failure	An OC3 failure has been detected on an incoming OC3 port. Likely causes: Failure of the far end OC3 circuit pack, the incoming OC3 line (receive fiber) or the local QOTU circuit pack or OC3 OTPM.
incoming OC3 signal degrade	An OC3 signal degrade condition has been detected on an incoming OC3 port.
incoming OC48 failure	An OC-48 failure has been detected on an incoming OC-48 port. Likely causes: Failure of the far end OC-48 circuit pack, the incoming OC-48 line (receive fiber) or the local OTU/OTPM25/QOTU25 circuit pack.
incoming OC48 signal degrade	An OC48 signal degrade condition has been detected on an incoming OC48 port.
incoming GbE-1 failure	A GbE-1 failure has been detected on an incoming GbE-1 port. Likely causes: Failure of the far end GbE-1 circuit pack, the incoming GbE-1 line (receive fiber) or the local OTU circuit pack.

Alarm Conditions Descriptions (Continued)

Description	Meaning
incoming optical channel LOS	An optical channel loss-of-signal (LOS) condition has been detected on an incoming optical channel.
incoming optical line LOS	An optical line loss-of-signal (LOS) condition has been detected on an incoming optical line.
incoming STM1 failure	An STM1 failure has been detected on an incoming STM1 port. Likely causes: Failure of the far end STM1 circuit pack, the incoming STM1 line (receive fiber) or the local QOTU circuit pack or STM1 OTPM.
incoming STM1 signal degrade	A STM1 signal degrade condition has been detected on an incoming STM1 port.
incoming STM16 failure	An STM16 failure has been detected on an incoming STM16 port. Likely causes: Failure of the far end STM16 circuit pack, the incoming STM16 line (receive fiber) or the local OTU/OTPM25/QOTU25 circuit pack.
incoming STM16 signal degrade	A STM16 signal degrade condition has been detected on an incoming STM16 port.
incoming STM4 failure	An STM4 failure has been detected on an incoming STM16 port. Likely causes: Failure of the far end STM4 circuit pack, the incoming STM4 line (receive fiber) or the local QOTU circuit pack or STM4 OTPM.
incoming STM4 signal degrade	A STM4 signal degrade condition has been detected on an incoming STM4 port.
incoming supr chnl fail	An incoming supervisory channel loss-of-frame (LOF) or loss-of-signal (LOS) condition has been detected on an incoming (from the optical line) supervisory channel.
incoming supr chnl SD	A signal degrade (SD) condition has been detected on an incoming (from the optical line) supervisory channel.
incoming supr chnl SF	A signal failure (SF) condition has been detected on an incoming (from the optical line) supervisory channel.
incoming UBB failure	An UBB failure has been detected on an incoming UBB port. Likely causes: Failure of the far end UBB circuit pack, the incoming UBB line (receive fiber) or the local QOTU circuit pack or UBB OTPM.
incoming UBB signal degrade	An UBB signal degrade condition has been detected on an incoming UBB port.
incoming UBB data rate mismatch	A data rate mismatch has been detected on an incoming UBB port. The measured data rate is greater than the expected or provisioned data rate by 5%.
inconsistent OTPM association	An association between an OTPM and an optical channel is inconsistent with the side configuration.
inconsistent OTU association	An association between an OTU and an optical channel is inconsistent with the side configuration.
inhibit alarms-LAN	Alarm reporting via the LAN is disabled.
inhibit alarms-office alarms	Alarm reporting via the office alarm interface is disabled.
inhibit alarms-parallel telem	Alarm reporting via the parallel telemetry interface is disabled.
inhibit alarms-X.25	Alarm reporting via the X.25 (TL1) interface is disabled.
INITSWD:IP	Software download in progress.
j0 mismatch	Section Trace Mismatch detected.
j1 mismatch	Path Trace Mismatch detected.
logins inhibited	Logins are disabled.

Alarm Conditions Descriptions (Continued)

Description	Meaning
multiple DS-NEs defined	Two or more network elements in a ring network have their "Directory Server" (DS-NE) parameter provisioned to "Yes". There must be one and only one Directory Server Network Element (DS-NE) in the ring network.
NE status comm failure	The network element is not associated with an Alarm Group Network Element (AGNE) or the AGNE cannot establish associations with all of the network elements in the alarm group. If the AGNE loses power, all network elements in the alarm group will report this condition; however, the condition may not be reported for several minutes.
OA failure	Failure of an OA circuit pack.
OA LAN failure	The local area network (LAN) circuitry on a circuit pack has failed in such a way as to affect the Overhead Access (OA) LAN.
OA output disabled	The output of the specified OA circuit pack has been shut down because of a problem with the ODU circuit pack temperature control at the downstream terminal.
OA removed	An OA circuit pack is missing from slot.
OMU/ODU warmup in progress	An OMU/ODU circuit pack has been installed and is warming up to a stable operating temperature.
OMU/ODU mismatch or missing	An OMU/ODU mismatch has been detected, an OMU/ODU is missing, or the wrong OMU/ODU is equipped for the OA present.
opr/prov mode inconsistent	Only certain circuit pack codes support single OA operation. When a side is provisioned for single OA operation, the circuit packs in the OA slots must be correct.
optical line ID mismatch	A fiber misconnection has been detected between Optical Line System network elements.
optical line reset in progress	An optical line has transitioned from the AUTO state to the IS state or the OA configuration has changed from single OA to Dual OA while packs are missing.
OTCTL failure	Failure of OTCTL circuit pack.
OTCTL removed	OTCTL circuit pack is missing from slot.
OTPM failure	Failure of OTPM circuit pack.
OTPM removed	OTPM circuit pack is missing from slot.
OTPM unknown	The port module in the indicated slot is unrecognizable.
OTU failure	Failure of OTU circuit pack.
OTU removed	OTU circuit pack is missing from slot.
provisioned control point	The specified control point (miscellaneous discrete output) is active. Note: The actual message that appears in the condition description report for this condition can be provisioned; this is the default message. See the RTRV-ATTR-CONT and SET-ATTR-CONT commands.
provisioned environment alarm point	A contact closure is present at an environmental input point of the network element. Note: The actual message that appears in the condition description report for this condition can be provisioned; this is the default message. See the RTRV-ATTR-ENV and SET-ATTR-ENV commands.
QOTU failure	Failure of QOTU circuit pack.
QOTU removed	QOTU circuit pack is missing from slot.

Alarm Conditions Descriptions (Continued)

Description	Meaning
reset in progress	The network element is in progress of downloading its software from SYS-MEM to SYSCTL, to TOHCTLs, and to all other circuit pack board controllers. Likely cause: Reset or INIT -SYS has been executed.
SER TLM 1 port failure	The serial telemetry 1 port has failed.
SID mismatch	The provisioned SID is not in agreement with the SID programmed in the sysctl EEPROM.
software download in progress	A software download to the SYSMEM is currently in progress.
SYSCTL failure	Failure of SYSCTL circuit pack.
SYSMEM failure	Failure of SYSMEM circuit pack.
SYSMEM removed	SYSMEM circuit pack is missing from slot.
SYSMEM/SYSCTL code mismatch	A software mismatch has been detected between the software stored in the SYSMEM circuit pack and the software version running in the network element. Likely cause: A software upgrade procedure is in progress.
SYSMEM unrecognizable code	The software stored in the SYSMEM circuit pack has become corrupted and is no longer usable. Likely causes: Corrupted software download to SYSMEM circuit pack or spontaneous corruption of the software in the SYSMEM circuit pack.
System incomplete	The designated Directory Server Network Element (DS-NE) network element is unable to create a complete ring map because of a controller or transmission failure in the network.
System startup in progress	This is a normally transient condition that indicates the network is starting up.
test alarm in progress	An office alarm test is in progress.
test auto turnup in progress	An auto turnup test is in progress.
test telemetry in progress	A telemetry test is in progress.
TID address map full	The local subnetwork has exceeded the maximum size of 16 network elements.
TL-1 link failure	An incoming TL1 link failure has been detected.
TLM/OA mismatch	OAs with code other than that which has been allowed for use in the same OLS system with the LDA4 (1510 nm) telemetry circuit pack has been detected.
TLM failure	Failure of a TLM circuit pack.
TLM removed	TLM circuit pack is missing from slot.
TOHCTL failure	Failure of TOHCTL circuit pack.
TOHCTL removed	TOHCTL circuit pack is missing from slot.
unexpected CP type	A circuit pack has been replaced with a defective circuit pack.
unexpected OTPM type	An OT port module (OTPM) has been replaced with a defective or a non-similar port module.

tblislt

Trouble isolated. If a reported condition is isolated to the reported *aid*, the *tblislt* parameter value is ISLTD to indicate that the *aid* identifies the circuit pack that should be replaced by craft to correct the reported condition. Otherwise, the *tblislt* parameter is not reported.

EXAMPLE OUTPUT

```
LT-OLS 02-06-07 16:21:30
* 1 REPT ALM EQPT
"t1m-1a:MN,PRCDRERR,NSA,06-07,16-21-30,,,,:\\"CP (Unknown type)
failure\\",:,ISLTD"
;
LT-OLS 02-06-07 16:23:18
A 2 REPT ALM EQPT
"t1m-1a:CL,PRCDRERR,NSA,06-07,16-23-18,,,,:\\"CP (Unknown type)
failure-cleared\\",:,ISLTD"
;
LT-OLS 02-06-07 16:25:45
* 3 REPT ALM OLINE
"oline-1a:MN,LOS,NSA,06-07,16-25-45,,,,:\\"incoming optical line
LOS\\",:"
;
LT-OLS 02-06-07 16:30:08
A 4 REPT ALM OLINE
"oline-1a:CL,LOS,NSA,06-07,16-25-45,,,,:\\"incoming optical line
LOS-cleared\\",:"
;
LT-OLS 02-06-07 16:30:45
* 5 REPT ALM OTPS
"otu-1-2-1:MN,FAIL,NSA,06-07,16-30-45,,,,:\\"incoming OC-48
failure\\",:"
;
LT-OLS 02-06-07 16:30:50
A 6 REPT ALM OTPS
"otu-1-2:CL,FAIL,NSA,06-07,16-30-50,,,,:\\"incoming OC-48
failure-cleared\\",:"
;
LT-OLS 02-06-07 16:31:00
* 7 REPT ALM OTPS
"otu-1-3-2:MN,FAIL,NSA,06-07,16-31-00,,,,:\\"incoming OC12
failure\\",:"
;
LT-OLS 02-06-07 16:31:08
A 8 REPT ALM OTPS
"otu-1-3-2:CL,FAIL,NSA,06-07,16-31-08,,,,:\\"incoming OC12
failure-cleared\\",:"
;
```

Screen continues on next page

Screen continued from previous page

```
LT-OLS 02-06-07 16:31:30
** 9 REPT ALM EQPT
"otpm-1-3-1:MJ,CONTR,NSA,06-07,16-31-30,,,,:\\"OTPM failure\\",:,"
;
LT-OLS 02-06-07 16:35:18
A 10 REPT ALM OTPS
"otpm-1-3-1:MJ,CONTR,NSA,06-07,16-31-30,,,,:\\"OTPM failure-cleared\\",:,"
;
LT-OLS 02-06-07 16:45:15
* 11 REPT ALM OTPS
"otpm-1-15-2-1:MN,SGNFLT,NSA,06-07,16-45-15,,,,:\\"incoming UBB
failure\\",:"
;
LT-OLS 02-06-07 16:48:08
A 12 REPT ALM OTPS
"otpm-1-15-2-1:MN,SGNFLT,NSA,06-07,16-45-15,,,,:\\"incoming UBB failure-
cleared\\",:"
;
LT-OLS 02-06-07 16:50:11
* 13 REPT ALM OTPS
"otpm-2-25-4-1:MN,OTHER,NSA,06-07,16-50-11,,,,:\\"incoming UBB data rate
mismatch\\",:"
;
LT-OLS 02-06-07 16:53:01
A 14 REPT ALM OTPS
"otpm-2-25-4-1:MN,OTHER,NSA,06-07,16-53-01,,,,:\\"incoming UBB data rate
mismatch-cleared\\",:"
;
LT-OLS 02-06-07 16:58:00
* 15 REPT ALM OTPS
"otpm-1-3-2-1:MN,SGNDGD,NSA,06-07,16-31-00,,,,:\\"incoming UBB signal
degrade\\",:"
;
LT-OLS 02-06-07 16:59:50
A 4 REPT ALM OTPS
"otpm-1-3-2-1:MN,SGNDGD,NSA,06-07,16-59-50,,,,:\\"incoming UBB signal
degrade-cleared\\",:"
;
```

RELATED TL1 COMMANDS/MESSAGES

None

REPT ALM ENV

REPT ALM ENV: Report Alarm Environment

This autonomous message is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

DESCRIPTION

REPT ALM ENV messages are generated autonomously by the network element to inform the OS an environmental condition has been detected at the OLS.

If a miscellaneous discrete environmental point defaults to, or is provisioned to have, an alarm level of critical, major, or minor, the occurrence (and clearing) of that environmental point will be reported in a REPT ALM ENV message. If provisioned as a nonalarmed condition, a REPT EVT message is used to report the event.

For each miscellaneous discrete environmental condition reported to the OS via the REPT ALM ENV message, a corresponding REPT ALM ENV clearance message will be generated when the environmental condition clears.

OUTPUT FORMAT

```
sid date time  
almcde atag REPT ALM ENV  
"aid:ntfcncde,almttype,ocrdat,ocrtm,\"almmsg\""  
;
```

OUTPUT PARAMETERS

sid

Source identifier. This is the system name.

date

Date output message is generated. This has the format
YY-MM-DD (year-month-day).

time

Time output message is generated. This has the format
HH:MM:SS (hours:minutes:seconds).

almcde

Alarm code. This has one of the following values:

***C**

Critical alarm

Major alarm

Minor alarm

A

Automatic message (nonalarm) (This is used only to report a cleared alarm.)

atag

Automatic tag. The *atag* is used for message sequencing. The number is incremented by one for each autonomous message sent by OLS. OLS uses whole numbers from 000 through 999.

aid

Access identifier. This is the address of the miscellaneous discrete environmental point for which an alarm is being reported.

ntfcncde

Notification code. This is the alarm level and has one of the following values:

CR

Critical alarm

MJ

Major alarm

MN

Minor alarm

CL

Cleared alarm

almtype

Alarm type. This parameter has one of the following values:

MISC

For miscellaneous discrete environmental conditions reported for near end terminals.

REGR-MISC

For miscellaneous discrete environmental conditions reported for far end terminals or repeater bay sites.

ocrdat

Occurrence date. This indicates the date of the event being reported and has the format MM-DD (month-day).

ocrtm

Occurrence time. This indicates the time of the event being reported and has the format HH-MM-SS (hours-minutes-seconds).

almmsg

Alarm message. This is the text description of the reported condition. (The text description of the actual condition monitored and reported by each miscellaneous discrete environmental point can be provisioned by the user. The default is *environment n.*)

EXAMPLE OUTPUT

```
LT-OLS 96-06-07 16:28:41
* 5 REPT ALM ENV
"env-1:MN,MISC,10-26,16-25-48,\\\"provisioned environment alpt\\\"\"
;
LT-OLS 96-06-07 16:38:17
A 6 REPT ALM ENV
"env-1:CL,MISC,10-26,16-27-35,\\\"provisioned environment
alpt-cleared\\\"\"
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-ALM-ENV

RTRV-ATTR-ENV

SET-ATTR-ENV

REPT COND

REPT COND: Report Condition

This autonomous message is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

DESCRIPTION

The REPT COND messages are generated periodically and autonomously to report the active *status* conditions at the network element.

The REPT COND messages are generated every 6 hours, that is, at 6:00 A.M., 12:00 Noon, 6:00 P.M. and 12:00 Midnight.

Each REPT COND message reports one active status condition similar to the autonomous REPT EVT message used to report each status condition (non-alarmed event) when it occurred.

Any status condition reported by an autonomous REPT EVT message, which is active when the periodic REPT COND messages are output, is included in a REPT COND message.

The information content of each REPT COND message is effectively equivalent to a line in the response to a **RTRV-COND** command.

OUTPUT FORMAT

If there are no active status conditions to report, the following report is output:

```
sid date time
A atag REPT COND
;
```

If there are active status conditions to report, the following report is output:

```
sid date time
A atag REPT COND modifier
"aid:ntfcncde,condtype,srveff,ocrdat,ocrtm,,,\"conddescr\""
;
```

OUTPUT PARAMETERS

sid

Source identifier (or Target identifier, *tid*). This is the system name.

date

Date output message is generated. This has the format YY-MM-DD (year-month-day).

time

Time output message is generated. This has the format HH:MM:SS (hours:minutes:seconds).

A

This indicates the message is sent autonomously.

atag

Automatic tag. The *atag* is used for message sequencing. The number is incremented by one for each autonomous message sent by the network element, on a per-OS-type basis. The network element uses only whole numbers from 000 through 999.

modifier

This is the message modifier to the REPT COND message and has one of the following values for OLS:

COM

Common. This reports a condition that is not an equipment or facility condition but applies to the whole network element.

OCHAN

Channel. This reports a facility-related condition at the channel level.

CMS

CMS is the incoming customer maintenance signal [OC3/STM1 format]. This reports a facility-related event on the cms part of the telemetry pack [OC3/STM1 format].

EQPT

This reports an equipment-related condition for an OLS terminal or repeater bay.

OLINE

This reports a facility-related event on the optical line.

SUPR

This reports a facility-related event on the supervisory channel in the optical line.

OTPS

This reports a facility-related event on an OTU or OT port module (OTPM).

aid

Access identifier. This is the address of the equipment component or facility for which a status condition is being reported.

ntfcncde

Notification code. This parameter value is always NA (not alarmed) for status conditions.

condtype

Condition type. The values for this parameter can be found in the various **RTRV-COND** command pages associated with the *modifier* output in the message. For example, condition types associated with the **COM** *modifier* are listed in the **RTRV-COND-COM** command page.

srveff

Service effect. This indicates the effect of the reported condition on service. This parameter value is **NSA** (non-service-affecting) or **SA** (service-affecting) for status conditions.

ocrdat

Occurrence date. This indicates the date of the condition being reported and has the format MM-DD (month-day).

ocrtm

Occurrence time. This indicates the time of the condition being reported and has the format HH-MM-SS (hours-minutes-seconds).

conddescr

Condition description. This is the text description of the reported condition.

Alarm condition descriptions can be found in the REPT ALM message page.

EXAMPLE OUTPUT

```
LT-PF-2000 93-10-01 06:00:00
A 810 REPT COND COM
"env-1:NA,MISC,NSA,10-01,01-03-29,,,,\"environment1\"";
```

```
LT-OLS 94-06-07 16:28:41
A 820 REPT COND OLINE
"oline-1a:NA,LOS,06-07,16-25-48,\\\"incoming optical line LOS\\\"";
```

```
LT-OLS 94-06-26 16:25:48
A 830 REPT COND OCHAN
"ochan-1a-1:NA,OCHANRMVD,06-26,16-25-48,\\\"incoming optical
channel removed\\\"";
```

RELATED TL1 COMMANDS/MESSAGES

REPT ALM

REPT EVT

RTRV-ALL

RTRV-AO

RTRV-COND-ALL

REPT DBCHG

REPT DBCHG: Report Database Change

This autonomous message is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

DESCRIPTION

The REPT DBCHG messages are generated by a network element to report database changes that have occurred as a result of optical port provisioning, protection switching and performance monitoring parameter threshold provisioning commands.

The REPT DBCHG messages are sent on all virtual circuits which have an OS_TYPE allowing the receipt of REPT DBCHG autonomous messages. This will now include the virtual circuit which initiated the command that caused the database change.

The successful completion of commands from the network element which change the provisioning database or change the value of a CIT-provisionable parameter shall generate a REPT DBCHG message with the changed values listed in the output. If a provisionable value of a parameter was entered, and other optional parameter values were not entered, only the value of the parameter that was entered when the command was issued will appear in the REPT DBCHG output.

If an optional parameter was not entered, but the requirements state it must be set to a certain static default value, then that parameter value will be considered "entered". The value will be displayed in the output.

Controller reset:

Any time the system controller resets (including on power-up), a REPT DBCHG message is transmitted after the controller has successfully recovered from the reset.

The user is logged out when the controller reset process begins. However, the user can relogin after couple of minutes of controller reset process initiation. The user will be able to see the REPT DBCHG message at the time it is sent only if the user has logged in again after a couple of minutes of controller reset initiation and before the completion of system controller reset. Otherwise, the user has to use the **RTRV-AO** message to see the REPT DBCHG stored in the buffer internally in the system.

In addition to INIT-SYS, there are other commands which will cause the system to restart its program, and/or drop the user session. For these commands, the system should generate the report database change before the user session is terminated.

If the command only causes the user session to be dropped, and the REPT DBCHG message is not transmitted prior to the termination, the user can normally use the **RTRV-AO** command after relogging in to retrieve that REPT DBCHG message.

The following TL1 commands will trigger a REPT DBCHG message.

TL1 Command	Special Notes
CPY-PRGM	
DLT-ASSOC-OTPS	
DLT-IP-MAP	
DLT-TADRMAP	
DLT-USER-SECU	
DWNLD-FTP	
ED-DAT	
ED-PID	<i>pid</i> must not be reported.
ED-USER-SECU	
ENT-ASSOC-OTPS	
ENT-CID-SECU	
ENT-CMS	
ENT-FECOM	
ENT-IP-MAP	
ENT-NE-SECU	
ENT-OCHAN	
ENT-OSI	
ENT-OTPS	
ENT-SECTRC	
ENT-SUPR	
ENT-SYS	
ENT-TCPIP	
ENT-USER-SECU	<i>pid</i> must not be reported.
INIT-REG-OLINE	
INIT-REG-ALL	
INIT-SYS	
OPR-PROTNSW-OUPSR	
RLS-PROTNSW-OUPSR	
SET-ATTR-ALM	
SET-ATTR-CONT	
SET-ATTR-ENV	
SET-PM-STIME	
SET-SID	

TL1 Command	Special Notes
SET - TH - OCHAN	
SET - TH - OLINE	
SET - TH - OTPS	
SET - TH - SUPR	
UPD - SYS	

Besides provisioning commands from the CIT user or the OS user, some TL1 commands or user/system actions will trigger a REPT DBCHG message due to the autonomous system state changes to the parameter listed. Details about the parameters are described in the corresponding TL1 manual pages.

Event	ccb block	Parameter	Related TL1
Create Protection group	ENT-PROTN-GROUP**	ACTIVE_PORT, SWITCH_STATUS*	RTRV-PROTN-GROUP
Delete Protection group	DLT-PROTN-GROUP**	-----	-----
Insert Circuit Pack	ENT-EQPT	TYPE,APP,SSN,CLEI, ECI,SLN	RTRV-EQPT
Delete Circuit Pack	DLT-EQPT	-----	RTRV-EQPT

*Note: The AID field of the REPT-DBCHG will contain the OUPSR port AID, OUPSR - (1,2) - (1-32) - COUT, and active port will contain one of the following values: OUPSR - (1,2) - (1-32) - (AIN, BIN).

** ENT/DLT-PROTN-GROUP is triggered by inserting or removing the OUPSR circuit pack into the Network Element.

All commands can be categorized into three cases:

1. Those that change the provisioning database;
2. Those that change the state of the system (but not the database);
3. Those that check the database or state of the system.

The commands that change the provisioning database (Case 1) will report a REPT DBCHG. The security commands, although not actually changing the provisioning database, should change the security information and will also report a REPT DBCHG. Certain system events that change the internal state of the NE (Case 2) will generate a REPT DBCHG too as listed in the table of events that will trigger a REPT DBCHG message.

The following TL1 commands which are in Case 2 or Case 3, will not report a database change:

- RTRV - xxx
- TEST - xxx

- ALW-/INH-MSG
- OPR-ACO-ALL
- OPR-/RLS-EXT-CTL
- ACT-/CANC-USER

OUTPUT FORMAT

```
sid date time
A atag REPT DBCHG
"umb:ccb:aid:[com_block]:[spec_block]:[state_block]"
;
```

Trailing commas after the last non-null parameter value within a parameter block are *not* included in the output message. Also, trailing colons after the last non-null parameter block are *not* included in the output message.

OUTPUT PARAMETERS

sid

Source identifier (or Target identifier, *tid*). This is the system name.

date

Date output message is generated. This has the format YY-MM-DD (year-month-day).

time

Time output message is generated. This has the format HH:MM:SS (hours:minutes:seconds).

A

This indicates the message is sent autonomously.

atag

Automatic tag. The *atag* is used for message sequencing. The number is incremented by one for each autonomous message sent by the network element, on a per-OS-type basis. The network element uses only whole numbers from 000 through 999.

umb

Update Management Block. This parameter field is used for returning the time and date of the database change, and the source ID of the command that caused the change (when applicable). Parameters within the update management block are positionally independent and are specified using a name defined construct of: PARAMETER=*value* in a comma separated list. The parameters are listed and explained below.

TIME

This reflects the time that the database change occurred and is in the form: HH-MM-SS. The time is the same as the time that is in the REPT DBCHG message header.

DATE

This reflects the date that the database change occurred and is in the form: YY-MM-DD. The date is the same as the date that is recorded in the history log for the database change record.

SOURCE

If the database change occurs as a result of a TL1 command with a non-null ctag, the **SOURCE** field contains this non-null *ctag* value. Otherwise this parameter is not included in the message.

ccb

Command Code Block. This is a single position defined parameter block which indicates the trigger information of the action which created the database update. If a TL1 command created this update, the command code parameter is specified in the form:

<verb>-<modifier>[-<modifier>]

If the <verb> of the TL1 input command is **SET**, it is **not** reported as **ENT** in the command code block. The command code block must indicate the input verb **SET**.

If the database change was caused by a user interface command or a button push caused the database change, the Command Code Block contains the equivalent TL1 command which would have had to have been entered to make the change.

For controller reset, the *ccb* will be equal to RESET. For the UPDATE function, the *ccb* will be equal to **UPD-SYS**.

aid

Access identifier. This is the address of the object entity which the database update has affected.

For line termination provisioning changes, this field contains the AID of the line which was provisioned.

For system initialization, RESET, and UPDATE events, the AID field will be null.

com_block

This field is always null.

spec_block

Specific Block. This is a name defined field. If the database change is the result of a TL1 command which contains parameters in this block, the parameter names and values are included in this block. Parameters within the specific block are positionally independent and are specified using a name defined construct of: **PARAMETER=value** in a comma separated list. The parameter names are the same as those for the corresponding TL1 command.

All the database changes except the state change are reported in the *spec_block* as name-defined parameters (**PARAMETER=value**) whether or not the data was originally input as a position-defined parameter or name-defined parameter in the

input command. The parameter names are the same as those for the corresponding TL1 command. If the input command used a name-defined parameter that causes a database change, then the REPT DBCHG will report it as a name-defined parameter in the specific block. If the input command used a position-defined parameter that causes a database change, then the REPT DBCHG will report this position-defined parameter as a name-defined parameter (PARAMETER=*value*) in the specific block.

This field is null if the value in the *ccb* is **UPD-SYS**.

If the database change is the result of a (non-TL1) user interface command which contains parameters in this block, the equivalent TL1 parameter names and values are included in this block. The parameter names are the same as those for the corresponding TL1 command.

state_block

State Block. This is a position defined field. If a state change is being reported, the new state is included in this block. It contains the following parameters in the order shown:

pst

Primary State.

EXAMPLE OUTPUT

The following message is sent when the **ENT-SUPR** message has been completed for the supervisory channel 1a:

```
LT-OLS 93-10-01 08:00:00
A 888 REPT DBCHG
"TIME=07-59-20,DATE=93-10-01,SOURCE=123456:ENT-SUPR:supr-1a::
NTFCNCDE=MN,SDTHR=-6"
;
```

The following message is sent when the **SET-TH-OCHAN** message has been completed for the supervisory channel 1a:

```
LT-OLS 93-10-01 08:00:00
A 888 REPT DBCHG
"TIME=07-59-20,DATE=93-10-01,SOURCE=123456:SET-TH-OCHAN:ochan-1a-1::
MONTYPE=CVL,THLEV=-9,TMPER=15-MIN,TCARPT=ENABLE"
;
```


The following message is sent when the **SET-ATTR-CONT** message has been completed for the control point 3:

```
LT-PF-2000 93-10-01 08:00:00
A 888 REPT DBCHG
"TIME=07-59-20,DATE=93-10-01,SOURCE=123456:SET-ATTR-CONT:cont-3::
CONTTYPE=\"StartGenerator\""
;
```

The following message is sent to create a protection group when an OUPSR circuit pack is inserted and recognized by the NE software:

```
LT-PF-2000 93-10-01 08:00:00
A 888 REPT DBCHG
"TIME=07-59-20,DATE=93-10-01:ENT-PROTN-GROUP:OUPSR-1-10-COUT::
ACTIVE_PORT=OUPSR-1-10-AIN, SWITCH_STATUS=NR"
;
```

The following message is sent when a protection group is deleted as a result of removal of the OUPSR circuit pack followed by an UPD-SYS command:

```
LT-PF-2000 93-10-01 08:00:00
A 888 REPT DBCHG
"TIME=07-59-20,DATE=93-10-01:DLT-PROTN-GROUP:OUPSR-1-10-COUT"
;
```

The following message is sent when an XADD association is created:

```
LT-2000 99-10-01 08:00:00
A 888 REPT DBCHG
"TIME=07-59-20,DATE=99-10-01,SOURCE=123456:ENT-ASSOC-OTPS:
EAST_EON,OUPSR-1-3-AOUT,WEST_EON,OTU-1-5-1::ASSOC=XADD"
;
```

The following message is sent when an XDROP association is deleted:

```
LT-2000 99-10-01 08:00:00
A 888 REPT DBCHG
"TIME=07-59-20,DATE=99-10-01,SOURCE=123456:DLT-ASSOC-OTPS:
EAST_EON,OTU-1-5-1,WEST_EON,OUPSR-1-3-AOUT::ASSOC=XDROP"
;
```

The following message is sent when an ADD association is created:

```
LT-2000 99-10-01 08:00:00
A 888 REPT DBCHG
"TIME=07-59-20,DATE=99-10-01,SOURCE=123456:ENT-ASSOC-OTPS:
,OTU-1-10-1,,OCHAN-2A-10::ASSOC=ADD"
;
```

The following message is sent when an DROP association is deleted:

```
LT-2000 99-10-01 08:00:00
A 888 REPT DBCHG
"TIME=07-59-20,DATE=99-10-01,SOURCE=123456:DLT-ASSOC-OTPS:
,OCHAN-2B-10,,OTU-1-12-1::ASSOC=DROP"
;
```

The following message is sent when an OTU or OTPM circuit pack is inserted:

```
LT-PF-2000 93-10-01 08:00:00
A 888 REPT DBCHG
"TIME=07-59-20,DATE=93-10-01:ENT-EQPT:OTPM-1-9-1::
TYPE=OTPM,APP=46A5,SSN=S1-1,CLEI=SNCLBT0AAF,
ECI=214183,SLN=01MV12095528"
;
```

The wrap around is for ease of reading. The actual output will not contain any line break.

The following message is sent when an OTU or OTPM circuit pack is deleted from the database as a result of circuit pack removal followed by executing an UPD-SYS:

```
LT-PF-2000 93-10-01 08:00:00
A 888 REPT DBCHG
"TIME=07-59-20,DATE=93-10-01:DLT-EQPT:OTPM-1-9-1::TYPE=OTPM"
;
```

Note: In R8.0, REPT-DBCHG for circuit pack insertion and removal is supported for all the circuit packs in the OTU shelf, which includes the OTU, OTPM, QOTU and OUPSR.

If several circuit packs are deleted and an UPD-SYS is executed subsequently, the OS (i.e., SNMS) shall receive several REPT-DBCHG with ccb=DLT-EQPT. A REPT-DBCHG is issued individually for each circuit pack deleted from the NE database.

If a circuit pack is simply removed from the system without executing UPD-SYS command, then REPT-DBCHG will not be issued. If the original or a different circuit pack which is the same type as the original circuit pack is inserted subsequently, then a REPT-DBCHG with ccb=ENT-EQPT and all associated parameters will be issued.

The following message is sent when a pluggable transceiver module (SFP) is inserted into a MUX OTU:

```
LT-PF-2000 93-10-01 08:00:00
A 888 REPT DBCHG
"TIME=07-59-20,DATE=02-01-16:ENT-SFP:2DM25-1-9-P1::
TYPE=2DM25P1,APP=AGILENT,SSN=HFBR-5701L,CLEI=SNCLBT0AAF,
ECI=214183,SLN=0123456789ABCDEF,WAVLNTH=850nm,MODE=MM"
;
```

The wrap around is for ease of reading. The actual output will not contain any line break.

The following message is sent when a pluggable transceiver module (SFP) is deleted from the database as a result of SFP removal followed by executing an UPD-SYS:

```
LT-PF-2000 93-10-01 08:00:00
A 888 REPT DBCHG
"TIME=07-59-20,DATE=02-01-16:DLT-SFP:2DM25-1-9-P1::TYPE=2DM25P1"
;
```

The wrap around is for ease of reading. The actual output will not contain any line break.

REPT-DBCHG for ccb=ENT-SFP and ccb=DLT-SFP behaves identically as ccb=ENT-EQPT and ccb=DLT-EQPT, respectively, except that the former deals with pluggable transceiver modules and the later deals with circuit packs.

RELATED TL1 COMMANDS/MESSAGES

None

REPT EVT

REPT EVT: Report Event

This autonomous message is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

DESCRIPTION

The REPT EVT messages are generated autonomously by OLS to report events (nonalarmed conditions).

If an event with a user-provisionable alarm level defaults to or is provisioned as a not alarmed (NA) level, the occurrence of that event is reported in a REPT EVT message. REPT EVT messages also occur when any such standing conditions clear, and are used to report transient conditions. Beginning with OLS Release 1.0, autonomous performance monitoring (PM) threshold crossing alert (TCA) messages are provided to the OS using this TL1 message.

The following table indicates what TL1 will result in what **REPT EVT** messages.

One and only one REPT EVT message is generated for each command.

TL1 Command	REPT EVT message
RTRV-BASELINE	Rtrv-Baseline
TEST-ALM	Test-Alarm:slot()
TEST-AUTO-LOCAL	Test-Auto Turnup-Local:slot()
TEST-LED	Test-LED
TEST-TLM-PAR	Test-Telemetry-Parallel
TEST-LOOPBACK	Test-Loopback
ACT-USER	Activate-User
ALW-MSG	Allow-Message
CANC-USER	Cancel-User
CPY-PRGM	Copy-Program
DLT-ASSOC-OTPS	Delete-Association-OTPS
DLT-TADDRMAP	Delete-TID-Address Map
DLT-USER-SECU	Delete-User-Security
ED-DAT	Edit-Date
ED-PID	Edit-Password-ID
ED-USER-SECU	Edit-User-Security
ENT-ASSOC-OTPS	Enter-Association-OTPS
ENT-CID-SECU	Enter-Channel-ID-Security:port(com)
ENT-CMS	Enter-CMS:cms
ENT-FECOM	Enter-Far-End-Communications
ENT-NE-SECU	Enter-Network Element-Security

TL1 Command	REPT EVT message
RTRV-BASELINE	Rtrv-Baseline
ENT-OCHAN	Enter-OCHAN:ochan
ENT-OSI	Enter-OSI
ENT-OTPS	Enter-OTPS:otps
ENT-PATHTRC	Enter-Path-Trace:otps
ENT-SECTRC	Enter-Section-Trace:line
ENT-SUPR	Enter-SUPR:supr
ENT-SYS	Enter System
ENT-USER-SECU	Enter User Security
INH-MSG	Inhibit-Message
INIT-REG-ALL	Initialize-PM-Register
INIT-REG-OLINE	Initialize-Optics-Register
INIT-SWD	Initiate-Software-Download
INIT-SYS (3)	Initialize-System
INIT-SYS (9)	Reset
OPR-ACO	Operate-Alarm-Cutoff
OPR-EXT-CONT	Operate-External-Control:misc disc(ctl)
RLS-EXT-CONT	Release-External-Control:misc disc(ctl)
RTRV-ALL	Rtrv-All
RTRV-ALM	Rtrv-Alarm (and Status)
RTRV-ALM-ENV	Rtrv-Alarm-Environment (and Status)
RTRV-ALM-NTWK	Rtrv-Alarm-Network
RTRV-AO	Rtrv-AO
RTRV-ASSOC-OTPS	Rtrv-Association-OTPS
RTRV-ATTR-ALM	Rtrv-Attr-Alarm
RTRV-ATTR-CONT	Rtrv-Attr-Control:point(cont)
RTRV-ATTR-ENV	Rtrv-Attr-Environment:point(env)
RTRV-ATTR-SUPR	Rtrv-Attr-SUPR:supr
RTRV-CID-SECU	Rtrv-Channel ID-Security:port(com)
RTRV-CMS	Rtrv-CMS:cms
RTRV-COND	Rtrv-Alarm (and Status)
RTRV-DAT	Rtrv-Date
RTRV-EQPT	Rtrv-Equipment:slot()
RTRV-FECOM	Rtrv-Far End Communications
RTRV-HDR	Rtrv-HDR
RTRV-LOG	Rtrv-Log
RTRV-MAP-NETWORK	Rtrv-Map-Network
RTRV-MAP-RING	Rtrv-Map-Ring

TL1 Command	REPT EVT message
RTRV-BASELINE	Rtrv-Baseline
RTRV-NE-SECU	Rtrv-Network Element-Security
RTRV-OCHAN	Rtrv-OCHAN:ochan
RTRV-OLINE	Rtrv-OLINE:oline
RTRV-OSI	Rtrv-OSI
RTRV-OTPS	Rtrv-OTPS:otps
RTRV-PATHTRC	Rtrv-Path-Trace:otps
RTRV-PM-ALL	Rtrv-PM-All
RTRV-PM-OCHAN	Rtrv-PM-OCHAN:ochan
RTRV-PM-OLINE	Rtrv-PM-OLINE:oline
RTRV-PM-OTPS	Rtrv-PM-OTPS:otps
RTRV-PM-STIME	Rtrv-PM-Start Time
RTRV-PM-SUPR	Rtrv-PM-SUPR:supr
RTRV-SECTRC	Rtrv-Section-Trace:line
RTRV-RELSPR	Rtrv-RELSPR:oline
RTRV-STATE	Rtrv-State:slot()
RTRV-STATE-ALL	Rtrv-State-All
RTRV-SUPR	Rtrv-SUPR:supr
RTRV-SYS	Rtrv-System
RTRV-TH-ALL	Rtrv-Th-All
RTRV-TH-OCHAN	Rtrv-PM-Th-OCHAN:ochan
RTRV-TH-OLINE	Rtrv-PM-Th-OLINE:oline
RTRV-TH-OTPS	Rtrv-PM-Th-OTPS:otps
RTRV-TH-SUPR	Rtrv-PM-Th-SUPR:supr
RTRV-USER-SECU	Rtrv-User-Security
SET-ATTR-ALM	Set-Attribute-Alarm
SET-ATTR-CONT	Set-Attribute-Control
SET-ATTR-ENV	Set-Attribute-Environment
SET-ATTR-SUPR	Set-Attribute-SUPR:supr
SET-PM-STIME	Set-PM-Start Time
SET-SID	Set-Source-Identification
SET-TH-OCHAN	Set-PM-Th-OCHAN:ochan
SET-TH-OLINE	Set-PM-Th-OLINE:oline
SET-TH-OTPS	Set-PM-Th-OTPS:otps
SET-TH-SUPR	Set-PM-Th-SUPR:supr
UPD-SYS	Update System

No **RTRV** command shall be reported in the history log.

OUTPUT FORMAT

```
sid date time  
A atag REPT EVT modifier  
"aid:condtype,condeff,ocrdat,ocrtm,[locn],[dirn],[monval],  
[thlev],[tmper]:\"conddescr\",:[,tblislt]"  
;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

sid

Source identifier. This is the system name.

date

Date output message is generated. This has the format YY-MM-DD (year-month-day).

time

Time output message is generated. This has the format HH:MM:SS (hours:minutes:seconds).

A

This indicates the nonalarmed message was sent autonomously.

atag

Automatic tag. The *atag* is used for message sequencing. The number is incremented by one for each autonomous message sent. Whole numbers from 000 through 999 are used.

modifier

This is a message modifier to the REPT EVT message and has one of the following values:

COM

Common. This reports an event that is not an equipment or facility condition but applies to the OLS as a whole. This is also used to report miscellaneous discrete environmental nonalarmed conditions.

OCHAN

Channel. This reports a facility-related event at the channel level in OLS.

CMS

CMS is the incoming customer maintenance signal [OC3 format.] This reports a facility-related event on the CMS part of the telemetry pack [OC3 format.]

EQPT

This reports an equipment-related event for an OLS.

OLINE

This reports a facility-related event on the optical line in OLS.

SUPR

This reports a facility-related event on the supervisory channel in the optical line in OLS.

OTPS

This reports a signal-related event at the OTU/OTPM level.

aid

Access identifier. This is the address of the equipment component, facility, or repeater bay site ID for which an event is being reported.

condtype

Condition type. This is the type of the condition. There are several types of conditions.

The values for this parameter can be found in the various **RTRV-COND** command pages associated with the *modifier* output in the message. For example, condition types associated with the **COM modifier** are listed in the **RTRV-COND-COM** command page.

condeff

Condition effect. This indicates the effect of the reported event on the condition of OLS and has one of the following values:

SC

Standing Condition Raised. This is a condition that is active for an extended period of time.

TC

Transient Condition. This is a condition that does not change the basic condition of the network element for an extended period of time. For example, a performance monitoring TCA message is reported as a transient condition.

CL

Standing Condition Cleared. This is a used to report when a standing condition no longer exists.

ocrdat

Occurrence date. This indicates the date of the event being reported and has the format MM-DD (month-day).

ocrtm

Occurrence time. This indicates the time of the event being reported and has the format HH-MM-SS (hours-minutes-seconds).

locn

Location. This indicates whether the event being reported pertains to the near end or far end relative to the entity identified by the *aid*.

The *locn* may be null or have one of the following values:

NEND

Near end event or TCA report.

FEND

Far end event or TCA report.

The system will output a null value for the *locn* parameter in cases where a TCA message is being generated. A null value is to be interpreted as meaning **NEND**.

dirn

Direction. This indicates the direction of the event being reported relative to the entity identified by the *aid*. The system will always provide a null entry for the *dirn* parameter.

monval

Monitored value. For performance monitoring TCAs, this is the measured value of the parameter specified in *condtype* (*=T-montype*) at the time the REPT EVT TCA is reported. Otherwise this parameter is not reported.

thlev

Threshold level. If an incoming facility degradation or failure (or clear) is reported, the *thlev* parameter, applicable only for a message modifier of SUPR, is the BER threshold level, in integer form, representing the closest negative power of 10 to the BER.

tmper

Time period. For performance monitoring TCAs, this is the performance monitored time interval in which the reported threshold crossing event was observed. The values for this parameter are as follows:

15-MIN

15-minute interval

1-DAY

daily interval

Otherwise this parameter is not reported.

conddescr

Condition description. This is the text description of the reported condition. The descriptions of PM TCAs are self explanatory and follow the parameter naming format specified in ANSI Draft Standard T1M1.3/92-005 (June 1992).

The system places a "?" in the *aid* field in the history log and the REPT EVT message if the *aid* provided was not a valid *aid* for the command.

tblislt

Trouble isolated. If a reported condition is isolated to the reported *aid*, the *tblislt* parameter value is **ISLTD** to indicate that the *aid* identifies the circuit pack that should be replaced by craft to correct the reported condition. Otherwise, this parameter is not reported.

EXAMPLE OUTPUT

```
LT-OLS 96-06-07 16:28:41
A 7 REPT EVT OCHAN
"ochan-1a-1:T-SPRC,TC,06-07,16-28-41,,,,:\\"TCA optics:Ochan QH:
SPR-C"\\",:"
;
```

The following example is for an OPR-LPBK-T3 command that has been denied.

```
LT-FT-2000 96-10-26 16:28:41
A 7 REPT EVT COM
"LT01:IO-ACTY,TC,10-26,16-28-41,,,,:\\"operate-loopback-T3:
line-1e-DENY"\\",:"
;
```

RELATED TL1 COMMANDS/MESSAGES

None

REPT SW

REPT SW: Report Switch

This autonomous message is available starting in OLS Release 8.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

DESCRIPTION

REPT SW messages are generated autonomously to report path protection switches.

REPT SW messages are generated autonomously every time an **OPR/RLS - PROTNW - OUPSR** command is executed, or an automatic switching request is initiated. The report contains port *aid*, occurrence date and time, switch state and active switch priority.

Note: Two messages may occur when each command is executed.

OUTPUT FORMAT

```
sid date time
A atag REPT SW
  "aid:spec_block"
;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETER** section for **RTRV - HDR**. Additional parameters that specifically apply to this command response are defined as follows:

tid

Target identifier. This is the system name.

date

Date output message is generated. This has the format YY-MM-DD (year-month-day).

time

Time output message is generated. This has the format HH:MM:SS (hours:minutes:seconds).

A

This indicates the message is sent autonomously.

atag

Automatic tag. The atag is used for message sequencing. The number is incremented by one for each autonomous message sent by the network element, on a per-OS-type basis.

The network element uses only whole numbers from 000 through 999.

aid

Access identifier. This specifies the address of the OUPSR port.

Entity: Port (OUPSR)

Legal Values: OUPSR-(1,2)-(1-32)-(AIN,BIN)

ocrdat

Occurrence date. This indicates that date of the event being reported. The format used is YY-MM-DD (year-month-day) for a SONET environment and DD-MM-YY (day-month-year) for an SDH environment.

ocrtm

Occurrence time. This indicates the time of the event being reported and has the format HH-MM-SS (hours-minutes-seconds).

sw_state

Switch state. This is the state of the addressed switchable entity. This parameter will have one of the following values:

ACT

Active. This specifies that the addressed entity is in the active state.

STBY

Standby. This specifies that the addressed entity is in the standby state.

RDNA

Requested data not available. If the requested *sw_state* data for the addressed entity is corrupted, this value is reported.

actswprty

Active Switch Priority. This field is reported for addressed switchable entities in the case of a protection switch being in effect. It specifies the current active protection switching request. The *actswprty* parameter has one of the following values:

INH

Inhibit. This specifies that an inhibit protection switching request is active.

FS

Forced Switching. This specifies that a forced protection switching request is active.

MS

Manual Switching. This specifies that a manual protection switching request is active.

SF

Signal Fail. This specifies that an automatic protection switching request is active due to signal failure.

SD

Signal Degrade. This specifies that an automatic protection switching request is active due to signal degrade.

NR

No Request. There is no automatic switching request.

RDNA

Requested data not available. If the requested *sw_state* data for the addressed entity is corrupted, this value is reported.

EXAMPLE OUTPUT

The following example shows that at the initial stage both OUPSR ports AIN and BIN of OUPSR-1-10 were in good condition and port OUPSR-1-10-AIN is active. Then failure had occurred in port OUPSR-1-10-AIN and automatic switching happened. The report is generated as given below with the port OUPSR-1-10-BIN is now in active state and Signal Fail (SF) is currently active.

```
LT-PF-2000 93-10-26 16:42:11
A 123 REPT SW
"OUPSR-1-10-BIN:OCRDAT=2000-05-26,OCRTM=16-42-11,SW_STATE=ACT,ACTSW-
PRTY=SF"
;
```

The following example shows that failure had cleared and the report is generated as OUPSR-1-10-AIN is in active state and there is no automatic switch request.

```
LT-PF-2000 93-10-26 16:42:11
A 123 REPT SW
"OUPSR-1-10-AIN:OCRDAT=2000-05-26,OCRTM=16-42-11,SW_STATE=ACT,ACTSW-
PRTY=NR"
;
```

The following example shows that a manual switching had occurred and the report is generated as OUPSR-1-10-AIN is in active state.

```
LT-PF-2000 93-10-26 16:42:11
A 123 REPT SW
"OUPSR-1-10-AIN:OCRDAT=2000-05-26,OCRTM=16-42-11,SW_STATE=ACT,ACTSW-
PRTY=MS"
;
Note: Manual switches are treated as transient conditions in non-revertive
switching such as OUPSR, thus when the user manually operate the switch,
rept^sw will report a MS as ACTSWPRTY, but any subsequent rtrv-state on the
said OUPSR pack will return NR (No Request) as the ACTSWPRTY.
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-STATE

OPR-PROTNSW-OUPSR

RLS-PROTNSW-OUPSR

REPT COND

REPT EVT

RTRV-COND

RLS-EXT-CONT

RLS-EXT-CONT: Release External Control

The privilege level for this command is GENERAL.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RLS-EXT-CONT *:tid:aid:ctag;*

DESCRIPTION

The **RLS-EXT-CONT** command can be initiated by users to release an external miscellaneous discrete control, such as a generator, a fan, a light, or a sprinkler. Miscellaneous discrete controls are operated by the **OPR-EXT-CONT** command.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. The *aid* identifies the external miscellaneous discrete control for which a description is being provisioned.

Entity: Single Point (Control)

Legal Values: (CONT)-(1-36)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

To use the **RLS-EXT-CONT** command, please note that the **ENT-CID-SECU** command must first be executed to enable the SER_TLM port. If the network element fully complies with the **RLS-EXT-CONT** request, the following normal completion response is returned.

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

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows a command for a PF-2000 system to release miscellaneous discrete control 1.

```
RLS-EXT-CONT:LT-PF-2000:CONT-1:123456::;
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```

The following example shows a command for a linear PF-2000 system to release miscellaneous discrete control 4.

```
RLS-EXT-CONT:LT-PF-2000:CONT-4:123456::;
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If a **RLS-EXT-CONT** command is received with an invalid access identifier, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier */
;
```

If this command is received while the EMDU is not present, the following error response is returned for access identifiers CONT-5 through CONT-36:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-ATTR-CONT

OPR-EXT-CONT

RTRV-ALM-ALL

RLS-PROTNSW-OUPSR

RLS-PROTNSW-OUPSR: Release Path Switch OUPSR

The privilege level for this command is GENERAL.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 8.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RLS-PROTNSW-OUPSR:*tid:aid:ctag;*

DESCRIPTION

The **RLS-PROTNSW-OUPSR** command releases (**clears**) any standing forced switch or inhibit switch of an OUPSR circuit pack. There can only be one external request active. The **RLS-PROTNSW-OUPSR** command clears the active request. Thus, this command may result in an Optical Unidirectional Path Switch.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access Identifier. This is the address of the optical protection switch.

Entity: Single Slot (OUPSR)

Legal Values: (OTU)-(1, 2)-(1-32)-(AIN,BIN)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

CENTERLINK CIT TEXT

The following text will appear on the CenterLink CIT screen below the input form and above the **ENTER**, **CLEAR**, and **HELP** buttons:

NOTE: For the AID (Access Identifier), when the construct ALL is used no other entry must appear to the right of ALL. For example, entity-ALL is valid but anything following entity-ALL- is invalid.

OUTPUT FORMAT

If the system fully complies with the protection switching request, the following output message is returned:

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

If the protection switching request contained within the command does not alter the existing protection switching state or priority, the network element will not deny the command. Instead the system will respond with the completion message (shown previously).

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

```
rls-protnsw-OUPSR:LT-the Network Element:OTU-1-27:AbC123;  
IP AbC123  
<  
LT-the Network Element 93-10-26 16:42:11  
M AbC123 COMPLD  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If this command is received with an invalid access identifier, the following error response is returned:

```
sid date time  
M ctag DENY  
IIAC  
/* Input, Invalid Access Identifier */  
;
```

If this command is received with an otherwise valid *aid*, but for which the command is directed to a slot in the AUTO state, or to a slot not equipped with an OUPSR circuit pack, the following error response is returned:

```
sid date time  
M ctag DENY  
IDNV  
/* Input, Data Not Valid, AID value inconsistent with  
current equipage */  
;
```

If the command cannot be executed because of a hardware problem, the following error response is returned:

```
sid date time  
M ctag DENY  
SPFA  
/* Status, Protection unit Failed,  
hardware problem with protection switching mechanism. */  
;
```

If the command cannot be executed because of a control system failure, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed, control system
failure */
;
```

If this command is received with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (,), or termination characters (;), the following error response is returned:

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

RELATED TL1 COMMANDS/MESSAGES

OPR-PROTNSW-OUPSR

RTRV-ALL

RTRV-ALL: Retrieve All

The privilege level for this command is REPORTS.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-ALL:*tid:aid:ctag[:type];*

DESCRIPTION

The **RTRV-ALL** command messages can be initiated by a user to retrieve the current provisioned state of the Customer Maintenance Signal (CMS) port, supervisory (SUPR) channel, optical channel (OCHAN), optical translator unit (OTU), and optical translator port module (OTPM) as well as the current state of the CMS port, supervisory channel, optical channel, OTU port state, and OTPM port state. This command retrieves all CMS port, supervisory channel, optical channel, OTU, or OTPM parameter settings that are provisionable via the **ENT-CMS**, **ENT-SUPR**, **ENT-OCHAN**, and **ENT-OTPS** commands pertaining to the addressed OLS or OT, reported one line per CMS port, supervisory channel, optical channel, OTU port state, or OTPM port state. The **RTRV-ALL** command also retrieves the current state of the OLS supervisory channel.

This command does not return any data for CMS (Customer Maintenance Signal) ports in OLS R5.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)

- (dash)
- _ (underscore)
- / (slash)

aid

Access identifier. This is the address of the entity for which the report is requested.

Entity: All

Legal Values: (ALL)

tag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *tag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

type

Type. A value for this parameter is neither expected nor allowed.

OUTPUT FORMAT

Because the network element supports pre-provisioning of parameters, lines are included for all applicable *aid* values in response to this command, whether or not the present equipage is capable of supporting the type of facility specified.

Line wrapping is not supported in the **OUTPUT FORMAT**. Output lines are broken here only for the convenience of the reader.

In response to a valid **RTRV-ALL** command, an output report is returned and is sorted as follows:

1. OCHAN data,
2. SUPR channel data,
3. CMS port data,
4. OTU port data,
5. OTPM port data, and
6. by *aid* value.

```

sid date time
M ctag COMPLD
"ochan_aid:::pst"
"ochan_aid:::pst"
. . .
. . .
. . .
"ochan_aid:::pst"
"supr_aid:::[level,]ntfcncde,sdthr"
"supr_aid:::[level,]ntfcncde,sdthr"
. . .
. . .
. . .
"supr_aid:::[level,]ntfcncde,sdthr"
"cms_aid:::[level,]ntfcncde,sdthr:,sst"
"cms_aid:::[level,]ntfcncde,sdthr:,sst"
. . .
. . .
. . .
"cms_aid:::[level,]ntfcncde,sdthr:,sst"
"otu_aid:::level,[lsbbrate],[ubbrate],[ubbratecurr],[ubbdmnc],[oc192in],
[oc192out],[cexp2dm25],[cw2dm25],[cact2dm25],ntfcncde,optlinecde,
wavlenth:pst"
"otu_aid:::level,[lsbbrate],[ubbrate],[ubbratecurr],[ubbdmnc],[oc192in],
[oc192out],[cexp2dm25],[cw2dm25],[cact2dm25],ntfcncde,optlinecde,
wavlenth:pst"
. . .
. . .
. . .
"otu_aid:::level,[lsbbrate],[ubbrate],[ubbratecurr],[ubbdmnc],[oc192in],
[oc192out],[cexp2dm25],[cw2dm25],[cact2dm25],ntfcncde,optlinecde,
wavlenth:pst"
"otpm_aid:::level,[lsbbrate],[ubbrate],[ubbratecurr],[ubbdmnc],[oc192in],
[oc192out],[cexp2dm25],[cw2dm25],[cact2dm25],ntfcncde,optlinecde,
wavlenth:pst"
"otpm_aid:::level,[lsbbrate],[ubbrate],[ubbratecurr],[ubbdmnc],[oc192in],
[oc192out],[cexp2dm25],[cw2dm25],[cact2dm25],ntfcncde,optlinecde,
wavlenth:pst"
. . .
. . .
. . .
"otpm_aid:::level,[lsbbrate],[ubbrate],[ubbratecurr],[ubbdmnc],[oc192in],
[oc192out],[cexp2dm25],[cw2dm25],[cact2dm25],ntfcncde,optlinecde,
wavlenth:pst"
;

```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

port_aid

Port access identifier. This is the port address of the facility for which output is being reported.

level

Signal level. This parameter is the signal level type being supported by the CMS port, supervisory channel, OTU, or OTPM specified in the addressed slot (if equipped). If equipped the level parameter is reported in LEVEL=xx format where xx has the following value:

OC3

This specifies that the CMS port signal, supervisory channel, or OTPM is OC3 level. (SONET only)

OC12

This specifies that the OTPM port signal is OC12 level. (SONET only)

OC48

This specifies that the OTU port, the OTPM port or the 2DM25 High Speed port signal is OC48 level. (SONET only)

OC192

This specifies that the OTU port signal is OC192 level (SONET only)

STM1

This specifies that the CMS port signal, supervisory channel, or OTPM is STM1 level. (SDH only)

STM4

This specifies that the OTPM port signal is STM4 level. (SDH only)

STM16

This specifies that the OTU port or OTPM port signal is STM16 level. (SDH only)

STM64

This specifies that the OTU port signal is STM64 level. (SDH only)

GbE-1

This specifies that the OTU port or OTPM port signal is 1 Gb/s Ethernet level.

LSBB

This specifies that the OTPM port signal is the Low Speed Broad Band (LSBB) level.

QOTU

This will be displayed for the first OTU slot containing a QOTU.

EXT

Extension. This will be displayed for the extension slot of a Quad OTU.

OTU

Optical Translator Unit. This will be displayed if an OTPM is requested and the slot contains an OTU pack.

UBB

A Universal Broad Band signal

2DM25

A 2:1 Muxing OTU client signal

No level value is reported for unequipped slots.

lsbbrate

Low Speed Broad Band Bit Rate. This parameter reports the bit rate for the Low Speed Broad Band (LSBB) OTPM. The valid values are **High_Band** and **Low_Band**.

No *lsbbrate* value is reported for OTU port signals.

UBBRATE

Universal Broad Band Bit Rate. This parameter reports the incoming signal's provisioned data bit rate of the Universal Broad Band (UBB) OTPM. The parameter has one of the following values:

ETR

External Timing Request. An IBM Mainframe protocol with a data rate of 16Mb/s.

CLO

Control Link Oscillator. An IBM Mainframe protocol with a data rate of 16Mb/s.

ESCON

Enterprise System CONnection. An IBM Mainframe protocol with a data rate of 200Mb/s and 8B/10B encoding.

ISC_CF

Inter-System Channel or Coupling Facility. These are IBM Mainframe protocol with a data rate of 1.062Gb/s.

FICON

Fiber CONnection. An IBM Mainframe protocol with a data rate of 1.062Gb/s and 8B/10B encoding.

FX

100Base-FX. Fast Ethernet with a data rate of 125Mb/s and 4B/5B encoding.

GbE - 1

1000Base-LX. Gigabit Ethernet with a data rate of 1.25Gb/s and 8B/10B encoding.

FDDI

Fiber Distributed Data Interface with a data rate of 125Mb/s and 4B/5B encoding.

FC-12

Fiber Channel with a data rate of 133Mb/s and 8B/10B encoding.

FC-25

Fiber Channel with a data rate of 266Mb/s and 8B/10B encoding.

FC-50

Fiber Channel with a data rate of 531Mb/s and 8B/10B encoding.

FC-100

Fiber Channel with a data rate of 1.062Gb/s and 8B/10B encoding.

D1-V

Video signal with a data rate of 270Mb/s.

OC3

A SONET OC3 signal.

OC12

A SONET OC12 signal.

OC48

A SONET OC48 signal.

STM1

A SDH STM1o signal.

STM4

A SDH STM4o signal.

STM16

A STM16o signal.

UNKNOWN

An unknown signal within the range of 16Mb/s to 2.5Gb/s.

No *ubbrate* value is reported for OTU port signals.

UBBRATECURR

Current Universal Broad Band Bit Rate. This parameter reports the current measured data rate of the addressed Universal Broad Band (UBB) OTPM aid's incoming signal. It may or may not be identical to the provisioned incoming data rate. If it is greater than the provisioned data rate by 5%, an alarm will be generated.

UBBDRMNC

Universal Broad Band Data Rate Mismatch Notification code. This parameter is the alarm level (i.e. notification code) provisioned for the signal data rate mismatch condition occurred at the addressed port. The *ubbdmnc* parameter is reported in *ubbdmnc=xx* format where *xx* has one of the following values:

CR

Critical (if provisioned for SONET)

MJ

Major (if provisioned for SONET)

MN

Minor (if provisioned for SONET)

NA

Not alarmed (if provisioned for SONET)

NR

Not reported (if provisioned for SONET) (No autonomous report will be generated.)

NO

Ignored (if provisioned for SONET) (No autonomous or on-demand report will be generated.)

Prompt

Prompt (if provisioned for SDH)

Deferred

Deferred (if provisioned for SDH)

No_Alarm

No Alarm (if provisioned for SDH)

No_Report

No Report (if provisioned for SDH) (No autonomous report will be generated.)

Not_Indicated

Not Indicated (if provisioned for SDH) (No autonomous or on-demand report will be generated.)

If the `level` is not equal to UBB, this parameter should display a "-".

OC192IN

OC-192 Input. The reported value will be "OC192", "OCH" or "DEFAULT".

When the value of the `oc192in` parameter is set to "DEFAULT", the value of `oc192in` reported by the RTRV-OTPS TL1 command will be "DEFAULT", regardless of the operating mode of the OTU, and the value of `oc192out` will be blank.

OC192OUT

OC-192 Output. The reported value will be "OC192" or "OCH".

CEXP2DM25

2DM25 Client Expected Input. This parameter indicates the incoming signal's expected data bit rate of the Dual Data Muxing (2DM25) OTU. This parameter must have one of the following values:

ESCON

Enterprise System CONnection. An IBM Mainframe protocol with a data rate of 200Mb/s and 8B/10B encoding.

ISC_CF

Inter-System Channel or Coupling Facility. These are IBM Mainframe protocol with a data rate of 1.062Gb/s.

FICON

Fiber CONnection. An IBM Mainframe protocol with a data rate of 1.062Gb/s and 8B/10B encoding.

GbE-1

1000Base-LX. Gigabit Ethernet with a data rate of 1.25Gb/s and 8B/10B encoding.

FC-100

Fiber Channel with a data rate of 1.062Gb/s and 8B/10B encoding.

UNEQPT

Un-equip. The Client input signal has not yet been provisioned by the user.

CW2DM25

2DM25 Client Wavelength. This parameter indicates the input client wavelength of the Dual Data Muxing OTU. This parameter must have one of the following values:

MM850nm

The input wavelength is Multimode 850 nm.

MM1310nm

The input wavelength is Multimode 1310 nm.

SM1310nm

The input wavelength is Singlemode 1310 nm.

CACT2DM25

2DM25 Client Actual Transmitted/Received Data Type. This parameter indicates the actual data type read from the overhead byte of the Generic Framing Protocol (GFP). This parameter must have one of the following values:

ESCON

Enterprise System CONnection. An IBM Mainframe protocol with a data rate of 200Mb/s and 8B/10B encoding.

ISC_CF

Inter-System Channel or Coupling Facility. These are IBM Mainframe protocol with a data rate of 1.062Gb/s.

FICON

Fiber CONnection. An IBM Mainframe protocol with a data rate of 1.062Gb/s and 8B/10B encoding.

GbE - 1

1000Base-LX. Gigabit Ethernet with a data rate of 1.25Gb/s and 8B/10B encoding.

FC - 100

Fiber Channel with a data rate of 1.062Gb/s and 8B/10B encoding.

NA

Not Available. The 2DM25 circuit pack is un-reachable or the GFP overhead is un-readable.

UNEQPT

Un-equipt. The Client input signal has not yet been provisioned by the user or the low speed port is not equipped.

optlinecde

Optical Line coding. The line coding parameter is only reported in the specific block for OC-48 lines, optical low speed ports, OTUs, or OTPMs. It specifies the type of optical line coding used on the Optical Interface. The *optlinecde* parameter is reported in OPTLINECDE=xx format where xx is one of the following values:

NRZ

Non-return to Zero.

For the UBB OTPM, if the input signal is GbE, FC-xx, ESCON, FICON, or ISC, then the *optlinecde* value is NRZ. This parameter should display a "-" for any other signals.

No *optlinecde* value is reported for unequipped slots, ports, or lines. If the level=EXT, OTU, or QOTU, this parameter should display a "-".

NOTE: OTU, QOTU, and EXT are not signal levels, They are hardware related.

wavlenth

Optical Wavelength. The optical wavelength parameter is only reported in the specific block for OTUs and OTPMs. It specifies the optical wavelength used on the LSBB, UBB, 2DM25, OC-192/STM-64, OC-48/STM-16, OC-12/STM-4, or OC-3/STM-1 Optical Interface. The *wavlenth* parameter is reported in WAVLNTH=xxxx.xx format where xxxx.xx is (expressed in nanometers):

No *wavlenth* value is reported for unequipped slots, OTUs, or OTPMs. If the level=EXT, OTU, or QOTU, this parameter should display a "-".

NOTE: OTU, QOTU, and EXT are not signal levels, They are hardware related.

ntfcncde

Notification code. This parameter is the alarm level provisioned for failures of facilities serviced by the addressed port. The *ntfcncde* parameter is reported in NTFNCNDE=xx format where xx has one of the following values:

CR

Critical (if provisioned for SONET)

MJ

Major (if provisioned for SONET)

MN

Minor (if provisioned for SONET)

NA

Not alarmed (if provisioned for SONET)

NR

Not reported (if provisioned for SONET) (No autonomous report will be generated.)

NO

Ignored (if provisioned for SONET) (No autonomous or on-demand report will be generated.)

Prompt

Prompt (if provisioned for SDH)

Deferred

Deferred (if provisioned for SDH)

No_Alarm

No Alarm (if provisioned for SDH)

No_Report

No Report (if provisioned for SDH) (No autonomous report will be generated.)

Not_Indicated

Not Indicated (if provisioned for SDH) (No autonomous or on-demand report will be generated.)

sdthr

Signal degrade threshold. This parameter is the signal degrade Bit Error Rate (BER) threshold for the facility serviced by the addressed supervisory channel. The *sdthr* parameter is reported in SDTHR=xx format where xx has one of the following values:

-9

This signifies that the signal degrade threshold is set at a BER of 10^{-9} .

-8

This signifies that the signal degrade threshold is set at a BER of 10^{-8} .

-7

This signifies that the signal degrade threshold is set at a BER of 10^{-7} .

-6

This signifies that the signal degrade threshold is set at a BER of 10^{-6} .

-5

This signifies that the signal degrade threshold is set at a BER of 10^{-5} .

Signal degrade threshold. This parameter is the signal degrade Bit Error Rate (BER) threshold for the facility serviced by the addressed CMS port. The *sdthr* parameter for CMS port is always reported as SDTHR=-6.

pst

Primary state. This parameter reports the current primary state of the addressed optical channel (OCHAN). The *pst* will have one of the primary states supported by OLS.

The primary state for optical channel will have one of the following values:

IS

In service. This specifies that the optical channel addressed by *ochan_aid* is in the in service state.

OOS-MA-AS

Out of service, memory administration, assigned. This specifies that the optical channel addressed by *ochan_aid* is in the OLS "AUTO" state and will transition to in-service upon detection of a valid signal.

OOS

Out of service. This specifies that the optical channel addressed by *ochan_aid* is in the OLS "NMON" state.

RDNA

Requested data not available. If the requested *pst* data for the addressed optical channel is corrupted, this value is reported.

The primary port state for OTUs and OTPMs will have one of the following values:

IS

In service. This specifies that the low speed port addressed by *port_aid* is in the in service state.

OOS-MA-AS

Out of service, memory administration, assigned. This specifies that the low speed port addressed by *port_aid* is in the "AUTO" state.

OOS

Out of service. This specifies that the low speed port addressed by *port_aid* is in the "NMON" state.

RDNA

Requested data not available. If the requested *pst* data for the addressed low speed port is corrupted, this value is reported.

sst

Secondary state. This parameter reports the current secondary state of the addressed CMS port. The *sst* will have one of the secondary states supported by OLS.

The CMS port secondary state will have one of the following values:

IS

In service. This specifies that the CMS port addressed by *cms_aid* is in the in service state in the *mux* (from the customer toward the optical line) direction.

OOS-MA-AS

Out of service, memory administration, assigned. This specifies that the CMS port addressed by *cms_aid* is in the OLS "AUTO" state and will transition to in-service upon detection of a valid incoming customer maintenance signal in the *mux* (from the customer toward the optical line) direction.

OOS

Out of service. This specifies that the CMS port addressed by *cms_aid* is in the OLS "NMON" state in the *mux* (from the customer toward the optical line) direction.

RDNA

Requested data not available. If the requested *sst* data for the addressed CMS port is corrupted, this value is reported.

ochan_aid

Optical Channel access identifier. This is the optical channel address for which output is being reported.

supr_aid

Supervisory channel access identifier. This is the supervisory channel address for which output is being reported.

cms_aid

CMS access identifier. This is the CMS port address for which output is being reported.

otu_aid

OTU access identifier. This is the OTU port address for which output is being reported.

otpm_aid

OTPM access identifier. This is the OT port module address for which output is being reported.

2dm25_aid

2DM25 access identifier. This is the 2DM25 port address for which output is being reported.

EXAMPLE INPUT/OUTPUT

Line wrapping is not supported in the **OUTPUT FORMAT**. Output lines are broken here only for the convenience of the reader.

The example below shows the response to a query concerning all supervisory channels, all CMS ports, all optical channels, and all OT port states associated with all optical lines ("all"). Only OTU slots that are occupied are reported.

```
rtrv-all:LT-OLS:all:123456;  
IP 123456  
<  
    LT-OLS 93-10-26 16:42:11  
M 123456 COMPLD  
  "ochan-1a-1:::IS"  
  "ochan-1a-2:::IS"  
  "ochan-1a-3:::IS"  
  "ochan-1a-4:::IS"  
  "ochan-1a-5:::IS"  
  "ochan-1a-6:::IS"  
  "ochan-1a-7:::00S-MA-AS"  
  "ochan-1a-8:::00S-MA-AS"  
  "ochan-1a-9:::IS"  
  "ochan-1a-10:::IS"  
  "ochan-1a-11:::IS"  
  "ochan-1a-12:::IS"  
  "ochan-1a-13:::IS"  
  "ochan-1a-14:::IS"  
  "ochan-1a-15:::00S-MA-AS"  
  "ochan-1a-16:::00S-MA-AS"  
  . . .  
  . . .  
  . . .  
  "ochan-2b-1:::IS"  
  "ochan-2b-2:::IS"  
  "ochan-2b-3:::IS"  
  "ochan-2b-4:::IS"  
  "ochan-2b-5:::IS"  
  "ochan-2b-6:::IS"  
  "ochan-2b-7:::00S-MA-AS"  
  "ochan-2b-8:::00S-MA-AS"  
  "ochan-2b-9:::IS"  
  "ochan-2b-10:::IS"  
  "ochan-2b-11:::IS"  
  "ochan-2b-12:::IS"  
  "ochan-2b-13:::IS"  
  "ochan-2b-14:::IS"  
  "ochan-2b-15:::00S-MA-AS"  
  "ochan-2b-16:::00S-MA-AS"  
  "supr-1a:::LEVEL=0C3,NTFCNCDE=CR,SDTHR=-6"  
  "supr-1b:::LEVEL=0C3,NTFCNCDE=CR,SDTHR=-6"  
  "supr-2a:::LEVEL=0C3,NTFCNCDE=CR,SDTHR=-6"  
  "supr-2b:::LEVEL=0C3,NTFCNCDE=CR,SDTHR=-6"  
  "cms-1a:::LEVEL=0C3,NTFCNCDE=CR,SDTHR=-6:,IS"  
  "cms-1b:::LEVEL=0C3,NTFCNCDE=CR,SDTHR=-6:,IS"  
  "cms-2a:::LEVEL=0C3,NTFCNCDE=CR,SDTHR=-6:,IS"  
  "cms-2b:::LEVEL=0C3,NTFCNCDE=CR,SDTHR=-6:,IS"
```

Screen continues on next page

Screen continued from previous page

```
"otu-1-1-1:::LEVEL=10G,OC192IN=DEFAULT,OC192OUT=-,NTFCNCDE=MN,
OPTLINECDE=NRZ,WAVLNTH=1560.61:IS"
"otu-1-2-1:::LEVEL=10G,OC192IN=OC192,OC192OUT=OCH,NTFCNCDE=MJ,
OPTLINECDE=NRZ,WAVLNTH=1550.12:00S-MA-AS"
"otu-1-3-1:::LEVEL=10G,OC192IN=OCH,OC192OUT=OC192,NTFCNCDE=MJ,
OPTLINECDE=NRZ,WAVLNTH=1554.94:00S"
"otu-1-7-1:::LEVEL=OC48,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1559.79:00S"
"otu-1-8-1:::LEVEL=OC48,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1554.94:00S"
"otu-1-11-1:::LEVEL=OC48,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1555.75:00S"
"otu-1-12-1:::LEVEL=OC48,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1557.36:00S"
"otpm-1-17-1-1:::LEVEL=LSBB,LSBBRATE=Low_Band,NTFCNCDE=MJ,
OPTLINECDE=NRZ,WAVLNTH=1554.94:00S-MA-AS"
"otpm-1-20-1-1:::LEVEL=UBB,UBBRATE=FC-100,UBBRATECURR=1010Mbps,
UBBDRMNC=MN,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1560.61:00S"
"otpm-1-20-2-1:::LEVEL=UBB,UBBRATE=FC-100,UBBRATECURR=1033Mbps,
UBBDRMNC=MN,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1560.61:00S"
"otpm-1-20-3-1:::LEVEL=UBB,UBBRATE=FDDI,UBBRATECURR=120Mbps,
UBBDRMNC=MN,NTFCNCDE=MJ,OPTLINECDE=-,WAVLNTH=1560.61:00S"
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (.), or termination characters (;), the following error response is returned:

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

If the network element receives a **RTRV** command with an invalid command code modifier, the following error response is returned:

```
sid date time
M ctag DENY
ICNV
/* Input, Command Not Valid, invalid modifier */
;
```

If the network element receives a **RTRV** command without an *aid* value or with an *aid* value that is invalid for this command, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier, AID missing or inconsistent
with modifier value */
;
```

If the network element receives this command with an invalid *type* value, the following error response is returned:

RELATED TL1 COMMANDS/MESSAGES

ENT-CMS

ENT-OCHAN

ENT-OTPS

ENT-SUPR

RTRV-ALM-ALL

RTRV-ALM-ALL: Retrieve Alarm All

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-ALM-ALL:*tid:aid:ctag::[ntfcncde],,,,,;*

DESCRIPTION

The **RTRV-ALM-ALL** command can be initiated by a user to retrieve all active alarms from a network element terminal. This command retrieves all active alarms pertaining to the addressed network element terminal and upstream repeater bays, reported one line per condition.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This is the address of the entity for which the current conditions are requested. If provided at all, the *aid* for this command must be "ALL". If not provided, the value of "ALL" is assumed.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

ntfcncde

Notification code. This is the alarm level for which the current alarms are requested, and it may have one of the values: "**CR**", "**MJ**", "**MN**", "**CR_Prompt**", "**MJ_Prompt**", or "**MN_Deferred**".

CR

Critical alarm

MJ

Major alarm

MN

Minor alarm

CR_Prompt

Critical alarm (for SONET), Prompt alarm (for SDH)

MJ_Prompt

Major alarm (for SONET), Prompt alarm (for SDH)

MN_Deferred

Minor alarm (for SONET), Deferred alarm (for SDH)

If the *ntfcncde* is valid, the network element response to the user is limited to the specified notification code. If no notification code is provided or if the notification code is not valid, the network element response includes all alarm conditions.

OUTPUT FORMAT

If there are no alarm conditions to report, the following message is returned to the OS:

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

Applicable output lines are ordered as follows:

1. By alarm severity level **CR_Prompt**, then **MJ_Prompt**, followed by **MN_Deferred**.
2. For conditions with the same alarm severity, by the value of occurrence date (*ocr-dat*), and occurrence time (*ocr-tm*), with the most recent listed first.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the equipment component, facility, or repeater bay site ID for which an alarm condition is being reported.

aidtype

Access identifier type. This has one of the following values:

COM

Common. This reports an alarm that is not an equipment or facility condition but applies to the network element as a whole.

OCHAN

Channel. This reports a facility-related event at the channel level in WaveStar OLS.

CMS

CMS is the incoming customer maintenance signal. This reports a facility-related event on the CMS part of the telemetry pack.

EQPT

This reports an equipment-related alarm for a network element terminal or repeater bay.

OLINE

This reports a facility-related event on the optical line in WaveStar OLS.

SUPR

This reports a facility-related event on the supervisory channel in the optical line in WaveStar OLS.

OTPS

This reports a facility-related event on the optical translator unit signal or the optical translator port module signal.

ntfncde

Notification code. This is the alarm level for which the current alarms are requested, and it may have one of the values: "**CR**", "**MJ**", "**MN**", "**Prompt**", or "**Deferred**".

CR

Critical alarm (SONET only)

MJ

Major alarm (SONET only)

MN

Minor alarm (SONET only)

Prompt

Prompt alarm (SDH only)

Deferred

Deferred alarm (SDH only)

condtype

Condition type. This is the type of the condition. There are several types of conditions.

The values for this parameter can be found in the various **RTRV-ALM** command pages associated with the *aidtype* output in the message. For example, condition types associated with the **COM aidtype** are listed in the **RTRV-ALM-COM** command page.

srveff

Service effect (or condition effect). This indicates the effect of the reported alarm on service or the effect of an alarm on the condition of the network element. This parameter has one of the following values:

SA

Service-affecting alarm condition.

NSA

Non-service-affecting alarm or status condition.

ocrdat

Occurrence date. This indicates the date of the alarm being reported and has the format MM-DD (month-day).

ocrtm

Occurrence time. This indicates the time of the alarm being reported and has the format HH-MM-SS (hours-minutes-seconds).

conddescr

Condition description (or Alarm message). This is the text description of the reported condition.

tblislt

Trouble isolated. If a reported condition is isolated to the reported *aid*, the *tblislt* parameter value is **ISLTD** to indicate that the *aid* identifies the circuit pack that should be replaced by craft to correct the reported condition. Otherwise, this parameter is not reported.

EXAMPLE INPUT/OUTPUT

For an OLS Repeater:

```
rtrv-alm-all:LT-OLS:all:123456;  
IP 123456  
LT-OLS 94-06-07 16:42:11  
M 123456 COMPLD  
"oline-1b,OLINE,MN,LOS,NSA,06-07,18-26-14,,:\\"incoming optical  
line LOS\\",,:"  
"supr-2b,SUPR,MN,LOS,NSA,06-07,18-26-14,,:\\"incoming supr chnl  
fail\\",,:"  
;
```

For an OLS/OT Configuration:

```
rtrv-alm-all:LT-OLS:all:123456;  
IP 123456  
LT-OLS 94-06-07 16:42:11  
M 123456 COMPLD  
"oline-1b,OLINE,MN,LOS,NSA,06-07,18-26-14,,:\\"incoming optical  
line LOS\\",,:"  
"supr-2b,SUPR,MN,LOS,NSA,06-07,18-26-14,,:\\"incoming supr chnl  
fail\\",,:"  
"otu-1-1-1,OTPS,MN,FAIL,NSA,06-07,18-26-14,,:\\"incoming OC48  
failure\\",,:"  
"otpm-1-1-3-1-1,FAIL,MN,LOS,NSA,06-07,18-26-14,,:\\"incoming OC3  
failure\\",,:"  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to **RTRV-ALM-ALL**.

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-ALM-CMS

RTRV-ALM-CMS: Retrieve Alarm Customer_Maintenance_Signal

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-ALM-CMS:*tid:aid:ctag[::[ntfcncde],,,,;*

DESCRIPTION

The **RTRV-ALM-CMS** command can be initiated by a user to retrieve facility-related events on the customer maintenance signal (CMS) part of the telemetry pack [OC3 format]. This command retrieves all active alarms pertaining to the addressed network element terminal and upstream repeater bays, reported one line per condition, similar to the autonomous messages used to report alarm (REPT ALM CMS) conditions when they occur.

Any alarm condition reported by an autonomous REPT ALM CMS or REPT ALM ENV message which is active when a **RTRV-ALM-CMS** command is received, is included in the **RTRV-ALM-CMS** response message.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This is the address of the entity for which the current conditions are requested.

Entity: CMS Port [End Terminals and Repeaters]

Legal Values: (CMS)-(ALL, 1A, 1B, 2A, 2B)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

ntfcncde

Notification code. This is the alarm level for which the current alarms are requested, and it may have one of the values: "CR", "MJ", "MN", "CR_Prompt", "MJ_Prompt", or "MN_Deferred".

CR

Critical alarm

MJ

Major alarm

MN

Minor alarm

CR_Prompt

Critical alarm (for SONET), Prompt alarm (for SDH)

MJ_Prompt

Major alarm (for SONET), Prompt alarm (for SDH)

MN_Deferred

Minor alarm (for SONET), Deferred alarm (for SDH)

If the *ntfcncde* is valid, the network element response to the user is limited to the specified notification code. If no notification code is provided or if the notification code is not valid, the network element response includes all alarm conditions.

OUTPUT FORMAT

If there are no alarm conditions to report, the following message is returned to the OS:

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


If there are alarm conditions to report, the following output report is returned to the OS:

```
sid date time
M ctag COMPLD
  "aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,, :
  \"conddescr\",,,:[,tblislt]"
  . . . . .
  . . . . .
  . . . . .
  "aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,, :
  \"conddescr\",,,:[,tblislt]"
;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV - HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the equipment component, facility, or repeater bay site ID for which an alarm condition is being reported.

aidtype

Access identifier type.

CMS

CMS is the incoming customer maintenance signal. This reports a facility-related event on the CMS part of the telemetry pack.

ntfcncde

Notification code. This is the alarm level for which the current alarms are requested, and it may have one of the values: "**CR**", "**MJ**", "**MN**", "**Prompt**", or "**Deferred**".

CR

Critical alarm (SONET only)

MJ

Major alarm (SONET only)

MN

Minor alarm (SONET only)

Prompt

Prompt alarm (SDH only)

Deferred

Deferred alarm (SDH only)

condtype

Condition type. This is the type of the condition. There are several types of conditions. The valid values for the condition type of the **CMS** *aid* type are:

LOF

Incoming customer signal loss-of-frame

LOS

Incoming customer signal loss-of-signal

T - BERL

Incoming customer signal SD/SF

srveff

Service effect (or condition effect). This indicates the effect of the reported alarm on service or the effect of an alarm on the condition of the network element. This parameter has one of the following values:

SA

Service-affecting alarm condition.

NSA

Non-service-affecting alarm or status condition.

ocrdat

Occurrence date. This indicates the date of the alarm being reported and has the format MM-DD (month-day).

ocrtm

Occurrence time. This indicates the time of the alarm being reported and has the format HH-MM-SS (hours-minutes-seconds).

conddescr

Condition description (or Alarm message). This is the text description of the reported condition.

tblislt

Trouble isolated. If a reported condition is isolated to the reported *aid*, the *tblislt* parameter value is **ISLTD** to indicate that the *aid* identifies the circuit pack that should be replaced by craft to correct the reported condition. Otherwise, this parameter is not reported.

EXAMPLE INPUT/OUTPUT

For an OLS Repeater:

```
rtrv-alm-cms:LT-OLS:all:123456;  
IP 123456  
  LT-OLS 94-06-07 16:42:11  
M 123456 COMPLD  
  "cms-2b,CMS,MN,LOS,NSA,06-07,18-26-14,,:\\"incoming CMS LOS\\",,:"  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If this command is received with an invalid *aid* value, the following error response is returned:

```
sid date time  
M ctag DENY  
  IIAC  
  /* Input, Invalid Access Identifier, AID is missing, wrong or  
  inconsistent with modifier */  
;
```

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-ALM-COM

RTRV-ALM-COM: Retrieve Alarm Common

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-ALM-COM:*tid:aid:ctag[::[ntfcncde],,,,;*

DESCRIPTION

The **RTRV-ALM-COM** command can be initiated by a user to retrieve all active alarms that are not specifically equipment- or facility-related conditions but apply to the network element as a whole. This command retrieves all active alarms pertaining to the addressed network element terminal and upstream repeater bays, reported one line per condition, similar to the autonomous messages used to report alarm common (REPT ALM COM) conditions when they occur.

Any alarm condition reported by an autonomous REPT ALM COM or REPT ALM ENV message which is active when a **RTRV-ALM-COM** command is received, is included in the **RTRV-ALM-COM** response message.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This is the address of the entity for which the current conditions are requested.

No value should be entered for this parameter. If a value is transmitted as part of this command, it will be ignored by the network element.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

ntfcncde

Notification code. This is the alarm level for which the current alarms are requested, and it may have one of the values: "CR", "MJ", "MN", "CR_Prompt", "MJ_Prompt", or "MN_Deferred".

CR

Critical alarm

MJ

Major alarm

MN

Minor alarm

CR_Prompt

Critical alarm (for SONET), Prompt alarm (for SDH)

MJ_Prompt

Major alarm (for SONET), Prompt alarm (for SDH)

MN_Deferred

Minor alarm (for SONET), Deferred alarm (for SDH)

If the *ntfcncde* is valid, the network element response to the user is limited to the specified notification code. If no notification code is provided or if the notification code is not valid, the network element response includes all alarm conditions.

OUTPUT FORMAT

If there are no alarm conditions to report, the following message is returned to the OS:

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

If there are alarm conditions to report, the following output report is returned to the OS:

```
sid date time
M ctag COMPLD
  "aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,, :
  \"conddescr\",,,:[,tblislt]"
  . . . . .
  . . . . .
  . . . . .
  "aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,, :
  \"conddescr\",,,:[,tblislt]"
;
```

Applicable output lines are ordered as follows:

1. By alarm severity level **CR/Critical**, then **MJ/Prompt**, followed by **MN/Deferred**.
2. For conditions with the same alarm severity, by the value of occurrence date (*ocr-dat*), and occurrence time (*ocrtm*), with the most recent listed first.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the equipment component, facility, or repeater bay site ID for which an alarm condition is being reported.

aidtype

Access identifier type.

COM

Common. This reports an alarm that is not an equipment or facility condition but applies to the network element as a whole.

ntfcncde

Notification code. This is the alarm level for which the current alarms are requested, and it may have one of the values: "**CR**", "**MJ**", "**MN**", "**Prompt**", or "**Deferred**".

CR

Critical alarm (SONET only)

MJ

Major alarm (SONET only)

MN

Minor alarm (SONET only)

Prompt

Prompt alarm (SDH only)

Deferred

Deferred alarm (SDH only)

condtype

Condition type. This is the type of the condition. There are several types of conditions.

The valid values for the condition type of the **COM** *aid* type are:

ACOMAN

Operate alarm cutoff

ADMPFL

TID address map full

AGNE - COMF

Alarm Group Network Element status communications failure

BC - LAN - 1 - FAIL

Board controller LAN 1 failure

BC - LAN - 2 - FAIL

Board controller LAN 2 failure

CMISENR

CMISE interface not ready

CONTR

Control processor failure or software download in progress

DCC - INIT

DCC start-up in progress

DSNE - NR

Directory Services Network Element not reachable

DUPL - TID

Duplicate TID defined

EOC

Incoming (from supervisory) DCC failure, incoming (from TCP/IP) LAN failure, or remote communication failure

FLT - CPY - SW - PRGM

Copy program failed due to a fault

FLT - INIT - SWD

Initiate software download failed due to a fault

INHMSG

Inhibit autonomous messages to OS

INIT - 1

Initialize system

INIT - 2

Update system

IO - ACTY

Input/output activity

IP - CPY - SW - PRGM

Copy program in progress

IP - INIT - SWD

Initiate software download in progress

IP - MIB - LOCK

Management Information Base (MIB) lock is in progress

LCLANRST

Line controller LAN restart

MAN

User login/logout

MISC

Provisioned control point

MULT - DSNE

Multiple Directory Services Network Element defined

PIDEXPRD

Password expired

OACNFGMM

Single optical amplifier configuration mismatch

OALANRST

Optical amplifier LAN restart

OAPMMM

Optical amplifier equipage/provisioned mode mismatch

OATYPMM

Optical amplifier types mismatch

OA - LAN - FAIL

Optical amplifier LAN failure

OK - CPY - SW - PRGM

Copy program has been successfully completed

OK - INIT - SWD

Initiate software download has been successfully completed

OLINEIDMM

Optical line ID mismatch

PWR

Fuse/power failure

RNG - INC

Ring incomplete

RNG - INITC

Ring startup in progress

SER - TLM1 - FAIL

Serial telemetry port failure

SYSBOOT

Reset in progress

UIDDLT

Login deleted

UIDEXPRD

Login expired

srveff

Service effect (or condition effect). This indicates the effect of the reported alarm on service or the effect of an alarm on the condition of the network element. This parameter has one of the following values:

SA

Service-affecting alarm condition.

NSA

Non-service-affecting alarm or status condition.

ocrdat

Occurrence date. This indicates the date of the alarm being reported and has the format MM-DD (month-day).

ocrtm

Occurrence time. This indicates the time of the alarm being reported and has the format HH-MM-SS (hours-minutes-seconds).

conddescr

Condition description (or Alarm message). This is the text description of the reported condition.

tblislt

Trouble isolated. If a reported condition is isolated to the reported *aid*, the *tblislt* parameter value is **ISLTD** to indicate that the *aid* identifies the circuit pack that should be replaced by craft to correct the reported condition. Otherwise, this parameter is not reported.

EXAMPLE INPUT/OUTPUT

For an OLS Repeater:

```
rtrv-alm-com:LT-OLS:all:123456;  
IP 123456  
  LT-OLS 94-06-07 16:42:11  
M 123456 COMPLD  
  "oline-1b,COM,MN,LOS,NSA,06-07,18-26-14,,:\\"optical line LOS\\",,:"  
  "t1m-2b,COM,MN,LOS,NSA,06-07,18-26-14,,:\\"incoming (from OLS)  
  OC3 AIS\\",,:"  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-ALM-ENV

RTRV-ALM-ENV: Retrieve Alarm Environment

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-ALM-ENV:*tid:[aid]:ctag::[ntfncde][,];*

DESCRIPTION

The **RTRV-ALM-ENV** command can be initiated to retrieve active environmental alarm conditions from the network element. This command retrieves active environmental alarm conditions pertaining to the addressed network element in a line-by-line format, similar to the autonomous messages used to report environmental alarm conditions when they occur.

Any alarm condition reported by an autonomous REPT ALM ENV message, which is active when a **RTRV-ALM-ENV** command is received, is included in the **RTRV-ALM-ENV** response.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This is the address of the environmental point(s), for example, **env-1** or **env-all**, for which the current alarm conditions are requested. The *aid* value may also be **all** or null (each of which is effectively equivalent to **env-all**).

If the *aid* value is invalid, the network element responds without limiting the response based on the input *aid*, if any. Entity: Point (Environmental)

Legal Values: (ENV)-(ALL, 1-144)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

ntfncnde

Notification code. This is the alarm level for which the current alarms are requested, and it may have one of the values: "**CR**", "**MJ**", "**MN**", "**CR_Prompt**", "**MJ_Prompt**", or "**MN_Deferred**".

CR

Critical alarm

MJ

Major alarm

MN

Minor alarm

CR_Prompt

Critical alarm (for SONET), Prompt alarm (for SDH)

MJ_Prompt

Major alarm (for SONET), Prompt alarm (for SDH)

MN_Deferred

Minor alarm (for SONET), Deferred alarm (for SDH)

OUTPUT FORMAT

If there are no environmental alarms to report, the following response is returned:

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

If there are environmental alarms to report, the following output report is returned:

```

sid date time
M ctag COMPLD
  "aid:ntfcncde,almttype,ocrdat,ocrtm,\"almmsg\""
  . . . . .
  . . . . .
  . . . . .
  "aid:ntfcncde,almttype,ocrdat,ocrtm,\"almmsg\""
;

```

Applicable output lines are ordered as follows:

1. By alarm severity level, greatest to least.
2. By date and time, with the most recent listed first.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

aid

Access identifier. This is the address of the environmental alarm point being reported.

ntfcncde

Notification code. This is the alarm level for which the current alarms are requested, and it may have one of the values: "**CR**", "**MJ**", "**MN**", "**Prompt**", or "**Deferred**".

CR

Critical alarm (SONET only)

MJ

Major alarm (SONET only)

MN

Minor alarm (SONET only)

Prompt

Prompt alarm (SDH only)

Deferred

Deferred alarm (SDH only)

almttype

Alarm type.

ocrdat

Occurrence date. This indicates the date of the condition being reported and has the format MM-DD (month-day).

ocrtm

Occurrence time. This indicates the time of the condition being reported and has the format HH-MM-SS (hours-minutes-seconds).

almmsg

Alarm message. This is the text description of the reported condition (the default is *environment n*). The text description can be modified using the **SET-ATTR-ENV** command.

EXAMPLE INPUT/OUTPUT

```
RTRV-ALM-ENV:LT-OLS:all:123456::MN;  
IP 123456  
<  
  LT-OLS 96-06-26 16:42:11  
M 123456 COMPLD  
  "env-1:MN,MISC,08-18,16-30-00,\"provisioned environment alpt\""  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **RTRV-ALM-ENV** commands.

RELATED TL1 COMMANDS/MESSAGES

RTRV-ALM-ALL

SET-ATTR-ENV

RTRV-ALM-EQPT

RTRV-ALM-EQPT: Retrieve Alarm Equipment

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-ALM-EQPT:*tid:aid:ctag[:[ntfcncde],,,,,;*

DESCRIPTION

The **RTRV-ALM-EQPT** command can be initiated by a user to retrieve active alarms of equipment-related conditions from a network element terminal. This command retrieves all active alarms pertaining to the addressed network element terminal and upstream repeater bays, reported one line per condition, similar to the autonomous messages used to report alarm (REPT ALM EQPT) conditions when they occur.

Any alarm condition reported by an autonomous REPT ALM EQPT or REPT ALM ENV message which is active when a **RTRV-ALM-EQPT** command is received, is included in the **RTRV-ALM-EQPT** response message.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. aid determines slot address for this report.

Entity: All

Legal Values: (ALL)

Entity: Slot (TOHCTL)

Legal Values: (TOHCTL)

Entity: Slot (SYSCTL)

Legal Values: (SYSCTL)

Entity: Slot (SYSMEM)

Legal Values: (SYSMEM)

Entity: Slot (OA)

Legal Values: (OA)-(ALL, 1A-2B)

Entity: Slot (LI)

Legal Values: (OA)-(ALL, 1A-2B)

Entity: Slot (OMON)

Legal Values: (OA)-(ALL, 2A)

Entity: Slot (OU)

Legal Values: (OU)-(ALL, 1A-2B)

Entity: Slot (TLM) [End terminals and Repeaters]

Legal Values: (TLM)-(ALL, 1A, 1B, 2A, 2B)

Entity: Shelf (OLS)

Legal Values: (SHLF)-(ALL, 1-2)

Entity: Slot (OTU)

Legal Values: (OTU)-(ALL), (OTU)-(1,2)-(ALL,1-32)

CenterLink CIT selection options: (OTU)-(ALL, 1, 2)-(ALL, 1-32)

Entity: Slot (OT Port Module)

Legal Values: (OTPM)-(ALL),

(OTPM)-(1,2)-(ALL,1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31)-(ALL,1-4)

CenterLink CIT selection options: (OTPM)-(ALL, 1, 2)-(ALL, 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31)-(ALL, 1-4)

Entity: Slot (OUPSR)

Legal Values: (OTU)-(ALL), (OTU)-(1,2)-(ALL,1-32)

CenterLink CIT selection options: (OTU)-(ALL, 1, 2)-(ALL, 1-32)

Entity: Slot (OTCTL)

Legal Values: (OTCTL)-(ALL, 1, 2)

Entity: Shelf (OT)

Legal Values: (SHLF)-(OT)-(ALL, 1-2)-(ALL, LO, MID, UP)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

ntfcncde

Notification code. This is the alarm level for which the current alarms are requested, and it may have one of the values: "**CR**", "**MJ**", "**MN**", "**CR_Prompt**", "**MJ_Prompt**", or "**MN_Deferred**".

CR

Critical alarm

MJ

Major alarm

MN

Minor alarm

CR_Prompt

Critical alarm (for SONET), Prompt alarm (for SDH)

MJ_Prompt

Major alarm (for SONET), Prompt alarm (for SDH)

MN_Deferred

Minor alarm (for SONET), Deferred alarm (for SDH)

If the *ntfcncde* is valid, the network element response to the user is limited to the specified notification code. If no notification code is provided or if the notification code is not valid, the network element response includes all alarm conditions.

OUTPUT FORMAT

If there are no alarm conditions to report, the following message is returned to the OS:

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

If there are alarm conditions to report, the following output report is returned to the OS:

```
sid date time
M ctag COMPLD
"aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,, :
\"conddescr\",,:[,tblislt]"
. . . . .
. . . . .
. . . . .
"aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,, :
\"conddescr\",,:[,tblislt]"
;
```

Applicable output lines are ordered as follows:

1. By alarm severity level **CR_Prompt**, then **MJ_Prompt**, followed by **MN_Deferred**.

2. For conditions with the same alarm severity, by the value of occurrence date (*ocr-dat*), and occurrence time (*ocrtm*), with the most recent listed first.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the equipment component, facility, or repeater bay site ID for which an alarm condition is being reported.

aidtype

Access identifier type.

EQPT

This reports an equipment-related alarm for a network element terminal or repeater bay.

ntfncnde

Notification code. This is the alarm level for which the current alarms are requested, and it may have one of the values: "**CR**", "**MJ**", "**MN**", "**Prompt**", or "**Deferred**".

CR

Critical alarm (SONET only)

MJ

Major alarm (SONET only)

MN

Minor alarm (SONET only)

Prompt

Prompt alarm (SDH only)

Deferred

Deferred alarm (SDH only)

condtype

Condition type. This is the type of the condition. There are several types of conditions. The valid values for the condition type of the **EQPT aid** type are:

AUTORESET

Circuit pack reset in progress

CONTR

Control process failure

IMPROPMVL

Improper circuit pack removal

OADIS

OA output disabled

OMUMISMTCH

Optical multiplexer/demultiplexer mismatch or missing

ODUWRMUP

Optical multiplexer/demultiplexer warming up

PRCDRERR

Unexpected circuit pack type

srveff

Service effect (or condition effect). This indicates the effect of the reported alarm on service or the effect of an alarm on the condition of the network element. This parameter has one of the following values:

SA

Service-affecting alarm condition.

NSA

Non-service-affecting alarm or status condition.

ocrdat

Occurrence date. This indicates the date of the alarm being reported and has the format MM-DD (month-day).

ocrtm

Occurrence time. This indicates the time of the alarm being reported and has the format HH-MM-SS (hours-minutes-seconds).

conddescr

Condition description (or Alarm message). This is the text description of the reported condition.

tblislt

Trouble isolated. If a reported condition is isolated to the reported *aid*, the *tblislt* parameter value is **ISLTD** to indicate that the *aid* identifies the circuit pack that should be replaced by craft to correct the reported condition. Otherwise, this parameter is not reported.

EXAMPLE INPUT/OUTPUT

For an OLS Repeater:

```
rtrv-alm-eqpt:LT-OLS:all:123456;  
IP 123456  
LT-OLS 94-06-07 16:42:11  
M 123456 COMPLD  
"t lm-2b,EQPT,MJ,IMPROPRMVL,SA,06-07,18-26-14,,:\\"TLM removed\\",,:"  
;
```

For an OLS/OT Configuration:

```
rtrv-alm-eqpt:LT-OLS:all:123456;  
IP 123456  
LT-OLS 94-06-07 16:42:11  
M 123456 COMPLD  
"t lm-2b,EQPT,MJ,IMPROPRMVL,SA,06-07,18-26-14,,:\\"TLM removed\\",,:"  
"otu-1-3,EQPT,MJ,IMPROPRMVL,SA,06-07,18-26-14,,:\\"OTU  
removed\\",,:"  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If this command is received with an invalid aid value, the following error response is returned:

```
sid date time  
M ctag DENY  
IIAC  
/* Input, Invalid Access Identifier, AID is missing, wrong or  
inconsistent with modifier */  
;
```

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-ALM-NTWK

RTRV-ALM-NTWK: Retrieve Alarm Network

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 2.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-ALM-NTWK:*tid::ctag;*

DESCRIPTION

The **RTRV-ALM-NTWK** command message can be initiated by a user to retrieve a report of all network elements in the maintenance subnetwork with active alarm/or status conditions.

The information reported by the command may be misleading if the information is incomplete due to any of the following reasons:

- The OC-48 DCC channel in both the East and West direction is declared failed.
- Any OC-3 DCC channel in the local network element is declared failed.
- If "Remote Activity Reporting" is disabled.
- If one or more nodes are unreachable due to multiple failures.

This is because the report does not distinguish between missing entries and no entries due to no active alarms. To determine if the report is complete, please use this command in conjunction with **RTRV-MAP-NETWORK**, **RTRV-FECOM** and **RTRV-ALM**.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)
] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)

* (star)
- (dash)
_ (underscore)
/ (slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If there are no alarm conditions to report, the following message is returned:

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

If there are alarm conditions to report, the following output report is returned:

```
sid date time
M ctag COMPLD
"ntfcncde,ocrdat,ocrtm,tid,prodtype,lcl_rng"
. . . . .
. . . . .
. . . . .
"ntfcncde,ocrdat,ocrtm,tid,prodtype,lcl_rng"
;
```

Applicable output lines are ordered as follows:

1. By highest alarm severity level **CR**, followed by **MJ**, followed by **MN**, followed by **ABN**, followed by **NE_ACTY**.
2. For conditions with the same alarm severity, by the value of occurrence date (*ocrdat*), and occurrence time (*ocrtm*), with the most recent listed first.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

Additional parameters that specifically apply to this command response are defined below.

ntfcncde

Notification code. This is the alarm level active at the network element for which the report is being generated. It can have one of the following values:

CR

Critical alarm

MJ

Major alarm

MN

Minor alarm

ABN

Abnormal

NE_ACTY

Near End Activity

ocrdat

Occurrence date. This indicates the date of the alarm being reported and has the format MM-DD (month-day).

ocrtm

Occurrence time. This indicates the time of the alarm being reported and has the format HH-MM-SS (hours-minutes-seconds).

id

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)

- (dash)

_ (underscore)

/ (slash)

prodtype

Product Type. This gives the category of network element for which the report is being generated. It takes one of the following values.

DDM-OC3

This indicates that the reported *tid* is a DDM-2000 OC-3.

DDM-OC12

This indicates that the reported *tid* is a DDM-2000 OC-12.

DACS IV

This indicates that the reported *tid* is a DACS IV-2000.

FTADR48

This indicates that the reported *tid* is an FT-2000 OC-48 ADR 2-fiber ring terminal.

FTLCT

This indicates that the reported *tid* is an FT-2000 OC-48 4-fiber ring terminal.

EON

This indicates that the reported *tid* is a Metropolis EON (OLS 40G/80G) End Terminal or Repeater.

FTADR192

This indicates that the reported *tid* is an FT-2000 OC-192 2-fiber ring terminal.

OT

This indicates that the reported *tid* is an Optical Translator Network Element.

SLC-2000

This indicates that the reported *tid* is a SLC-2000.

FbrRch

This indicates that the reported *tid* is a Fiber Reach.

?

This indicates that the reported *tid* is unknown or not one of the product types listed above.

lcl_rng

Local ring. This indicates whether or not the network element for which report is being generated represents a node in the local ring. It takes the value from the domain {yes,no}.

EXAMPLE INPUT/OUTPUT

```
rtrv-alm-ntwk:LT-PF-2000::123456;  
IP 123456  
>  
LT-PF-2000 96-06-07.16:42:11  
M 123456 COMPLD  
"CR,06-07,16-10-14,abcdefgh1,DDM-OC3,no"  
"CR,06-07,16-26-14,abcdefgh,FTLCT,yes"  
"MJ,06-07,11-26-14,abcdefgh3,FTADR48,yes"  
"MJ,06-07,11-26-14,abcdefgh3-14,FTADR48,yes"  
"MJ,06-07,13-26-14,abcdefgh2,DDM-OC12,no"  
"MN,06-07,16-26-13,abcdefgh4,FTLCT,no"  
"ABN,06-07,16-29-14,abcdefgh5,SLC-2000,no"  
"ABN,06-07,16-29-14,abcdefgh6,FTLCT,no"  
"ABN,06-07,16-29-14,abcdefgh7,EON,no"  
"ABN,06-07,16-29-14,abcdefgh8,EON,no"  
"ABN,06-07,16-29-14,abcdefgh9,OT,no"  
"ABN,06-07,16-29-14,abcdefgh10,FTADR192,no"  
;
```

ERROR RESPONSES

The network element returns the following error response if alarm reporting is temporarily disabled due to execution of CIT initiated Test-Auto Turnup-System command.

```
sid date time  
M ctag DENY  
SROF  
/* Status, Requested Operation Failed  
The system is temporarily busy, please try later  
*/  
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-MAP-NETWORK

RTRV-FECOM

RTRV-ALM-ENV

RTRV-ALM-OCHAN

RTRV-ALM-OCHAN: Retrieve Alarm Optical_Channel

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-ALM-OCHAN:*tid:aid:ctag[::[ntfcncde],,,,;*

DESCRIPTION

The **RTRV-ALM-OCHAN** command can be initiated by a user to retrieve active alarms that are facility-related events at the channel level for an OLS terminal. This command retrieves active alarms pertaining to the addressed network element terminal and upstream repeater bays, reported one line per condition, similar to the autonomous messages used to report alarm REPT ALM OCHAN) conditions when they occur.

Any alarm condition reported by an autonomous REPT ALM OCHAN or REPT ALM ENV message which is active when a **RTRV-ALM-OCHAN** command is received, is included in the **RTRV-ALM-OCHAN** response message.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This is the address of the entity for which the current conditions are requested.

Entity: Optical Channel

Legal Values:(OCHAN)-(ALL), (OCHAN)-(1A,1B,2A,2B)-(ALL,1-32)

CenterLink CIT selection options: (OCHAN)-(ALL, 1A, 1B, 2A, 2B)-(ALL, 1-32)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

ntfcncde

Notification code. This is the alarm level for which the current alarms are requested, and it may have one of the values: "CR", "MJ", "MN", "CR_Prompt", "MJ_Prompt", or "MN_Deferred".

CR

Critical alarm

MJ

Major alarm

MN

Minor alarm

CR_Prompt

Critical alarm (for SONET), Prompt alarm (for SDH)

MJ_Prompt

Major alarm (for SONET), Prompt alarm (for SDH)

MN_Deferred

Minor alarm (for SONET), Deferred alarm (for SDH)

If the *ntfcncde* is valid, the network element response to the user is limited to the specified notification code. If no notification code is provided or if the notification code is not valid, the network element response includes all alarm conditions.

OUTPUT FORMAT

If there are no alarm conditions to report, the following message is returned to the OS:

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

If there are alarm conditions to report, the following output report is returned to the OS:

```
sid date time
M ctag COMPLD
  "aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,, :
  \"conddescr\",,:[,tblislt]"
  . . . . .
  . . . . .
  . . . . .
  "aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,, :
  \"conddescr\",,:[,tblislt]"
;
```

Applicable output lines are ordered as follows:

1. By alarm severity level **CR_Prompt**, then **MJ_Prompt**, followed by **MN_Deferred**.
2. For conditions with the same alarm severity, by the value of occurrence date (*ocrdat*), and occurrence time (*ocrtm*), with the most recent listed first.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the equipment component, facility, or repeater bay site ID for which an alarm condition is being reported.

aidtype

Access identifier type.

OCHAN

Channel. This reports a facility-related event at the channel level in WaveStar OLS.

ntfcncde

Notification code. This is the alarm level for which the current alarms are requested, and it may have one of the values: "**CR**", "**MJ**", "**MN**", "**Prompt**", or "**Deferred**".

CR

Critical alarm (SONET only)

MJ

Major alarm (SONET only)

MN

Minor alarm (SONET only)

Prompt

Prompt alarm (SDH only)

Deferred

Deferred alarm (SDH only)

condtype

Condition type. This is the type of the condition. There are several types of conditions. The valid values for the condition type of the **OCHAN** *aid* type are:

LOS

Incoming optical channel loss-of-signal

OCHANDTCTD

Incoming optical channel detected

OCHANRMVD

Incoming optical channel removed

T - x

Threshold crossing alert for the indicated monitored parameter (x)

srveff

Service effect (or condition effect). This indicates the effect of the reported alarm on service or the effect of an alarm on the condition of the network element. This parameter has one of the following values:

SA

Service-affecting alarm condition.

NSA

Non-service-affecting alarm or status condition.

ocrdat

Occurrence date. This indicates the date of the alarm being reported and has the format MM-DD (month-day).

ocrtm

Occurrence time. This indicates the time of the alarm being reported and has the format HH-MM-SS (hours-minutes-seconds).

conddescr

Condition description (or Alarm message). This is the text description of the reported condition.

tblislt

Trouble isolated. If a reported condition is isolated to the reported aid, the *tblislt* parameter value is **ISLTD** to indicate that the aid identifies the circuit pack that should be replaced by craft to correct the reported condition. Otherwise, this parameter is not reported.

There will be no reported conditions/alarms for optical channels on the demux side of a single OA configuration.

EXAMPLE INPUT/OUTPUT

For an OLS Repeater:

```
rtrv-alm-ochan:LT-OLS:all:123456;  
IP 123456  
LT-OLS 94-06-07 16:42:11  
M 123456 COMPLD  
"ochan-2b,OCHAN,MN,LOS,NSA,06-07,18-26-14,,:\\"incoming optical  
channel LOS\\",,:"  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If this command is received with an invalid *aid* value, the following error response is returned:

```
sid date time  
M ctag DENY  
IIAC  
/* Input, Invalid Access Identifier, AID is missing, wrong or  
inconsistent with modifier */  
;
```

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-ALM-OLINE

RTRV-ALM-OLINE: Retrieve Alarm Optical_Line

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-ALM-OLINE:*tid:aid:ctag[::[ntfcncde],,,,,;*

DESCRIPTION

The **RTRV-ALM-OLINE** command can be initiated by a user to retrieve active alarms or facility-related events on the optical line. This command retrieves active alarms pertaining to the addressed network element terminal and upstream repeater bays, reported one line per condition, similar to the autonomous messages used to report alarm (REPT ALM OLINE) conditions when they occur.

Any alarm condition reported by an autonomous REPT ALM OLINE or REPT ALM ENV message which is active when a **RTRV-ALM-OLINE** command is received, is included in the **RTRV-ALM-OLINE** response message.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This is the address of the entity for which the current conditions are requested.

Entity: Optical Line

Legal Values: (OLINE)-(ALL, 1A, 1B, 2A, 2B)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

ntfncnde

Notification code. This is the alarm level for which the current alarms are requested, and it may have one of the values: "CR", "MJ", "MN", "CR_Prompt", "MJ_Prompt", or "MN_Deferred".

CR

Critical alarm

MJ

Major alarm

MN

Minor alarm

CR_Prompt

Critical alarm (for SONET), Prompt alarm (for SDH)

MJ_Prompt

Major alarm (for SONET), Prompt alarm (for SDH)

MN_Deferred

Minor alarm (for SONET), Deferred alarm (for SDH)

If the *ntfncnde* is valid, the network element response to the user is limited to the specified notification code. If no notification code is provided or if the notification code is not valid, the network element response includes all alarm conditions.

OUTPUT FORMAT

If there are no alarm conditions to report, the following message is returned to the OS:

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

If there are alarm conditions to report, the following output report is returned to the OS:

```
sid date time
M ctag COMPLD
  "aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,, :
  \"conddescr\",,:[,tblislt]"
  . . . . .
  . . . . .
  . . . . .
  "aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,, :
  \"conddescr\",,:[,tblislt]"
;
```

Applicable output lines are ordered as follows:

1. By alarm severity level **CR_Prompt**, then **MJ_Prompt**, followed by **MN_Deferred**.
2. For conditions with the same alarm severity, by the value of occurrence date (*ocr-dat*), and occurrence time (*ocrtm*), with the most recent listed first.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the equipment component, facility, or repeater bay site ID for which an alarm condition is being reported.

aidtype

Access identifier type.

OLINE

This reports a facility-related event on the optical line in WaveStar OLS.

ntfcncde

Notification code. This is the alarm level for which the current alarms are requested, and it may have one of the values: "**CR**", "**MJ**", "**MN**", "**Prompt**", or "**Deferred**".

CR

Critical alarm (SONET only)

MJ

Major alarm (SONET only)

MN

Minor alarm (SONET only)

Prompt

Prompt alarm (SDH only)

Deferred

Deferred alarm (SDH only)

condtype

Condition type. This is the type of the condition. There are several types of conditions. The valid values for the condition type of the **OLINE** *aid* type are:

APSDA

Automatic power shut-down active

LOS

Incoming optical line loss-of-signal

srveff

Service effect (or condition effect). This indicates the effect of the reported alarm on service or the effect of an alarm on the condition of the network element. This parameter has one of the following values:

SA

Service-affecting alarm condition.

NSA

Non-service-affecting alarm or status condition.

ocrdat

Occurrence date. This indicates the date of the alarm being reported and has the format MM-DD (month-day).

ocrtm

Occurrence time. This indicates the time of the alarm being reported and has the format HH-MM-SS (hours-minutes-seconds).

conddescr

Condition description (or Alarm message). This is the text description of the reported condition.

tblislt

Trouble isolated. If a reported condition is isolated to the reported *aid*, the *tblislt* parameter value is **ISLTD** to indicate that the aid identifies the circuit pack that should be replaced by craft to correct the reported condition. Otherwise, this parameter is not reported. The optical line alarms/conditions are correlated to the supervisory channel for optical line at the demux end of a single OA configuration.

EXAMPLE INPUT/OUTPUT

For an OLS Repeater:

```
rtrv-alm-online:LT-OLS:all:123456;  
IP 123456  
LT-OLS 94-06-07 16:42:11  
M 123456 COMPLD  
"oline-2b,OLINE,MN,LOS,NSA,06-07,18-26-14,,:\\"incoming optical  
line LOS\\",,:"  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If this command is received with an invalid *aid* value, the following error response is returned:

```
sid date time  
M ctag DENY  
IIAC  
/* Input, Invalid Access Identifier, AID is missing, wrong or  
inconsistent with modifier */  
;
```

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-ALM-OTPS

RTRV-ALM-OTPS: Retrieve Alarm OT_Port_Signal

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 3.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-ALM-OTPS:*tid:aid:ctag[::[ntfcncde],,,,];*

DESCRIPTION

The **RTRV-ALM-OTPS** command can be initiated by a user to retrieve active alarms for facility-related conditions on the Optical Translator Unit (OTU) and Optical Translator Port Modules (OTPM). This command retrieves active alarms pertaining to the addressed OT.

Any alarm condition reported by an autonomous REPT ALM OTPS message which is active when a **RTRV-ALM-OTPS** command is received, is included in the **RTRV-ALM-OTPS** response message.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This is the address of the entity for which the current conditions are requested. The aid all is allowed. When used, it will retrieve the alarms for all OTU and OTPM entities.

Entity: All

Legal Values: (ALL)

Entity: Port (OTU)

Legal Values: (OTU)-(ALL), (OTU)-(1,2)-(ALL,1-32)-(1)

CenterLink CIT selection options: (OTU)-(ALL, 1, 2)-(ALL, 1-32)-(1)

Entity: Port (OT Port Module)

Legal Values: (OTPM)-(ALL),
(OTPM)-(1,2)-(ALL,1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31)-(ALL,1-4)-(1)

CenterLink CIT selection options: (OTPM)-(ALL, 1, 2)-(ALL, 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31)-(ALL, 1-4)-(1)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

ntfncnde

Notification code. This is the alarm level for which the current alarms are requested, and it may have one of the values: "CR", "MJ", "MN", "CR_Prompt", "MJ_Prompt", or "MN_Deferred".

CR

Critical alarm

MJ

Major alarm

MN

Minor alarm

CR_Prompt

Critical alarm (for SONET), Prompt alarm (for SDH)

MJ_Prompt

Major alarm (for SONET), Prompt alarm (for SDH)

MN_Deferred

Minor alarm (for SONET), Deferred alarm (for SDH)

If the *ntfncnde* is valid, the network element response to the user is limited to the specified notification code. If no notification code is provided or if the notification code is not valid, the network element response includes all alarm conditions.

OUTPUT FORMAT

If there are no alarm conditions to report, the following message is returned to the OS:

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

If there are alarm conditions to report, the following output report is returned to the OS:

```
sid date time
M ctag COMPLD
"aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,, :
\"conddescr\",,:[,tblislt]"
. . . . .
. . . . .
. . . . .
"aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,, :
\"conddescr\",,:[,tblislt]"
;
```

Applicable output lines are ordered as follows:

1. By alarm severity level **MJ/Prompt**, followed by **MN/Deferred**.
2. For conditions with the same alarm severity, by the value of occurrence date (*ocrdat*), and occurrence time (*ocrtm*), with the most recent listed first.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the equipment component, facility, or repeater bay site ID for which an alarm condition is being reported.

aidtype

Access identifier type.

OTPS

The optical translator port states encompass the AID types for OTU, QOTU, and OTPM packs.

ntfcncde

Notification code. This is the alarm level for which the current alarms are requested. It may have one of the values:

CR

Critical alarm (SONET)

MJ

Major alarm (SONET)

MN

Minor alarm (SONET)

Critical

Critical alarm (SDH)

Prompt

Prompt alarm (SDH)

Deferred

Deferred alarm (SDH)

condtype

Condition type. This is the type of the condition. There are several types of conditions. The valid values for the condition type of the OC3/STM1, OC12/STM4, and OC48/STM16 *aid* type are:

FAIL

Incoming failure

INCASSOC

Inconsistent OTU or OTPM association

J0MISMATCH

J0 Section Trace Mismatch

srveff

Service effect (or condition effect). This indicates the effect of the reported alarm on service or the effect of an alarm on the condition of the network element. This parameter has the following value:

NSA

Non-service-affecting alarm or status condition.

ocrdat

Occurrence date. This indicates the date of the alarm being reported and has the format MM-DD (month-day).

ocrtm

Occurrence time. This indicates the time of the alarm being reported and has the format HH-MM-SS (hours-minutes-seconds).

conddescr

Condition description (or Alarm message). This is the text description of the reported condition.

tblislt

Trouble isolated. If a reported condition is isolated to the reported *aid*, the *tblislt* parameter value is **ISLTD** to indicate that the aid identifies the circuit pack that should be replaced by craft to correct the reported condition. Otherwise, this parameter is not reported.

EXAMPLE INPUT/OUTPUT

```
M 123456 COMPLD
rtrv-alm-otps:LT-FT-2000:all:123456;
IP 123456
  LT-FT-2000 96-08-15 16:42:11
  "OTPM-1-1-1,OTPS:MN,FAIL,NSA,08-11,03-50-32,,:\\"incoming OC3
  failure\\",,:"
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If this command is received with an invalid *aid* value, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier, AID is missing, wrong or
inconsistent with modifier */
;
```

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-ALM-SUPR

RTRV-ALM-SUPR: Retrieve Alarm Supervisory

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-ALM-SUPR:*tid:aid:ctag::[ntfcncde],,,,,;*

DESCRIPTION

The **RTRV-ALM-SUPR** command can be initiated by a user to retrieve active alarms of facility-related events on the supervisory channel in the optical line. This command retrieves active alarms pertaining to the addressed network element terminal and upstream repeater bays, reported one line per condition, similar to the autonomous messages used to report alarm (REPT ALM SUPR) conditions when they occur.

Any alarm condition reported by an autonomous REPT ALM SUPR or REPT ALM ENV message which is active when a **RTRV-ALM-SUPR** command is received, is included in the **RTRV-ALM-SUPR** response message.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This is the address of the entity for which the current conditions are requested.

Entity: Supervisory Channel [End terminals and Repeaters]

Legal Values: (SUPR)-(ALL, 1A, 1B, 2A, 2B)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

ntfcncde

Notification code. This is the alarm level for which the current alarms are requested, and it may have one of the values: "CR", "MJ", "MN", "CR_Prompt", "MJ_Prompt", or "MN_Deferred".

CR

Critical alarm

MJ

Major alarm

MN

Minor alarm

CR_Prompt

Critical alarm (for SONET), Prompt alarm (for SDH)

MJ_Prompt

Major alarm (for SONET), Prompt alarm (for SDH)

MN_Deferred

Minor alarm (for SONET), Deferred alarm (for SDH)

If the *ntfcncde* is valid, the network element response to the user is limited to the specified notification code. If no notification code is provided or if the notification code is not valid, the network element response includes all alarm conditions.

OUTPUT FORMAT

If there are no alarm conditions to report, the following message is returned to the OS:

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


If there are alarm conditions to report, the following output report is returned to the OS:

```
sid date time
M ctag COMPLD
  "aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,, :
  \"conddescr\",,,:[,tblislt]"
  . . . . .
  . . . . .
  . . . . .
  "aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,, :
  \"conddescr\",,,:[,tblislt]"
;
```

Applicable output lines are ordered as follows:

1. By alarm severity level **CR_Prompt**, then **MJ_Prompt**, followed by **MN_Deferred**.
2. For conditions with the same alarm severity, by the value of occurrence date (*ocrdat*), and occurrence time (*ocrtm*), with the most recent listed first.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the equipment component, facility, or repeater bay site ID for which an alarm condition is being reported.

aidtype

Access identifier type.

SUPR

This reports a facility-related event on the supervisory channel in the optical line in WaveStar OLS.

ntfcncde

Notification code. This is the alarm level for which the current alarms are requested, and it may have one of the values: "**CR**", "**MJ**", "**MN**", "**Prompt**", or "**Deferred**".

CR

Critical alarm (SONET only)

MJ

Major alarm (SONET only)

MN

Minor alarm (SONET only)

Prompt

Prompt alarm (SDH only)

Deferred

Deferred alarm (SDH only)

condtype

Condition type. This is the type of the condition. There are several types of conditions. The valid values for the condition type of the **SUPR** *aid* type are:

APSB

DCC APS data error

APSDA

Automatic power shut-down active

FAIL

Incoming supervisory channel fail

T - x

Threshold crossing alert for the indicated monitored parameter (x)

T - BERL

Incoming supervisory channel SD/SF

srveff

Service effect (or condition effect). This indicates the effect of the reported alarm on service or the effect of an alarm on the condition of the network element. This parameter has one of the following values:

SA

Service-affecting alarm condition.

NSA

Non-service-affecting alarm or status condition.

ocrdat

Occurrence date. This indicates the date of the alarm being reported and has the format MM-DD (month-day).

ocrtm

Occurrence time. This indicates the time of the alarm being reported and has the format HH-MM-SS (hours-minutes-seconds).

conddescr

Condition description (or Alarm message). This is the text description of the reported condition.

tblislt

Trouble isolated. If a reported condition is isolated to the reported *aid*, the *tblislt* parameter value is **ISLTD** to indicate that the *aid* identifies the circuit pack that should be replaced by craft to correct the reported condition. Otherwise, this parameter is not reported.

EXAMPLE INPUT/OUTPUT

For an OLS Repeater:

```
rtrv-alm-supr:LT-OLS:all:123456;  
IP 123456  
  LT-OLS 94-06-07 16:42:11  
M 123456 COMPLD  
  "supr-2b,SUPR,MJ,LOS,SA,06-07,18-26-14,,:\\"incoming supr chnl  
  LOS\\",,:"  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If this command is received with an invalid *aid* value, the following error response is returned:

```
sid date time  
M ctag DENY  
  IIAC  
  /* Input, Invalid Access Identifier, AID is missing, wrong or  
  inconsistent with modifier */  
;
```

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-AO

RTRV-AO: Retrieve Autonomous_Output Retrieve Autonomous_Output

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 1.0.

Note: This command does not appear in CenterLink.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-AO:*tid:[aid]:ctag[::spec_block];*

DESCRIPTION

The **RTRV-AO** command can be initiated to request the network element to send copies of autonomous TL1 messages.

The content of the response to the **RTRV-AO** command depends on the OS-type assigned to the access channel, for example, the X.25 virtual circuit (VC), over which the command is received. The output is limited to the autonomous TL1 messages that are assigned to the same OS-type.

The network element saves autonomous TL1 messages in a separate file for each OS-type, thus the response to a **RTRV-AO** command is retrieved from the file for the *same OS-type only* that the **RTRV-AO** command came in on.

The copies of autonomous TL1 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, X.25 failures) or internal (for example, autonomous TL1 message output buffer overflow, no current login for the OS-type, or inhibited autonomous TL1 message reporting) conditions.

The network element saves a copy of each autonomous TL1 message to which an *atag* value is assigned per OS-type.

Whenever the *atag* sequence is reset for an OS-type, for example, due to system initialization or processor reset, the **RTRV-AO** log file for that OS-type is cleared.

The network element saves copies of the 50 most recent autonomous TL1 messages for the *memory administration* OS-type.

The network element saves copies of the 50 most recent autonomous TL1 messages for the *other* OS-type.

The network element saves copies of the 40 most recent autonomous TL1 messages for the *maintenance* OS-type.

The network element saves copies of the 50 most recent autonomous TL1 messages for the *restoration* OS-type.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. Because the **RTRV-AO** log file is not filtered by *aid*, the *aid* value must be **"ALL"** or omitted. If this parameter is omitted, **ALL** is assumed.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific block. Parameters included within the specific block are positionally independent and are specified using a name-defined construct of: **PARAMETER=***value*. The specific block may have one, both or none of the following parameters specified within it in a comma-separated list. Furthermore, each parameter listed below can appear at most once within the specific block for a single **RTRV-AO** command. The use of the word "null" in the descriptions below imply that the parameter does not appear or appears with no value (for example, **ATAGSEQ=**, or **MSGTYPE=**) in the command. The parameters are listed in alphabetic order.

ATAGSEQ

Automatic tag sequence. This is the three-digit *tag* value of the autonomous TL1 messages requested. For example, **"ATAGSEQ=010"** specifies single *tag* value "010".

Two *tag* values may be specified by using an "&" (ampersand), for example, "**ATAGSEQ=010&020**" specifies *tag* values "010" and "020".

A range of *tag* values may be specified by using "&&" (double ampersands), for example, "**ATAGSEQ=010&&020**" specifies *tag* values "010, 011, 012, ..., 020".

The network element's response to "**ATAGSEQ=001&&001**" is the same as for "**ATAGSEQ=001**" (or "**ATAGSEQ=001&001**"), that is, to retrieve just *one* copy of the autonomous TL1 message with *tag* "001".

A wrap-around range of *tag* values may also be specified by using "&&" (double ampersands), for example, "**ATAGSEQ=998&&2**" specifies *tag* values "998, 999, 000, 001 and 002".

The network element's support of wrap-around ranges indicates that the order of input of *tag* values in ranges is significant.

Combinations of single ampersands (&) and double ampersands (&&) are not allowed in the same **ATAGSEQ** parameter specification.

If multiple or a range of *tag* values are specified by **ATAGSEQ**, but *some* of the *tag* values are not available in the network element's **RTRV-AO** log file, the network element responds with the *tag* values that *are* available within the specified **ATAGSEQ**. If no **ATAGSEQ** is specified (null), the response is not limited based on *tag* value.

MSGTYPE

Message type. This is the type of autonomous messages requested. This parameter may be null or have one of the following values: "**ALM**", "**COND**", "**EVENT**", "**DBCHG**", or "**SW**".

ALM

Report Alarm (including Report Alarm Environment)

COND

Report Condition

EVENT

Report Event

DBCHG

Report Database Change

SW

Report Switch

For example, **MSGTYPE=DBCHG** requests all REPT DBCHG autonomous messages.

If no **MSGTYPE** is specified (null), the response is not limited by the type of autonomous messages.

OUTPUT FORMAT

If there are no autonomous messages to report, the following response is returned:

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

If the input **ATAGSEQ** *atag* or **MSGTYPE** values do not match any *atag* values or message types, respectively, in the network element's **RTRV-AO** log file, or if the **MSGTYPE** value does not match the TL1 autonomous message types provisioned for the OS-types of the current login session, the network element provides a normal completion response.

If there are autonomous messages to report, the following output report is returned:

```
sid date time
M ctag COMPLD
/*
complete autonomous messages except without the termination indicator (";")
*/
;
```

If there is more than one autonomous message to report, the autonomous messages are output in ascending (chronological) order by their *atag* values. The *order* of output is independent of the *order* of input of the **ATAGSEQ** *atag* values.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

```
RTRV-AO:LT-OLS::123456:::ATAGSEQ=11&012;
IP 123456
<
  LT-OLS 96-08-18 16:42:11
M 123456 COMPLD
/*
  LT-OLS 94-08-18 10:30:02
  * 011 REPT EVT OCHNL
  "ochnl-1a:SNRSD,SC,10-25,10-30-00:\\"TG3 failure\\":,ISLTD"
  LT-OLS 94-08-18 10:30:03
  A 012 REPT SW
  "tg-1,tg-2"
  */
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **RTRV-AO** command.

If the network element receives a **RTRV-AO** command with a non-null command code modifier [including any extra hyphens (-)], the following error response is returned:

```
sid date time
M ctag DENY
ICNV
/* Input, Command Not Valid, invalid modifier */
;
```

If the network element receives a **RTRV-AO** command with an extra hyphen (-), the following error response is returned:

```
sid date time
M ctag DENY
ICNV
/* Input, Command Not Valid, Network Element does not support
command = xxxxxxxxxxxxxxxxx */
;
```

where xxxxxxxxxxxxxxxxx is the first 16 characters, or up to the end-of-message semicolon (;) if less than 16 characters, of the command received.

If the network element receives a **RTRV-AO** command with a non-null command code modifier, the following error response is returned:

```
sid date time
M ctag DENY
ICNV
/* Input, Command Not Valid, invalid modifier */
;
```

RELATED TL1 COMMANDS/MESSAGES

REPT ALM
REPT ALM ENV
REPT COND
REPT DBCHG
REPT EVT

RTRV-ASSOC-OTPS

RTRV-ASSOC-OTPS: Retrieve Association OT_Port_Signal

The privilege level for this command is REPORTS.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 3.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-ASSOC-OTPS:*tid:[aid]:ctag;*

DESCRIPTION

The **RTRV-ASSOC-OTPS** command message can be initiated by an OS or users to request optical channel and optical translator port state associations in an OLS/OT configuration.

When the network element receives this command, it will retrieve all applicable OUPSR, OCHAN and OTPS associations according to the parameter settings in the command. Provided that the input command is syntactically correct and uses input parameter values that are consistent with those supported by OLS, this command is never DENY-ed.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)

- (dash)

_ (underscore)

/ (slash)

aid

Access Identifier. This is the address of the optical translator port or optical channel for which the command is intended. The aid all is allowed. When used, it will retrieve the OTU and OTPM port information.

Entity: All

Legal Values: (ALL)

Entity: Port (OTU)

Legal Values: (OTU)-(ALL), (OTU)-(1,2)-(ALL,1-32)-(1)

CenterLink CIT selection options: (OTU)-(ALL, 1, 2)-(ALL, 1-32)-(1)

Entity: Port (OT Port Module)

Legal Values: (OTPM)-(ALL), (OTPM)-(1,2)-(ALL,1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31)-(ALL,1-4)-(1)

CenterLink CIT selection options: (OTPM)-(ALL, 1, 2)-(ALL, 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31)-(ALL, 1-4)-(1)

Entity: Optical Channel

Legal Values: (OCHAN)-(ALL), (OCHAN)-(1A,1B,2A,2B,3A,3B,4A,4B)-(ALL,1-32)

CenterLink CIT selection options: (OCHAN)-(ALL, 1A, 1B, 2A, 2B, 3A, 3B, 4A, 4B)-(ALL, 1-32)

Entity: OUPSR

Legal Values: (OUPSR)-(ALL), (OUPSR)-(1,2)-(ALL,1-32), (OUPSR)-(1,2)-(1-32)-(ALL, AIN, AOUT, BIN, BOUT, CIN, COUT)

Entity: Port (2DM25)

Legal Values: (2DM25)-(ALL), (2DM25)-(1,2)-(ALL,1-32)-(HS, P1, P2)

CenterLink CIT selection options: (2DM25)-(ALL, 1, 2)-(ALL, 1-32)-(ALL, HS, P1, P2)

OLS retrieves association information for all associations in which the *aid*(s) provided is (are) involved; whether as an otu, an ochan, an oupsr or all three.

tag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *tag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the association retrieval request, the following output message is returned:

```

sid date time
M ctag COMPLD

"[src_tid=value],src_aid=value,[dest_tid=value],dest_aid=value:assoc=value"

"[src_tid=value],src_aid=value,[dest_tid=value],dest_aid=value:assoc=value"
.      .      .      .      .
.      .      .      .      .
.      .      .      .      .

"[src_tid=value],src_aid=value,[dest_tid=value],dest_aid=value:assoc=value"
;
```

If multiple lines are reported, the output is sorted as follows:

1. All OTU or OTPM port signals

By *src_aid* in ascending order where, for a given OTU port signal number:

- All add associations (with *each otu_aid*),
- Followed by drop associations (with *each otu_aid*).

2. All OCHAN port signals

By *src_aid* in ascending order where, for a given OCHAN optical channel number:

- All add associations (with *each ochan_aid*),
- Followed by drop associations (with *each ochan_aid*).

3. All OUPSR port signals

By *src_aid* in ascending order where, for a given OUPSR port signal number:

- All add associations (with *each oupsr_aid*),
- Followed by drop associations (with *each oupsr_aid*).

OTUs/OTPMs and/or optical channels for which there is no association are not listed.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

src_tid

Source Target identifier. This is the name of the network element in which the external *src_aid* resides in.

src_aid

Source identifier. This is the address of the OUPSR, OTU/OTPM or OCHAN port that is associated with the *src_aid*.

dest_tid

Destination Target identifier. This is the name of the network element in which the external *dest_aid* resides in.

dest_aid

Destination identifier. This is the address of the OUPSR, OTU or OCHAN that is associated with the *dest_aid*..

assoc

Association type. This parameter specifies the type of association for OLS, and may have one of the following values:

DROP

This specifies a drop association between the source and destination.

ADD

This specifies an add association between the source and destination.

XDROP

This specifies an external drop association between the source and destination.

XADD

This specifies an external add association between the source and destination.

EXAMPLE INPUT/OUTPUT

The following example retrieves associations with the OT port OTU-1-3-1:

```
rtrv-assoc-otps:EAST:otu-1-3-1:123456;  
IP 123456  
<  
EAST 99-11-26 16:42:11  
M 123456 COMPLD  
"src_aid=otu-1-3-1,dest_aid=ochan-1a-1:assoc=add"  
;
```

The following example retrieves association with the OUPSR port OUPSR-1-10-BOUT:

```
rtrv-assoc-otps:EAST:oupsr-1-10-bout:123456;  
IP 123456  
<  
EAST 99-11-26 16:42:11  
M 123456 COMPLD  
"src_tid=east,src_aid=oupsr-1-10-bout,dest_tid=west,  
dest_aid=otu-1-3-1:assoc=xadd"  
;
```

The following example retrieves association with the OUPSR port OUPSR-1-10-ALL:

```
rtrv-assoc-otps:EAST:oupsr-1-10-all:123456;  
IP 123456  
<  
  EAST 99-11-26 16:42:11  
M 123456 COMPLD  
  "src_aid=oupsr-1-10-aout,dest_aid=otu-1-3-1:assoc=add"  
  "src_tid=east,src_aid=oupsr-1-10-bout,dest_tid=west,  
  dest_aid=otu-1-3-1:assoc=xadd"  
  "src_aid=otu-1-4-1,dest_aid=oupsr-1-10-bin:assoc=drop"  
  "src_tid=west,src_aid=otu-1-4-1,dest_tid=east,  
  dest_aid=oupsr-1-10-ain:assoc=xdrop"  
  ;
```

The lines in the output is wrapped around for ease of reading. The actual output should not contain any line break.

The following example retrieves association with the OUPSR port OUPSR-1-10-ALL under the 1-OTU configurations supported in R8.2 and later.

```
rtrv-assoc-otps:EAST:oupsr-1-10-all:123456;  
IP 123456  
<  
  EAST 99-11-26 16:42:11  
M 123456 COMPLD  
  "src_aid=otu-1-5-1,dest_aid=oupsr-1-10-cin:assoc=add"  
  "src_aid=oupsr-1-10-aout,dest_aid=ochan-2a-5:assoc=add"  
  "src_aid=ochan-1b-5,dest_aid=oupsr-1-10-bin:assoc=drop"  
  "src_aid=oupsr-1-10-cout,dest_aid=otu-2-5-1:assoc=drop"  
  "src_tid=east,src_aid=oupsr-1-10-bout,dest_tid=west,  
  dest_aid=ochan-1b-5:assoc=xadd"  
  "src_tid=west,src_aid=ochan-1a-5,dest_tid=east,  
  dest_aid=oupsr-1-10-ain:assoc=xdrop"  
  ;
```

The following example retrieves association with the OUPSR port OUPSR-1-10-ALL under the 1-OTU configurations supported in R8.2 and later with external OTUs.

```
rtrv-assoc-otps:EAST:oupsr-1-10-all:123456;  
IP 123456  
<  
EAST 99-11-26 16:42:11  
M 123456 COMPLD  
"src_tid=west,src_aid=otu-1-5-1,dest_tid=east,  
dest_aid=oupsr-1-10-cin:assoc=xadd"  
"src_aid=oupsr-1-10-aout, dest_aid=ochan-2a-5:assoc=add"  
"src_aid=ochan-1b-5, dest_aid=oupsr-1-10-bin:assoc=drop"  
"src_tid=east,src_aid=oupsr-1-10-cout,dest_tid=west,  
dest_aid=otu-2-5-1:assoc=xdrop"  
"src_tid=east,src_aid=oupsr-1-10-bout,dest_tid=west,  
dest_aid=ochan-1b-5:assoc=xadd"  
"src_tid=west,src_aid=ochan-1a-5,dest_tid=east,  
dest_aid=oupsr-1-10-ain:assoc=xdrop"  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If this command is received with an invalid access identifier, the following error response is returned:

```
sid date time  
M ctag DENY  
IIAC  
/* Input, Invalid Access Identifier */  
;
```

If the network element receives this command with any extra (beyond the input format specification just shown) null or non-null command parameter blocks (:), parameters (not supported by FT-2000, delimited by ","), or termination characters (;), the following error response is returned:

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


RELATED TL1 COMMANDS/MESSAGES

DLT-ASSOC-OTPS

ENT-ASSOC-OTPS

RTRV-ATTR-ALM

RTRV-ATTR-ALM: Retrieve Attribute Alarm

The privilege level for this command is REPORTS.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-ATTR-ALM :*tid*::*tag*;

DESCRIPTION

The **RTRV-ATTR-ALM** command can be initiated by general users to retrieve the values that have been set for incoming signal alarm delay (*almdel*), the alarm clear delay interval (*clrdel*), and the assigned alarm severity (*ntfcncde*) for provisionable Alarm Identifiers (*almid*).

These parameters are explained in more detail below.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the **RTRV-ATTR-ALM** request, the following normal completion response is returned:

```
sid date time
```

```
M ctag COMPLD
```

```
"almdel=AlarmDelay,clrdel=ClearDelay,agnecomf=ntfcncde,dccfoc3=ntfcncde,dsnenr=ntfcncde,ochanlos=ntfcncde,ringinc=ntfcncde "
;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**. Additional parameters that specifically apply to this command response are defined as follows:

almdel

The value of the AlarmDelay (incoming signal alarm delay) parameter in seconds. It represents the time that the network element will wait, after it finds an incoming signal condition, before reporting it.

clrdel

The value of the ClearDelay (alarm clear delay) parameter in seconds. It represents the time the network element will wait after a condition clears before reporting the changed condition.

agnecomf

The value of *agnecomf* is the Alarm Severity (i.e. *ntfcncde*) that is currently assigned to the NE Status Communication Failure Alarm.

dccfoc3

The value of *dccfoc3* is the Alarm Severity (i.e. *ntfcncde*) that is currently assigned to the Incoming (from Supr) DCC Failure Alarm.

dsnenr

The value of *dsnenr* is the Alarm Severity (i.e. *ntfcncde*) that is currently assigned to the DSNE not reachable Alarm.

ochanlos

The value of *ochanlos* is the Alarm Severity (i.e. *ntfcncde*) that is currently assigned to the Incoming optical channel LOS Failure Alarm.

rnginc

The value of *rnginc* is the Alarm Severity (i.e. *ntfcncde*) that is currently assigned to the System incomplete Alarm.

EXAMPLE INPUT/OUTPUT

The following example shows a **RTRV-ATTR-ALM** command for a PF-2000 system where the AlarmDelay parameter has been provisioned to 11 seconds; the ClearDelay parameter has been provisioned to 9 seconds; Almids have been set to various values.

```
RTRV-ATTR-ALM:LT-PF-2000::123456;
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
  "almdel=11", "clrdel=9", "agnecomf=MN", "dccfoc3=CR",
  "dsnenr=MJ", "ochanlos=NR", "rnginc=NO"
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

RELATED TL1 COMMANDS/MESSAGES

SET-ATTR-ALM

RTRV-ATTR-CONT

RTRV-ATTR-CONT: Retrieve Attribute Control

The privilege level for this command is REPORTS.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-ATTR-CONT:*tid:aid:ctag[:[:[:]]];*

DESCRIPTION

The **RTRV-ATTR-CONT** command can be executed to retrieve the provisioned description(s) associated with an external control device or devices. These descriptions are used for information purposes when a user seeks to operate or release external miscellaneous discrete controls. For example, the user may want to verify that *aid*=CONT-1 is associated with a fan (and not a sprinkler) before operating it.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. The *aid* identifies the external miscellaneous discrete control for which attributes are being retrieved. An *aid* value must be provided.

Entity: Point (Control)

Legal Values: (CONT)-(ALL, 1-36)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the **RTRV-ATTR-CONT** request, the following normal completion response is returned.

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

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**. Parameters that specifically apply to this command response are defined as follows:

id

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)

_ (underscore)
 / (slash)

aid

Access Identifier. The *aid* identifies the external control for which the provisioned names are being retrieved. When the input *aid* is equal to CONT-ALL, the output is sorted by *aid*, with CONT-1 and its description printed first and CONT-2 second, etc.

conttype

Control Type. The *conttype* is the text string associated with the selected miscellaneous discrete control. It is an alphanumeric string, upper and lower case, spaces and periods allowed, up to 26 characters long. It must begin with an alphanumeric character and contain no more than one consecutive space. *conttype* is case sensitive and is enclosed using delimiters. The delimiter to be used is \" [that is, backslash followed by double quotes]. A *conttype* entry is required.

EXAMPLE INPUT/OUTPUT

The following example shows a **RTRV-ATTR-CONT** command to retrieve all the provisioned names for miscellaneous discrete controls for a PF-2000 system:

```
RTRV-ATTR-CONT:LT-PF-2000:CONT-ALL:123456::;
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
  "cont-1:\"startPump\"
  "cont-2:\"startGenerator\"
  "cont-3:\"startlights\"
  "cont-4:\"control4\"
;
```

The following example shows a **RTRV-ATTR-CONT** command to retrieve the description of the first miscellaneous discrete control for a PF-2000 system:

```
RTRV-ATTR-CONT:LT-PF-2000:CONT-1:123456::;
IP 123456
<
  LT-FT-2000 93-10-26 16:42:11
M 123456 COMPLD
  "cont-1:\"startpump\"
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If a **RTRV-ATTR-CONT** command is received with an invalid (or missing) access identifier, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier, AID missing or
inconsistent with modifier value */
;
```

RELATED TL1 COMMANDS/MESSAGES

SET-ATTR-CONT

RTRV-ATTR-ENV

RTRV-ATTR-ENV: Retrieve Attribute Environment

The privilege level for this command is REPORTS.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-ATTR-ENV:*tid:aid:ctag[::];*

DESCRIPTION

The **RTRV-ATTR-ENV** command can be initiated to retrieve the alarm level and description parameters for each selected miscellaneous discrete environmental input point.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This is the address of the environmental points for which attributes are requested. A value is required for this parameter. Entity: Point (Environmental)

Legal Values: (ENV)-(ALL, 1-144)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the retrieve attribute environment request, the following normal completion response is returned:

```
sid date time
M ctag COMPLD
  "aid:ntfcncde,\"almmsg\"
  ..      .      .      .
  .      .      .      .
  ..      .      .      .
  "aid:ntfcncde,\"almmsg\"
;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**. The remainder of the output parameters are described as follows:

aid

Access identifier. This is the address of the environmental point for which the attributes are reported.

ntfcncde

Notification code. This parameter is the alarm level provisioned for failures of facilities serviced by the addressed port. The *ntfcncde* parameter is reported in NTFNCNDE=xx format where xx has one of the following values:

CR

Critical (if provisioned for SONET)

MJ

Major (if provisioned for SONET)

MN

Minor (if provisioned for SONET)

NA

Not alarmed (if provisioned for SONET)

NR

Not reported (if provisioned for SONET) (No autonomous report will be generated.)

NO

Ignored (if provisioned for SONET) (No autonomous or on-demand report will be generated.)

Prompt

Prompt (if provisioned for SDH)

Deferred

Deferred (if provisioned for SDH)

No_Alarm

No Alarm (if provisioned for SDH)

No_Report

No Report (if provisioned for SDH) (No autonomous report will be generated.)

Not_Indicated

Not Indicated (if provisioned for SDH) (No autonomous or on-demand report will be generated.)

a lmmmsg

Alarm message. This is the condition description to be associated with the addressed environmental point. The description may be a string of up to 26 characters consisting of case-sensitive (upper-case and lower-case) alphanumerics, spaces, and "." (periods). The description must be enclosed using delimiters. The description must begin with an alphanumeric character and contain no more than one consecutive space. The delimiter to be used is "\" [that is, backslash followed by double-quotes].

This parameter is an exception to the general rule of TL1 input parameters being case-insensitive.

EXAMPLE INPUT/OUTPUT

The following example shows a **RTRV-ATTR-ENV** command to retrieve the tenth miscellaneous discrete environment parameter:

```
RTRV-ATTR-ENV:LT-FT-2000:env-10:123456;  
IP 123456  
<  
  LT-FT-2000 93-10-26 16:42:11  
M 123456 COMPLD  
  "env-10:MJ,\"environment 10\""  
;
```

The following example shows a **RTRV-ATTR-ENV** command to retrieve all of the miscellaneous discrete environment parameters:

```
RTRV-ATTR-ENV:LT-FT-2000:env-all:123456;  
IP 123456  
<  
  LT-FT-2000 93-10-26 16:42:11  
M 123456 COMPLD  
  "env-1:NA,\"open door\""  
  "env-2:MN,\"high water\""  
  "env-3:MN,\"high temperature\""  
  "env-4:NA,\"generator started\""  
  "env-5:CR,\"battery low\""  
  "env-6:MJ,\"environment 6\""  
  "env-7:NR,\"environment 7\""  
  "env-8:MJ,\"environment 8\""  
  "env-9:MJ,\"environment 9\""  
  "env-10:MJ,\"environment 10\""  
  "env-11:MJ,\"environment 11\""  
  "env-12:MJ,\"environment 12\""  
  "env-13:MJ,\"environment 13\""  
  "env-14:MJ,\"environment 14\""  
  "env-15:MJ,\"environment 15\""  
  "env-16:MJ,\"environment 16\""  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **RTRV-ATTR-ENV** command.

If the network element receives a **RTRV-ATTR** command with an invalid command modifier, the following error response is returned:

```
sid date time
M ctag DENY
ICNV
/* Input, Command Not Valid, invalid modifier */
;
```

If the network element receives a **RTRV-ATTR-ENV** command with an invalid or missing *aid* value, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier, AID is missing, wrong or
inconsistent with modifier */
;
```

RELATED TL1 COMMANDS/MESSAGES

SET-ATTR-ENV

RTRV-BASELINE

RTRV-BASELINE: Retrieve Baseline

The privilege level for this command is REPORTS.

The OSI category for this command is PERFORMANCE.

This command is available beginning in OLS Release 2.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-BASELINE:*tid::ctag;*

DESCRIPTION

The **RTRV-BASELINE** command is initiated by a user to request the network element to send the time and the reason for last baseline of the optical parameters of optical lines and the constituent optical channels through an **INIT-REG-OLINE** command.

The baseline data reported will contain information for all IS optical channels and optical lines.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)

- (dash)

_ (underscore)

/ (slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

After receiving a valid **RTRV - BASELINE** command, the following output message is returned:

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

Applicable output lines are ordered by aid in following order of IS optical lines (1a,1b,2a,2b).

If there is no data to return for the given valid command, the following message is returned:

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

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV - HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the IS optical line for which the BASELINE data is being reported. Baselining PM parameters of optical line imply baselining of PM parameters of the IS optical channels.

time

Time of Baseline. This is the time when baselining occurs in response to a valid **INIT - REG - OLINE** command. The format is "mm-dd-yy hh:mm".

baseline

Reason of baseline. The Reason of baseline includes the provisioned string from **INIT-REG-OLINE** command concatenated with the address of the entity which caused it.

EXAMPLE INPUT/OUTPUT

In the following example, the command returns baseline report for optical lines 1a, 1b, 2a, 2b.

```
rtrv-baseline:LT-OLS::314152;  
IP 314152  
>  
LT-PF-2000 91-10-26 17:12:31  
M 314152 COMPLD  
"oline-1a:01-01-96 00:17:OCHAN_dropped:ochan-1a-1"  
"oline-1b:01-01-96 00:17:OCHAN_dropped:ochan-1b-1"  
"oline-2a:01-01-96 00:17:OA_replaced:oline-2a"  
"oline-2b:01-01-96 00:17:OA_replaced:oline-2b"  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

RELATED TL1 COMMANDS/MESSAGES

INIT-REG-OLINE

RTRV-CID-SECU

RTRV-CID-SECU: Retrieve Channel_IDentifier Security

The privilege level for this command is REPORTS.

The OSI category for this command is SECURITY.

This command is available starting in OLS Release 2.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-CID-SECU:*tid:aid:ctag;*

DESCRIPTION

The **RTRV-CID-SECU** command can be initiated by users to retrieve the current CIT or TL1 port provisioning like, port status, timeout, port type or OS type information. Also this command gives the users currently logged on the network element.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This parameter specifies the port address for which the user wants to retrieve information.

Entity: Port (COM)

Legal Values: (ALL, DCE, DTE, DCC, X25, SER_TLM1, LAN)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the **RTRV-CID-SECU** request, the following normal completion response is returned:

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

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**. Additional parameters that specifically apply to this command response are defined below.

aid

The *aid* is a port address.

spec_block

Specific block. Parameters within the specific block are positionally independent and are using a construct such as: *PARAMETER=value* in a comma-separated list. The specific block may have zero or more of the following parameters set within it. A parameter will not be displayed if it has no value. Furthermore, each parameter listed below may appear at most once within the specific block.

TMOUT

This parameter sets the time out interval for the DCE, DTE, and DCC ports. It has an integer value in the range 0-999 minutes. A value of 0 disables the time out mechanism. When a null value is provided, **TMOUT** is unchanged. For other ports, this parameter is reported as 'blank'.

PORTSTAT

This parameter gives the port status as provisioned. This parameter is reported for the DTE, DCE, Virtual channel 0 (vc-0) of DCC port, and the ser-tlm1 port.

PORTTYPE

This parameter gives the port type and has a value of *t l1*. This parameter is reported only for the DTE port, DCE port and the virtual channel 0 (vc-0) of DCC port.

BAUDRATE

This parameter gives the baud rate of the DTE port or DCE port as provisioned.

The BAUDRATE for DCC port is always reported as blank.

The BAUDRATE for x25 PVCs is always reported as blank.

CHAN

This parameter lists the permanent virtual channels(pvc-{1-2}) and the table entries from the calling address table for switched virtual channels (tbl-{1-16}) of X.25 port. It also lists the virtual channels (vc-{0-8}) for the DCC port.

This parameter is reported as 'blank' for 'dce' and 'dte' ports.

OSTYPE

This parameter gives the OS type for the virtual circuit of the X.25 port and the virtual channel (1-8) of DCC.

CALLADDR

This parameter gives the calling address of the OS/user on the **svc** of the X.25 port.

The calling address for all other ports (and associated virtual channels) is always reported as a blank.

GNETID

This parameter gives the tid of the gateway network element(GNE) for DCC virtual channels, vc 1-8.

For all other entries, this parameter is reported as blank.

UID

This parameter gives the user ID of the user currently logged in the system.

If no user is currently logged in at the time of the report, this parameter is reported as a 'blank'.

YEARFMT

This parameter indicates the format of the year field of all dates of all TL1 commands and their responses for this user. It has one of the following values, 2 or 4. 2 indicates two-digit years, and 4 indicates four-digit years.

EXAMPLE INPUT/OUTPUT

The following example shows a **RTRV-CID-SECU** command for {aid=all}:

```
RTRV-CID-SECU:LT-PF-2000:all:123456;
IP 123456
<
LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
"dce:TMOUT=25,PORTSTAT=enabled,BAUDRATE=auto,UID=lt1"
"dte:TMOUT=10,PORTSTAT=enabled,BAUDRATE=9600,UID=lt2"
"dcc:CHAN=vc_0, TMOUT=15,PORTSTAT=enabled,UID=lt3"
"dcc:CHAN=vc_1,OSTYPE=ma,GNETID=another.gid1,UID=lt1"
"dcc:CHAN=vc_2,OSTYPE=cmdr,GNETID=another.gid2,UID=lt2"
"dcc:CHAN=vc_3,OSTYPE=rst,GNETID=another.gid3,UID=lt3"
"dcc:CHAN=vc_4"
"dcc:CHAN=vc_5"
"dcc:CHAN=vc_6"
"dcc:CHAN=vc_7"
"dcc:CHAN=vc_8"
"x25:CHAN=pvc_1,OSTYPE=mt,UID=NMA01"
"x25:CHAN=pvc_2,OSTYPE=cmdr"
"x25:CHAN=svc_1,OSTYPE=rst,CALLADDR=19089188888,UID=lt3"
"x25:CHAN=svc_2"
"x25:CHAN=svc_3"
"x25:CHAN=svc_4"
"x25:CHAN=svc_5"
"x25:CHAN=svc_6"
```

Screen continues on next page

Screen continued from previous page

```
"x25:CHAN=tbl_1,OSTYPE=cmdr,CALLADDR=19089188888,UID=lt3"  
"x25:CHAN=tbl_2"  
"x25:CHAN=tbl_3"  
"x25:CHAN=tbl_4"  
"x25:CHAN=tbl_5"  
"x25:CHAN=tbl_6"  
"x25:CHAN=tbl_7"  
"x25:CHAN=tbl_8"  
"x25:CHAN=tbl_9"  
"x25:CHAN=tbl_10"  
"x25:CHAN=tbl_11"  
"x25:CHAN=tbl_12"  
"x25:CHAN=tbl_13"  
"x25:CHAN=tbl_14"  
"x25:CHAN=tbl_15"  
"x25:CHAN=tbl_16"  
"Ser_tlm1:PORTSTAT=enabled"  
;
```

The following example shows a **RTRV-CID-SECU** command for {aid=all}:

```
RTRV-CID-SECU:LT-PF-2000:all:123456;
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
"dce:TMOUT=25,PORTSTAT=enabled,BAUDRATE=auto,UID=lt1,YEARFMT=4"
"dte:TMOUT=10,PORTSTAT=enabled,BAUDRATE=9600,UID=lt2,YEARFMT=4"
"dcc:CHAN=vc_0, TMOUT=15,PORTSTAT=enabled,UID=lt3,YEARFMT=2"
"dcc:CHAN=vc_1,OSTYPE=ma,GNETID=another.gid1,UID=lt1,YEARFMT=4"
"dcc:CHAN=vc_2,OSTYPE=cmdr,GNETID=another.gid2,UID=lt2,YEARFMT=2"
"dcc:CHAN=vc_3,OSTYPE=rst,GNETID=another.gid3,UID=lt3,YEARFMT=2"
"dcc:CHAN=vc_4"
"dcc:CHAN=vc_5"
"dcc:CHAN=vc_6"
"dcc:CHAN=vc_7"
"dcc:CHAN=vc_8"
"x25:CHAN=pvc_1,OSTYPE=mt,UID=NMA01,YEARFMT=2"
"x25:CHAN=pvc_2,OSTYPE=cmdr,YEARFMT=2"
"x25:CHAN=svc_1,OSTYPE=rst,CALLADDR=19089188888,UID=lt3,YEARFMT=4"
"x25:CHAN=svc_2"
"x25:CHAN=svc_3"
"x25:CHAN=svc_4"
"x25:CHAN=svc_5"
"x25:CHAN=svc_6"
"x25:CHAN=tbl_1,OSTYPE=cmdr,CALLADDR=19089188888,UID=lt3,YEARFMT=4"
"x25:CHAN=tbl_2"
"x25:CHAN=tbl_3"
```

Screen continues on next page

Screen continued from previous page

```
"x25:CHAN=tbl_4"  
"x25:CHAN=tbl_5"  
"x25:CHAN=tbl_6"  
"x25:CHAN=tbl_7"  
"x25:CHAN=tbl_8"  
"x25:CHAN=tbl_9"  
"x25:CHAN=tbl_10"  
"x25:CHAN=tbl_11"  
"x25:CHAN=tbl_12"  
"x25:CHAN=tbl_13"  
"x25:CHAN=tbl_14"  
"x25:CHAN=tbl_15"  
"x25:CHAN=tbl_16"
```

;

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the command is received with an invalid *aid*, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier */
;
```

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-CMS

RTRV-CMS: Retrieve Customer_Maintenance_Signal

The privilege level for this command is REPORTS.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-CMS:*tid:aid:ctag[:type];*

DESCRIPTION

The **RTRV-CMS** command messages can be initiated by a user to retrieve the current provisioned state and current state of the Customer Maintenance Signal (CMS) port. This command retrieves all CMS port parameter settings that are provisionable via **ENT-CMS** commands pertaining to the addressed OLS, reported one line per CMS port.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This is the address of the entity for which the report is requested.

Entity: CMS Port [End Terminals and Repeaters]

Legal Values: (CMS)-(ALL, 1A, 1B, 2A, 2B)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

type

Type. A value for this parameter is neither expected nor allowed.

OUTPUT FORMAT

Because the network element supports pre-provisioning of parameters, lines are included for all applicable *aid* values in response to this command, whether or not the present equipment is capable of supporting the type of facility specified.

Line wrapping is not supported in the **OUTPUT FORMAT**. Output lines are broken here **only** for the convenience of the reader.

In response to a valid **RTRV-CMS** command, the following output report is returned, sorted on CMS port data by the *cms_aid* value.

```
sid date time
M ctag COMPLD
"cms_aid:::[level,]ntfcncde,sdthr:,sst"
"cms_aid:::[level,]ntfcncde,sdthr:,sst"
. . .
. . .
. . .
"cms_aid:::[level,]ntfcncde,sdthr:,sst"
;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

cms_aid

CMS access identifier. This is the CMS port address for which output is being reported.

level

The *level* parameter shall be reported as a hyphen (-) if the OLS is equipped with the LDA4 circuit pack.

ntfcncde

Notification code. This parameter is the alarm level provisioned for failures of facilities serviced by the addressed port. The *ntfcncde* parameter is reported in NTFNCDE=xx format where xx has one of the following values:

CR

Critical (if provisioned for SONET)

MJ

Major (if provisioned for SONET)

MN

Minor (if provisioned for SONET)

NA

Not alarmed (if provisioned for SONET)

NR

Not reported (if provisioned for SONET) (No autonomous report will be generated.)

NO

Ignored (if provisioned for SONET) (No autonomous or on-demand report will be generated.)

Prompt

Prompt (if provisioned for SDH)

Deferred

Deferred (if provisioned for SDH)

No_Alarm

No Alarm (if provisioned for SDH)

No_Report

No Report (if provisioned for SDH) (No autonomous report will be generated.)

Not_Indicated

Not Indicated (if provisioned for SDH) (No autonomous or on-demand report will be generated.)

sdthr

Signal degrade threshold. This parameter is the signal degrade Bit Error Rate (BER) threshold for the facility serviced by the addressed CMS port. The *sdthr* parameter for CMS port is always reported as SDTHR=-6.

sst

Secondary state. This parameter reports the current secondary state of the addressed CMS port. The *sst* will have one of the secondary states supported by OLS.

The CMS port secondary state will have one of the following values:

IS

In service. This specifies that the CMS port addressed by *cms_aid* is in the in service state in the *mux* (from the customer toward the optical line) direction.

00S-MA-AS

Out of service, memory administration, assigned. This specifies that the CMS port addressed by *cms_aid* is in the OLS "AUTO" state and will transition to in-service upon detection of a valid incoming customer maintenance signal in the *mux* (from the customer toward the optical line) direction.

00S

Out of service. This specifies that the CMS port addressed by *cms_aid* is in the OLS "NMON" state in the *mux* (from the customer toward the optical line) direction.

RDNA

Requested data not available. If the requested *sst* data for the addressed CMS port is corrupted, this value is reported.

EXAMPLE INPUT/OUTPUT

Line wrapping is not supported in the **EXAMPLE INPUT/OUTPUT**. Output lines are broken here **only** for the convenience of the reader.

The example that follows shows the response to a query concerning all CMS ports associated with all optical lines (*cms-all*) for an OLS repeater.

```
rtrv-cms:LT-OLS:cms-all:123456;
IP 123456
<
  LT-OLS 93-10-26 16:42:11
M 123456 COMPLD
"cms-1a::LEVEL=0C3,NTFCNCDE=MN,SDTHR=-6:,IS"
"cms-1b::LEVEL=0C3,NTFCNCDE=MN,SDTHR=-6:,IS"
"cms-2a::LEVEL=0C3,NTFCNCDE=MN,SDTHR=-6:,IS"
"cms-2b::LEVEL=0C3,NTFCNCDE=MN,SDTHR=-6:,IS"
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (.), or termination characters (;), the following error response is returned:

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


If the network element receives a **RTRV** command without an *aid* value or with an *aid* value that is invalid for this command, the following error response is returned:

```
sid date time
M ctag DENY
  IIAC
  /* Input, Invalid Access Identifier, AID missing or inconsistent
  with modifier value */
;
```

If the network element receives this command with an invalid *type* value, the following error response is returned:

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

RELATED TL1 COMMANDS/MESSAGES

ENT-CMS

RTRV-COND-ALL

RTRV-COND-ALL: Retrieve Condition All

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-COND-ALL:*tid:aid:ctag;*

DESCRIPTION

The **RTRV-COND-ALL** command can be initiated by an OS or OS users to retrieve the current state of the network element circuit pack slots and facilities. This command retrieves all active alarms and status ("non-alarmed" and "non-reported") conditions pertaining to the addressed network element, reported one line per condition, similar to the autonomous messages used to report alarm and non-alarmed conditions when they occur.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)

- (dash)

_ (underscore)

/ (slash)

aid

Access identifier. If provided at all, the *aid* for this command must be "**ALL**". If not provided, the value of "**ALL**" is assumed.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If there are no status conditions to report, the following message is returned to the OS:

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

If there are status conditions to report, the following output report is returned to the OS:

```
sid date time
M ctag COMPLD
"aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,locn,dirn,tmper,
\\"conddescr\\"
. . . . .
. . . . .
. . . . .
"aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,locn,dirn,tmper,
\\"conddescr\\"
;
```

Applicable output lines are ordered as follows:

1. By alarm severity level **MJ/Prompt**, followed by **MN/Deferred**, followed by **NA/No_Alarm**, followed by **NR/No_Report**.
2. For conditions with the same alarm severity, by the value of occurrence date (*ocr-dat*), and occurrence time (*ocrtm*), with the most recent listed first.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV - HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the equipment component or facility for which a status condition is being reported.

aidtype

Access identifier type. This has one of the following values:

COM

Common. This reports a condition that is not an equipment or facility condition but applies to the network element as a whole.

OCHAN

Channel. This reports a facility-related event at the channel level in WaveStar OLS.

CMS

CMS is the incoming customer maintenance signal. This reports a facility-related event on the CMS part of the telemetry pack.

EQPT

This reports an equipment-related condition.

OLINE

This reports a facility-related event on the optical line in WaveStar OLS.

SUPR

This reports a facility-related event on the supervisory channel in the optical line in WaveStar OLS.

OTPS

This reports an facility-related condition on the optical translator unit (OTU) or the optical translator port module (OTPM).

ntfcncde

Notification code. This is the alarm level and has one of the following values:

MJ

Major (SONET)

MN

Minor (SONET)

NA

Not alarmed (SONET)

NR

Not reported (SONET)

Prompt

Prompt (SDH)

Deferred

Deferred (SDH)

No_Alarm

No Alarm (SDH)

No_Report

No Report (SDH)

condtype

Condition type. This is the type of the condition. There are several types of conditions.

The values for this parameter can be found in the various **RTRV-COND** command pages associated with the *aidtype* output in the message. For example, condition types associated with the **COM aidtype** are listed in the **RTRV-COND-COM** command page.

srveff

Service effect (or Condition effect). This indicates the effect of the reported condition on service. This parameter has one of the following values:

SA

Service-affecting alarm condition.

NSA

Non-service-affecting alarm or status condition.

ocrdat

Occurrence date. This indicates the date of the event being reported and has the format MM-DD (month-day).

ocrtm

Occurrence time. This indicates the time of the event being reported and has the format HH-MM-SS (hours-minutes-seconds).

locn

Location. The location field will always be empty for the network element **RTRV-COND** responses.

dirn

Direction. The direction field will always be empty for the network element **RTRV-COND** responses.

tmper

Time period. The time period field will always be null for the network element **RTRV-COND** responses.

conddescr

Condition description (or Alarm message). This is the text description [enclosed within a pair of escaped quotes (\")] of the reported condition.

EXAMPLE INPUT/OUTPUT

For an OLS/OT Configuration:

```
rtrv-cond-all:LT-OLS:all:123456;  
IP 123456  
LT-OLS 94-06-07 16:42:11  
M 123456 COMPLD  
"oline-2a,OLINE,MN,LOS,NSA,06-07,18-26-14,,:\\"incoming optical  
line LOS\\",,:"  
"oline-2b,OLINE,MN,LOS,NSA,06-07,18-26-14,,:\\"incoming optical  
line LOS\\",,:"  
"dccsupr-2a,COM,MN,EOC,NSA,06-07,18-26-14,,:\\"inc. (from Supr)  
DCC failure\\",,:"  
"dccsupr-2b,COM,MN,EOC,NSA,06-07,18-26-14,,:\\"inc. (from Supr)  
DCC failure\\",,:"  
"otu-1-1,OTPS,MN,FAIL,NSA,06-07,18-26-14,,:\\"incoming OC-48  
failure\\",,:"  
;
```

ERROR RESPONSES

Refer to the non-message-specific error responses listed in the **RTRV-HDR ERROR RESPONSES** section.

When **RTRV-COND** messages with a valid *ctag* are recognized, the network element responds with **all** active status conditions.

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-COND-CMS

RTRV-COND-CMS: Retrieve Condition Customer_Maintenance_Signal

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-COND-CMS:*tid:aid:ctag::,,;*

DESCRIPTION

The **RTRV-COND-CMS** command can be initiated by an OS or OS users to retrieve status conditions of facility-related events on the CMS part of the telemetry pack [OC3 format]. This command retrieves all active alarms and status ("non-alarmed" and "non-reported") conditions pertaining to the addressed network element, reported one line per condition, similar to the autonomous messages used to report alarm and non-alarmed conditions when they occur.

Any alarm condition reported by an autonomous REPT ALM CMS or REPT ALM ENV message which is active; and any status condition reported by an autonomous REPT EVT message with *condeff*=**SC** (standing condition), which is active when a **RTRV-COND-CMS** message is received, is included in the **RTRV-COND-CMS** response message. Conditions provisioned with an alarm level of **NR** (not reported) are also included in the report even though they are not included in any REPT EVT autonomous messages.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)
- (dash)
_ (underscore)
/ (slash)

aid

Access identifier. This is the address of the entity for which the current conditions are requested.

Entity: CMS Port [End Terminals and Repeaters]

Legal Values: (CMS)-(ALL, 1A, 1B, 2A, 2B)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If there are no status conditions to report, the following message is returned to the OS:

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

If there are status conditions to report, the following output report is returned to the OS:

```
sid date time
M ctag COMPLD
"aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,locn,dirn,tmper,
\\"conddescr\\"
. . . . .
. . . . .
. . . . .
"aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,locn,dirn,tmper,
\\"conddescr\\"
;
```

Applicable output lines are ordered as follows:

1. By alarm severity level **MJ/Prompt**, followed by **MN/Deferred**, followed by **NA/No_Alarm**, followed by **NR/No_Report**.
2. For conditions with the same alarm severity, by the value of occurrence date (*ocr-dat*), and occurrence time (*ocrtm*), with the most recent listed first.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the equipment component or facility for which a status condition is being reported.

aidtype

Access identifier type.

CMS

CMS is the incoming customer maintenance signal. This reports a facility-related event on the CMS part of the telemetry pack.

ntfncnclde

Notification code. This is the alarm level and has one of the following values:

MJ

Major (SONET)

MN

Minor (SONET)

NA

Not alarmed (SONET)

NR

Not reported (SONET)

Prompt

Prompt (SDH)

Deferred

Deferred (SDH)

No_Alarm

No Alarm (SDH)

No_Report

No Report (SDH)

condtype

Condition type. This is the type of the condition. There are several types of conditions. The valid values for the condition type of the **CMS aid** type are:

LOF

Incoming customer signal loss-of-frame

LOS

Incoming customer signal loss-of-signal

T-BERL

Incoming customer signal SD/SF

srveff

Service effect (or Condition effect). This indicates the effect of the reported condition on service. This parameter has one of the following values:

SA

Service-affecting alarm condition.

NSA

Non-service-affecting alarm or status condition.

ocrdat

Occurrence date. This indicates the date of the event being reported and has the format MM-DD (month-day).

ocrtm

Occurrence time. This indicates the time of the event being reported and has the format HH-MM-SS (hours-minutes-seconds).

locn

Location. The location field will always be empty for the network element **RTRV-COND** responses.

dirn

Direction. The direction field will always be empty for the network element **RTRV-COND** responses.

tmper

Time period. The time period field will always be null for the network element **RTRV-COND** responses.

conddescr

Condition description (or Alarm message). This is the text description [enclosed within a pair of escaped quotes (\")] of the reported condition.

EXAMPLE INPUT/OUTPUT

For an OLS Repeater:

```
rtrv-cond-cms:LT-OLS:all:123456;  
IP 123456  
LT-OLS 94-06-07 16:42:11  
M 123456 COMPLD  
"cms-2b,CMS,MN,LOS,NSA,06-07,18-26-14,,:\\"incoming CMS LOS\\",,:"  
;
```

ERROR RESPONSES

Refer to the non-message-specific error responses listed in the **RTRV-HDR ERROR RESPONSES** section.

When **RTRV-COND** messages with a valid *ctag* are recognized, the network element responds with **all** active status conditions.

If the network element receives a **RTRV-COND** command with a non-null invalid command modifier, the following error response is returned:

```
sid date time
M ctag DENY
ICNV
/* Input, Command Not Valid, invalid modifier */
;
```

If a **RTRV-COND** command is received with an invalid *aid* value, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier, AID is missing, wrong or
inconsistent with modifier */
;
```

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-COND-COM

RTRV-COND-COM: Retrieve Condition Common

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-COND-COM:*tid:aid:ctag::,,;*

DESCRIPTION

The **RTRV-COND-COM** command can be initiated by an OS or OS users to retrieve all status conditions that are not specifically equipment- or facility-related conditions but apply to the network element as a whole. This command retrieves all active alarms and status ("non-alarmed" and "non-reported") conditions pertaining to the addressed network element, reported one line per condition, similar to the autonomous messages used to report alarm and non-alarmed conditions when they occur.

Any alarm condition reported by an autonomous REPT ALM COM or REPT ALM ENV message which is active; and any status condition reported by an autonomous REPT EVT message with *condeff*=SC (standing condition), which is active when a **RTRV-COND-COM** message is received, is included in the **RTRV-COND-COM** response message. Conditions provisioned with an alarm level of **NR** (not reported) are also included in the report even though they are not included in any REPT EVT autonomous messages.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)
- (dash)
_ (underscore)
/ (slash)

aid

Access identifier. If the null value is specified in this parameter, this parameter becomes "COM".

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If there are no status conditions to report, the following message is returned to the OS:

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

If there are status conditions to report, the following output report is returned to the OS:

```
sid date time
M ctag COMPLD
"aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,locn,dirn,tmper,
\\"conddescr\\"
. . . . .
. . . . .
. . . . .
"aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,locn,dirn,tmper,
\\"conddescr\\"
;
```

Applicable output lines are ordered as follows:

1. By alarm severity level **MJ/Prompt**, followed by **MN/Deferred**, followed by **NA/No_Alarm**, followed by **NR/No_Report**.
2. For conditions with the same alarm severity, by the value of occurrence date (*ocr-dat*), and occurrence time (*ocrtm*), with the most recent listed first.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the equipment component or facility for which a status condition is being reported.

aidtype

Access identifier type.

COM

Common. This reports a condition that is not an equipment or facility condition but applies to the network element as a whole.

ntfncnclde

Notification code. This is the alarm level and has one of the following values:

MJ

Major (SONET)

MN

Minor (SONET)

NA

Not alarmed (SONET)

NR

Not reported (SONET)

Prompt

Prompt (SDH)

Deferred

Deferred (SDH)

No_Alarm

No Alarm (SDH)

No_Report

No Report (SDH)

condtype

Condition type. This is the type of the condition. There are several types of conditions.

The valid values for the condition type of the **COM** *aid* type are:

ACOMAN

Operate alarm cutoff

ADMPFL

TID address map full

AGNE-COMF

Aylmer Group Network Element status communications failure

BC-LAN-1-FAIL

Board controller LAN 1 failure

BC-LAN-2-FAIL

Board controller LAN 2 failure

CMISENR

CMISE interface not ready

CONTR

Control processor failure or software download in progress

DCC-INIT

DCC start-up in progress

DSNE-NR

Directory Services Network Element not reachable

DUPL-TID

Duplicate TID defined

EOC

Incoming (from supervisory) DCC failure, incoming (from TCP/IP) LAN failure, or remote communication failure

FLT-CPY-SW-PRGM

Copy program failed due to a fault

FLT-INIT-SWD

Initiate software download failed due to a fault

INHMSG

Inhibit autonomous messages to OS

INIT-1

Initialize system

INIT-2

Update system

IO-ACTY

Input/output activity

IP-CPY-SW-PRGM

Copy program in progress

IP-INIT-SWD

Initiate software download in progress

IP - MIB - LOCK

Management Information Base (MIB) lock is in progress

LCLANRST

Line controller LAN restart

MAN

User login/logout

MISC

Provisioned control point

MULT - DSNE

Multiple Directory Services Network Element defined

PIDEXPRD

Password expired

OACNFGMM

Single optical amplifier configuration mismatch

OALANRST

Optical amplifier LAN restart

OAPMMM

Optical amplifier equipage/provisioned mode mismatch

OATYPMM

Optical amplifier types mismatch

OA - LAN - FAIL

Optical amplifier LAN failure

OK - CPY - SW - PRGM

Copy program has been successfully completed

OK - INIT - SWD

Initiate software download has been successfully completed

OLINEIDMM

Optical line ID mismatch

PWR

Fus/power failure

RNG - INC

Ring incomplete

RNG - INITC

Ring startup in progress

SER - TLM1 - FAIL

Serial telemetry port failure

SYSBOOT

Reset in progress

UDDLT

Login deleted

UIDEXPRD

Login expired

srveff

Service effect (or Condition effect). This indicates the effect of the reported condition on service. This parameter has one of the following values:

SA

Service-affecting alarm condition.

NSA

Non-service-affecting alarm or status condition.

ocrdat

Occurrence date. This indicates the date of the event being reported and has the format MM-DD (month-day).

ocrtm

Occurrence time. This indicates the time of the event being reported and has the format HH-MM-SS (hours-minutes-seconds).

locn

Location. The location field will always be empty for the network element **RTRV - COND** responses.

dirn

Direction. The direction field will always be empty for the network element **RTRV - COND** responses.

tmper

Time period. The time period field will always be null for the network element **RTRV - COND** responses.

conddescr

Condition description (or Alarm message). This is the text description [enclosed within a pair of escaped quotes (\")] of the reported condition.

EXAMPLE INPUT/OUTPUT

For an OLS Repeater:

```
rtrv-cond-com:LT-OLS:all:123456;  
IP 123456  
LT-OLS 94-06-07 16:42:11  
M 123456 COMPLD  
"tlm-2b,COM,MN,EOC,NSA,06-07,18-26-14,,:\\"incoming (from OC3)  
DCC failure\\",,:"  
;
```

ERROR RESPONSES

Refer to the non-message-specific error responses listed in the **RTRV-HDR ERROR RESPONSES** section.

When **RTRV-COND** messages with a valid *ctag* are recognized, the network element responds with **all** active status conditions.

If the network element receives a **RTRV-COND** command with a non-null invalid command modifier, the following error response is returned:

```
sid date time  
M ctag DENY  
ICNV  
/* Input, Command Not Valid, invalid modifier */  
;
```

If a **RTRV-COND** command is received with an invalid *aid* value, the following error response is returned:

```
sid date time  
M ctag DENY  
IIAC  
/* Input, Invalid Access Identifier, AID is missing, wrong or  
inconsistent with modifier */  
;
```

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-COND-EQPT

RTRV-COND-EQPT: Retrieve Condition Equipment

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-COND-EQPT:*tid:aid:ctag::,,;*

DESCRIPTION

The **RTRV-COND-EQPT** command can be initiated by an OS or OS users to retrieve status conditions of equipment-related events. This command retrieves all active alarms and status ("non-alarmed" and "non-reported") conditions pertaining to the addressed network element, reported one line per condition, similar to the autonomous messages used to report alarm and non-alarmed conditions when they occur.

Any alarm condition reported by an autonomous REPT ALM EQPT or REPT ALM ENV message which is active; and any status condition reported by an autonomous REPT EVT message with *condeff*=**SC** (standing condition), which is active when a **RTRV-COND-EQPT** message is received, is included in the **RTRV-COND-EQPT** response message. Conditions provisioned with an alarm level of **NR** (not reported) are also included in the report even though they are not included in any REPT EVT autonomous messages.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)

- (dash)
- _ (underscore)
- / (slash)

aid

Access identifier. This is the address of the entity for which the current conditions are requested.

Entity: All

Legal Values: (ALL)

Entity: Slot (TOHCTL)

Legal Values: (TOHCTL)

Entity: Slot (SYSCTL)

Legal Values: (SYSCTL)

Entity: Slot (SYSMEM)

Legal Values: (SYSMEM)

Entity: Slot (OA)

Legal Values: (OA)-(ALL, 1A-2B)

Entity: Slot (LI)

Legal Values: (OA)-(ALL, 1A-2B)

Entity: Slot (OMON)

Legal Values: (OA)-(ALL, 2A)

Entity: Slot (OU)

Legal Values: (OU)-(ALL, 1A-2B)

Entity: Slot (TLM) [End terminals and Repeaters]

Legal Values: (TLM)-(ALL, 1A, 1B, 2A, 2B)

Entity: Shelf (OLS)

Legal Values: (SHLF)-(ALL, 1-2)

Entity: Slot (OTU)

Legal Values: (OTU)-(ALL), (OTU)-(1,2)-(ALL,1-32)

CenterLink CIT selection options: (OTU)-(ALL, 1, 2)-(ALL, 1-32)

Entity: Slot (OT Port Module)

Legal Values: (OTPM)-(ALL),

(OTPM)-(1,2)-(ALL,1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31)-(ALL,1-4)

CenterLink CIT selection options: (OTPM)-(ALL, 1, 2)-(ALL, 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31)-(ALL, 1-4)

Entity: Slot (OTCTL)

Legal Values: (OTCTL)-(ALL, 1, 2)

Entity: Shelf (OT)

Legal Values: (SHLF)-(OT)-(ALL, 1-2)-(ALL, LO, MID, UP)

Entity: Slot (OUPSR)

Legal Values: (OTU)-(ALL), (OTU)-(1,2)-(ALL,1-32)

CenterLink CIT selection options: (OTU)-(ALL, 1, 2)-(ALL, 1-32)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If there are no status conditions to report, the following message is returned to the OS:

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

If there are status conditions to report, the following output report is returned to the OS:

```
sid date time
M ctag COMPLD
"aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,locn,dirn,tmper,
\\"conddescr\\"
. . . . .
. . . . .
. . . . .
"aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,locn,dirn,tmper,
\\"conddescr\\"
;
```

Applicable output lines are ordered as follows:

1. By alarm severity level **MJ/Prompt**, followed by **MN/Deferred**, followed by **NA/No_Alarm**, followed by **NR/No_Report**.
2. For conditions with the same alarm severity, by the value of occurrence date (*ocr-dat*), and occurrence time (*ocrtm*), with the most recent listed first.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the equipment component or facility for which a status condition is being reported.

aidtype

Access identifier type.

EQPT

This reports an equipment-related condition.

ntfcncde

Notification code. This is the alarm level and has one of the following values:

MJ

Major (SONET)

MN

Minor (SONET)

NA

Not alarmed (SONET)

NR

Not reported (SONET)

Prompt

Prompt (SDH)

Deferred

Deferred (SDH)

No_Alarm

No Alarm (SDH)

No_Report

No Report (SDH)

condtype

Condition type. This is the type of the condition. There are several types of conditions. The valid values for the condition type of the **EQPT aid** type are:

AUTORESET

Circuit pack reset in progress

CONTR

Control process failure

IMPROPMVL

Improper circuit pack removal

OADIS

OA output disabled

OMUMISMTCH

Optical multiplexer/demultiplexer mismatch or missing

ODUWRMUP

Optical multiplexer/demultiplexer warming up

OAPMMM

Optical amplifier equipage/provisioned mode mismatch

PRCDRERR

Unexpected circuit pack type

srveff

Service effect (or Condition effect). This indicates the effect of the reported condition on service. This parameter has one of the following values:

SA

Service-affecting alarm condition.

NSA

Non-service-affecting alarm or status condition.

ocrdat

Occurrence date. This indicates the date of the event being reported and has the format MM-DD (month-day).

ocrtm

Occurrence time. This indicates the time of the event being reported and has the format HH-MM-SS (hours-minutes-seconds).

locn

Location. The location field will always be empty for the network element **RTRV-COND** responses.

dirn

Direction. The direction field will always be empty for the network element **RTRV-COND** responses.

tper

Time period. The time period field will always be null for the network element **RTRV-COND** responses.

conddescr

Condition description (or Alarm message). This is the text description [enclosed within a pair of escaped quotes (\")] of the reported condition.

EXAMPLE INPUT/OUTPUT

For an OLS Repeater:

```
rtrv-cond-eqpt:LT-OLS:all:123456;  
IP 123456  
LT-OLS 94-06-07 16:42:11  
M 123456 COMPLD  
"t1m-2b,EQPT,MJ,IMPROPRMVL,SA,06-07,18-26-14,,:\\"TLM removed\\",,:"  
;
```

For an OLS/OT Configuration:

```
rtrv-cond-eqpt:LT-OLS:all:123456;  
IP 123456  
LT-OLS 94-06-07 16:42:11  
M 123456 COMPLD  
"t1m-2b,EQPT,MJ,IMPROPRMVL,SA,06-07,18-26-14,,:\\"TLM removed\\",,:"  
"otu-1-3,EQPT,MJ,IMPROPRMVL,SA,06-07,18-26-14,,:\\"OTU  
removed\\",,:"  
;
```

ERROR RESPONSES

Refer to the non-message-specific error responses listed in the **RTRV-HDR ERROR RESPONSES** section.

When **RTRV-COND** messages with a valid *ctag* are recognized, the network element responds with **all** active status conditions.

If the network element receives a **RTRV-COND** command with a non-null invalid command modifier, the following error response is returned:

```
sid date time  
M ctag DENY  
ICNV  
/* Input, Command Not Valid, invalid modifier */  
;
```

If a **RTRV-COND** command is received with an invalid *aid* value, the following error response is returned:

```
sid date time  
M ctag DENY  
IIAC  
/* Input, Invalid Access Identifier, AID is missing, wrong or  
inconsistent with modifier */  
;
```

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-COND-OCHAN

RTRV-COND-OCHAN: Retrieve Condition Optical_Channel

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-COND-OCHAN:*tid:aid:ctag::,,;*

DESCRIPTION

The **RTRV-COND-OCHAN** command can be initiated by an OS or OS users to retrieve status conditions of facility-related events at the channel level. This command retrieves all active alarms and status ("non-alarmed" and "non-reported") conditions pertaining to the addressed network element, reported one line per condition, similar to the autonomous messages used to report alarm and non-alarmed conditions when they occur.

Any alarm condition reported by an autonomous REPT ALM OCHAN or REPT ALM ENV message which is active; and any status condition reported by an autonomous REPT EVT message with *condeff*=**SC** (standing condition), which is active when a **RTRV-COND-OCHAN** message is received, is included in the **RTRV-COND-OCHAN** response message. Conditions provisioned with an alarm level of **NR** (not reported) are also included in the report even though they are not included in any REPT EVT autonomous messages.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)
- (dash)
_ (underscore)
/ (slash)

aid

Access identifier. This is the address of the entity for which the current conditions are requested.

Entity: Optical Channel

Legal Values: (OCHAN)-(ALL), (OCHAN)-(1A,1B,2A,2B)-(ALL,1-32)

CenterLink CIT selection options: (OCHAN)-(ALL, 1A, 1B, 2A, 2B)-(ALL, 1-32)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If there are no status conditions to report, the following message is returned to the OS:

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

If there are status conditions to report, the following output report is returned to the OS:

```
sid date time
M ctag COMPLD
"aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,locn,dirn,tmper,
\\"conddescr\\"
. . . . .
. . . . .
. . . . .
"aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,locn,dirn,tmper,
\\"conddescr\\"
;
```

Applicable output lines are ordered as follows:

1. By alarm severity level **MJ/Prompt**, followed by **MN/Deferred**, followed by **NA/No_Alarm**, followed by **NR/No_Report**.
2. For conditions with the same alarm severity, by the value of occurrence date (*ocr-dat*), and occurrence time (*ocrtm*), with the most recent listed first.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the equipment component or facility for which a status condition is being reported.

The optical line, and its constituent optical channel(s), DEMUXed at a single OA OLS End Terminal is not directly monitored because there is no OA directly preceding the ODU.

aidtype

Access identifier type.

OCHAN

Channel. This reports a facility-related event at the channel level in WaveStar OLS.

ntfncde

Notification code. This is the alarm level and has one of the following values:

MJ

Major (SONET)

MN

Minor (SONET)

NA

Not alarmed (SONET)

NR

Not reported (SONET)

Prompt

Prompt (SDH)

Deferred

Deferred (SDH)

No_Alarm

No Alarm (SDH)

No_Report

No Report (SDH)

condtype

Condition type. This is the type of the condition. There are several types of conditions. The valid values for the condition type of the **OCHAN** *aid* type are:

LOS

Incoming optical channel loss-of-signal

OCHANDTCTD

Incoming optical channel detected

OCHANRMVD

Incoming optical channel removed

T - x

Threshold crossing alert for the indicated monitored parameter (x)

srveff

Service effect (or Condition effect). This indicates the effect of the reported condition on service. This parameter has one of the following values:

SA

Service-affecting alarm condition.

NSA

Non-service-affecting alarm or status condition.

ocrdat

Occurrence date. This indicates the date of the event being reported and has the format MM-DD (month-day).

ocrtm

Occurrence time. This indicates the time of the event being reported and has the format HH-MM-SS (hours-minutes-seconds).

locn

Location. The location field will always be empty for the network element **RTRV - COND** responses.

dirn

Direction. The direction field will always be empty for the network element **RTRV - COND** responses.

tmper

Time period. The time period field will always be null for the network element **RTRV - COND** responses.

conddescr

Condition description (or Alarm message). This is the text description [enclosed within a pair of escaped quotes (\")] of the reported condition. There will be no reported conditions/alarms for optical channels on the demux side of a single OA configuration.

EXAMPLE INPUT/OUTPUT

For an OLS Repeater:

```
rtrv-cond-ochan:LT-OLS:all:123456;  
IP 123456  
LT-OLS 94-06-07 16:42:11  
M 123456 COMPLD  
"ochan-2b,OCHAN,MN,LOS,NSA,06-07,18-26-14,,:\\"incoming optical  
channel LOS\\",,:"  
;
```

ERROR RESPONSES

Refer to the non-message-specific error responses listed in the **RTRV-HDR ERROR RESPONSES** section.

When **RTRV-COND** messages with a valid *ctag* are recognized, the network element responds with **all** active status conditions.

If the network element receives a **RTRV-COND** command with a non-null invalid command modifier, the following error response is returned:

```
sid date time  
M ctag DENY  
ICNV  
/* Input, Command Not Valid, invalid modifier */  
;
```

If a **RTRV-COND** command is received with an invalid *aid* value, the following error response is returned:

```
sid date time  
M ctag DENY  
IIAC  
/* Input, Invalid Access Identifier, AID is missing, wrong or  
inconsistent with modifier */  
;
```

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-COND-OLINE

RTRV-COND-OLINE: Retrieve Condition Optical_Line

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-COND-OLINE:*tid:aid:ctag::,,,;*

DESCRIPTION

The **RTRV-COND-OLINE** command can be initiated by an OS or OS users to retrieve status conditions of facility-related events on the optical line. This command retrieves all active alarms and status ("non-alarmed" and "non-reported") conditions pertaining to the addressed network element, reported one line per condition, similar to the autonomous messages used to report alarm and non-alarmed conditions when they occur.

Any alarm condition reported by an autonomous REPT ALM OLINE or REPT ALM ENV message which is active; and any status condition reported by an autonomous REPT EVT message with *condeff*=**SC** (standing condition), which is active when a **RTRV-COND-OLINE** message is received, is included in the **RTRV-COND-OLINE** response message. Conditions provisioned with an alarm level of **NR** (not reported) are also included in the report even though they are not included in any REPT EVT autonomous messages.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)

- (dash)
- _ (underscore)
- / (slash)

aid

Access identifier. This is the address of the entity for which the current conditions are requested.

Entity: Optical Line

Legal Values: (OLINE)-(ALL, 1A, 1B, 2A, 2B)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If there are no status conditions to report, the following message is returned to the OS:

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

If there are status conditions to report, the following output report is returned to the OS:

```
sid date time
M ctag COMPLD
"aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,locn,dirn,tmper,
\\"conddescr\\"
. . . . .
. . . . .
. . . . .
"aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,locn,dirn,tmper,
\\"conddescr\\"
;
```

Applicable output lines are ordered as follows:

1. By alarm severity level **MJ/Prompt**, followed by **MN/Deferred**, followed by **NA/No_Alarm**, followed by **NR/No_Report**.
2. For conditions with the same alarm severity, by the value of occurrence date (*ocr-dat*), and occurrence time (*ocrtm*), with the most recent listed first.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the equipment component or facility for which a status condition is being reported.

The optical line, and its constituent optical channel(s), DEMUXed at a single OA OLS End Terminal is not directly monitored because there is no OA directly preceding the ODU.

aidtype

Access identifier type.

OLINE

This reports a facility-related event on the optical line in WaveStar OLS.

ntfncnde

Notification code. This is the alarm level and has one of the following values:

MJ

Major (SONET)

MN

Minor (SONET)

NA

Not alarmed (SONET)

NR

Not reported (SONET)

Prompt

Prompt (SDH)

Deferred

Deferred (SDH)

No_Alarm

No Alarm (SDH)

No_Report

No Report (SDH)

condtype

Condition type. This is the type of the condition. There are several types of conditions. The valid values for the condition type of the **OLINE aid** type are:

APSDA

Automatic power shut-down active

LOS

Incoming optical line loss-of-signal

srveff

Service effect (or Condition effect). This indicates the effect of the reported condition on service. This parameter has one of the following values:

SA

Service-affecting alarm condition.

NSA

Non-service-affecting alarm or status condition.

ocrdat

Occurrence date. This indicates the date of the event being reported and has the format MM-DD (month-day).

ocrtm

Occurrence time. This indicates the time of the event being reported and has the format HH-MM-SS (hours-minutes-seconds).

locn

Location. The location field will always be empty for the network element **RTRV-COND** responses.

dirn

Direction. The direction field will always be empty for the network element **RTRV-COND** responses.

tmper

Time period. The time period field will always be null for the network element **RTRV-COND** responses.

conddescr

Condition description (or Alarm message). This is the text description [enclosed within a pair of escaped quotes (\")] of the reported condition.

The optical line alarms/conditions are correlated to the supervisory channel for optical line at the demux end of a single OA configuration.

EXAMPLE INPUT/OUTPUT

For an OLS Repeater:

```
rtrv-cond-oline:LT-OLS:all:123456;  
IP 123456  
LT-OLS 94-06-07 16:42:11  
M 123456 COMPLD  
"oline-1b,OLINE,MN,LOS,NSA,06-07,18-26-14,, :\"incoming optical  
line LOS\\",, :"  
;
```


ERROR RESPONSES

Refer to the non-message-specific error responses listed in the **RTRV-HDR ERROR RESPONSES** section.

When **RTRV-COND** messages with a valid *ctag* are recognized, the network element responds with **all** active status conditions.

If the network element receives a **RTRV-COND** command with a non-null invalid command modifier, the following error response is returned:

```
sid date time
M ctag DENY
ICNV
/* Input, Command Not Valid, invalid modifier */
;
```

If a **RTRV-COND** command is received with an invalid *aid* value, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier, AID is missing, wrong or
inconsistent with modifier */
;
```

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-COND-OTPS

RTRV-COND-OTPS: Retrieve Condition OT_Port_Signal

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 3.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-COND-OTPS:*tid:aid:ctag;*

DESCRIPTION

RTRV-COND-OTPS commands can be initiated by an OS or OS users to retrieve status conditions of facility-related events at the optical translator unit (OTU) and optical translator port module (OTPM) levels. This command retrieves all active alarms and status ("non-alarmed" and "non-reported") conditions pertaining to the addressed OT.

Any alarm condition reported by an autonomous REPT ALM OTPS message which is active; and any status condition reported by an autonomous REPT EVT message with *condeff=SC* (standing condition), which is active when a **RTRV-COND-OTPS** message is received, is included in the **RTRV-COND-OTPS** response message. Conditions provisioned with an alarm level of **NR** (not reported) are also included in the report even though they are not included in any REPT EVT autonomous messages.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)

/ (slash)

aid

Access identifier. This is the address of the entity for which the current conditions are requested. The aid all is allowed. When used, it will retrieve the OTU and OTPM port information.

Entity: All

Legal Values: (ALL)

Entity: Port (OTU)

Legal Values: (OTU)-(ALL), (OTU)-(1,2)-(ALL,1-32)-(1)

CenterLink CIT selection options: (OTU)-(ALL, 1, 2)-(ALL, 1-32)-(1)

Entity: Port (OT Port Module)

Legal Values: (OTPM)-(ALL),

(OTPM)-(1,2)-(ALL,1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31)-(ALL,1-4)-(1)

CenterLink CIT selection options: (OTPM)-(ALL, 1, 2)-(ALL, 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31)-(ALL, 1-4)-(1)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If there are no status conditions to report, the following message is returned to the OS:

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

If there are status conditions to report, the following output report is returned to the OS:

```
sid date time
M ctag COMPLD
"aid,aidtype:ntfncnde,condtype,srveff,ocrdat,ocrtm,locn,dirn,tmper,
\\"conddescr\\"
. . . . .
. . . . .
. . . . .
"aid,aidtype:ntfncnde,condtype,srveff,ocrdat,ocrtm,locn,dirn,tmper,
\\"conddescr\\"
;
```

Applicable output lines are ordered as follows:

1. By alarm severity level **MJ/Prompt**, followed by **MN/Deferred**, followed by **NA/No_Alarm**, followed by **NR/No_Report**.
2. For conditions with the same alarm severity, by the value of occurrence date (*ocr-dat*), and occurrence time (*ocr-tm*), with the most recent listed first.

The aid all is allowed. When used, it will retrieve the OTU and OTPM port information.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV - HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the equipment component or facility for which a status condition is being reported.

aidtype

Access identifier type.

OTPS

The optical translator port states encompass the AID types for OTU, QOTU, and OTPM packs.

ntfcnede

Notification code. This is the alarm level and has one of the following values:

MJ

Major (SONET)

MN

Minor (SONET)

NA

Not alarmed (SONET)

NR

Not reported (SONET)

Prompt

Prompt (SDH)

Deferred

Deferred (SDH)

No_Alarm

No Alarm (SDH)

No_Report

No Report (SDH)

condtype

Condition type. This is the type of the condition. There are several types of conditions. The valid values for the condition type of the **OC3/STM1**, **OC12/STM4**, and **OC48/STM16** *aid* type are:

FAIL

Incoming failure

INCASSOC

Inconsistent OTU or OTPM association

J0MISMATCH

J0 Section Trace Mismatch

srveff

Service effect (or condition effect). This indicates the effect of the reported condition on service. This parameter has one of the following values:

NSA

Non-service-affecting alarm or status condition.

ocrdat

Occurrence date. This indicates the date of the event being reported and has the format MM-DD (month-day).

ocrtm

Occurrence time. This indicates the time of the event being reported and has the format HH-MM-SS (hours-minutes-seconds).

locn

Location. The location field will always be empty for the network element **RTRV-COND** responses.

dirn

Direction. The direction field will always be empty for the network element **RTRV-COND** responses.

tmper

Time period. The time period field will always be null for the network element **RTRV-COND** responses.

conddescr

Condition description (or Alarm message). This is the text description [enclosed within a pair of escaped quotes (\")] of the reported condition.

EXAMPLE INPUT/OUTPUT

```
M 123456 COMPLD
rtrv-cond-otps:LT-FT-2000:all:123456;
IP 123456
  LT-FT-2000 96-08-15 16:42:11
  "otpm-1-3-3-1,OTPS:MN,FAIL,NSA,08-11,03-50-32,,:\\"incoming OC3
  failure\\"";
```

ERROR RESPONSES

Refer to the non-message-specific error responses listed in the **RTRV-HDR ERROR RESPONSES** section.

When **RTRV-COND** messages with a valid *ctag* are recognized, the network element responds with **all** active status conditions.

If the network element receives a **RTRV-COND** command with a non-null invalid command modifier, the following error response is returned:

```
sid date time
M ctag DENY
  ICNV
  /* Input, Command Not Valid, invalid modifier */;
;
```

If a **RTRV-COND** command is received with an invalid *aid* value, the following error response is returned:

```
sid date time
M ctag DENY
  IIAC
  /* Input, Invalid Access Identifier, AID is missing, wrong or
  inconsistent with modifier */;
;
```

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-COND-SUPR

RTRV-COND-SUPR: Retrieve Condition Supervisory

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-COND-SUPR:*tid:aid:ctag::,,;*

DESCRIPTION

RTRV-COND-SUPR commands can be initiated by an OS or OS users to retrieve status conditions of facility-related events on the supervisory channel in the optical line. This command retrieves all active alarms and status ("non-alarmed" and "non-reported") conditions pertaining to the addressed network element, reported one line per condition, similar to the autonomous messages used to report alarm and non-alarmed conditions when they occur.

Any alarm condition reported by an autonomous REPT ALM SUPR or REPT ALM ENV message which is active; and any status condition reported by an autonomous REPT EVT message with *condeff*=**SC** (standing condition), which is active when a **RTRV-COND-SUPR** message is received, is included in the **RTRV-COND-SUPR** response message. Conditions provisioned with an alarm level of **NR** (not reported) are also included in the report even though they are not included in any REPT EVT autonomous messages.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)
- (dash)
_ (underscore)
/ (slash)

aid

Access identifier. This is the address of the entity for which the current conditions are requested.

Entity: Supervisory Channel [End terminals and Repeaters]

Legal Values: (SUPR)-(ALL, 1A, 1B, 2A, 2B)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If there are no status conditions to report, the following message is returned to the OS:

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

If there are status conditions to report, the following output report is returned to the OS:

```
sid date time
M ctag COMPLD
"aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,locn,dirn,tmper,
\\"conddescr\\"
. . . . .
. . . . .
. . . . .
"aid,aidtype:ntfcncde,condtype,srveff,ocrdat,ocrtm,locn,dirn,tmper,
\\"conddescr\\"
;
```

Applicable output lines are ordered as follows:

1. By alarm severity level **MJ/Prompt**, followed by **MN/Deferred**, followed by **NA/No_Alarm**, followed by **NR/No_Report**.
2. For conditions with the same alarm severity, by the value of occurrence date (*ocr-dat*), and occurrence time (*ocrtm*), with the most recent listed first.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the equipment component or facility for which a status condition is being reported.

aidtype

Access identifier type.

SUPR

This reports a facility-related event on the supervisory channel in the optical line in WaveStar OLS.

ntfncnde

Notification code. This is the alarm level and has one of the following values:

MJ

Major (SONET)

MN

Minor (SONET)

NA

Not alarmed (SONET)

NR

Not reported (SONET)

Prompt

Prompt (SDH)

Deferred

Deferred (SDH)

No_Alarm

No Alarm (SDH)

No_Report

No Report (SDH)

condtype

Condition type. This is the type of the condition. There are several types of conditions. The valid values for the condition type of the **SUPR aid** type are:

APSB

DCC APS data error

APSDA

Automatic power shut-down active

FAIL

Incoming supervisory channel fail

T - x

Threshold crossing alert for the indicated monitored parameter (x)

T - BERL

Incoming supervisory channel SD/SF

srveff

Service effect (or Condition effect). This indicates the effect of the reported condition on service. This parameter has one of the following values:

SA

Service-affecting alarm condition.

NSA

Non-service-affecting alarm or status condition.

ocrdat

Occurrence date. This indicates the date of the event being reported and has the format MM-DD (month-day).

ocrtm

Occurrence time. This indicates the time of the event being reported and has the format HH-MM-SS (hours-minutes-seconds).

locn

Location. The location field will always be empty for the network element **RTRV - COND** responses.

dirn

Direction. The direction field will always be empty for the network element **RTRV - COND** responses.

tmper

Time period. The time period field will always be null for the network element **RTRV - COND** responses.

conddescr

Condition description (or Alarm message). This is the text description [enclosed within a pair of escaped quotes (\")] of the reported condition.

EXAMPLE INPUT/OUTPUT

For an OLS Repeater:

```
rtrv-cond-supr:LT-OLS:all:123456;  
IP 123456  
LT-OLS 94-06-07 16:42:11  
M 123456 COMPLD  
"supr-1a,SUPR,MJ,LOS,SA,06-07,18-26-14,,:\\"incoming supr chnl  
LOS\\",,:"  
;
```

ERROR RESPONSES

Refer to the non-message-specific error responses listed in the **RTRV-HDR ERROR RESPONSES** section.

When **RTRV-COND** messages with a valid *ctag* are recognized, the network element responds with **all** active status conditions.

If the network element receives a **RTRV-COND** command with a non-null invalid command modifier, the following error response is returned:

```
sid date time  
M ctag DENY  
ICNV  
/* Input, Command Not Valid, invalid modifier */  
;
```

If a **RTRV-COND** command is received with an invalid *aid* value, the following error response is returned:

```
sid date time  
M ctag DENY  
IIAC  
/* Input, Invalid Access Identifier, AID is missing, wrong or  
inconsistent with modifier */  
;
```

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-DAT

RTRV-DAT: Retrieve Date

The privilege level for this command is REPORTS.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 2.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-DAT:*tid::ctag*;

DESCRIPTION

The **RTRV-DAT** command can be initiated by all users to retrieve the date and daylight savings time provisioning information.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters

comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

When reporting the provisioning information report, the following output message is returned:

```
sid date time
M ctag COMPLD
":OPDDB:ONDDDB"
;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV - HDR**. Additional parameters that specifically apply to this command response are defined as follows:

OPDDB

The *OPDDB* is a position defined block to report various attributes. The format will be *value1, value2*. All applicable attributes to be reported are as follows:

date

Date. **date** reports the current day in YYYY-MM-DD format. This date format shall apply when the NE is provisioned for four-digit years.

time

Time. **time** reports the current time in HH-MM-SS format.

ONDDDB

The *ONDDDB* is a name defined block to report various attributes. The format will be *keyword1=value1, keyword2=value2*. All applicable attributes to be reported are as follows:

tz

Standard Time Zone. **tz** reports the time zone designation during standard time. For example, EST.

strtdst

Start Daylight Savings Time. **strtdst** is the date on which the one hour increment in the system time is to occur.

stopdst

Stop Daylight Savings Time. **stopdst** is the date on which one hour decrement in system time is to occur.

dstz

Daylight Savings Time Zone. **dstz** reports the time zone designation during daylight savings time. For example, EDT.

EXAMPLE OUTPUT

The following example shows a command **RTRV-DAT** for a network element.

```
rtrv-dat:LT-PF-2000::CTAG;  
IP 123456  
<  
  LT-PF-2000 93-10-26 16:42:11  
M CTAG COMPLD  
  ":93-10-26,16-42-11:TZ=EST,STRTDST=04-29,STOPDST=10-27,DSTZ=EDT"  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

RELATED TL1 COMMANDS/MESSAGES

ED-DAT

RTRV-EQPT

RTRV-EQPT: Retrieve Equipment

The privilege level for this command is REPORTS.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-EQPT:*tid:aid:ctag;*

DESCRIPTION

The **RTRV-EQPT** command is issued to the network element to retrieve the circuit pack and version number information for one or more slots.

When the network element receives a **RTRV-EQPT** command from the user, the network element will display the circuit pack and version number information for the requested slot(s).

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. *aid* determines slot address for this report.

Entity: All
Legal Values: (ALL)
Entity: Slot (TOHCTL)
Legal Values: (TOHCTL)
Entity: Slot (SYSCTL)
Legal Values: (SYSCTL)
Entity: Slot (SYSMEM)
Legal Values: (SYSMEM)
Entity: Slot (OA)
Legal Values: (OA)-(ALL, 1A-2B)
Entity: Slot (OU)
Legal Values: (OU)-(ALL, 1A-2B)
Entity: Slot (TLM) [End terminals and Repeaters]
Legal Values: (TLM)-(ALL, 1A, 1B, 2A, 2B)
Entity: Slot (OTU)
Legal Values: (OTU)-(ALL), (OTU)-(1,2)-(ALL,1-32)
CenterLink CIT selection options: (OTU)-(ALL, 1, 2)-(ALL, 1-32)
Entity: Slot (OT Port Module)
Legal Values: (OTPM)-(ALL),
(OTPM)-(1,2)-(ALL,1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31)-(ALL,1-4)
CenterLink CIT selection options: (OTPM)-(ALL, 1, 2)-(ALL, 1, 3, 5, 7, 9, 11, 13, 15,
17, 19, 21, 23, 25, 27, 29, 31)-(ALL, 1-4)
Entity: Slot (OTCTL)
Legal Values: (OTCTL)-(ALL, 1, 2)
Entity: Slot (OUPSR)
Legal Values: (OUPSR)-(ALL), (OUPSR)-(1,2)-(ALL,1-32)
CenterLink CIT selection options: (OUPSR)-(ALL, 1, 2)-(ALL, 1-32)
Entity: Slot (LI)
Legal Values:(OA)-(ALL, 1A-2B)
CenterLink CIT selection options: (OA)-(ALL, 1A, 1B, 2A, 2B)
Entity: Slot (OMON)
Legal Values: (OA)-(ALL, 2A)
Entity: Slot (2DM25)
Legal Values: (2DM25)-(ALL), (2DM25)-(1,2)-(ALL,1-32)
Entity: Slot (SFP)
Legal Values: (SFP)-(ALL), (SFP)-(1,2)-(ALL), (SFP)-(1,2)-(1-32)-(ALL,1-8)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

In response to a valid **RTRV-EQPT** command, the following output report is returned to the user.

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

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

aid

Access identifier. This is the address of the slot and shelf for which equipage is being reported.

spec_block

Specific block. This parameter field is used for returning the current equipage information for the slot or quad. 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 parameters are listed and explained in the following paragraphs.

If a parameter does not contain any information, the parameter and its field indicator (a comma) will not appear in the *spec_block*.

It should be noted, however, that the network elements will return the parameter within the *spec_block* in the following order:

TYPE, APP, SSN, CLEI, ECI, SLN, and VRSN

TYPE

Circuit pack type. This is the mnemonic name that identifies the general type function provided by the circuit pack. For example, optical line interface units are all named OU.

APP

Apparatus code. This parameter uniquely identifies the specific function provided by the circuit pack. Circuit packs with different **APP** are not interchangeable, even if they have the same name.

SSN

Series number. This parameter is used to indicate interchangeability among the circuit packs with the same circuit pack type and apparatus code, but different manufacturing versions. In general, a circuit pack can be replaced by another pack that has the same apparatus code and the same or later series number.

Note that the series number normally includes a colon (:). Since the colon is used as a TL1 field separator, a dash (-) is used instead.

CLEI

Common Language Equipment Identifier¹. This parameter is a 10-character code identifying each circuit pack. Absence of demux end OA in the pre-R8 single OA configuration causes no data available condition for the OMU. Also, the OA 1A slot is not equipped in the Pre-R8 Single OA configuration. Therefore, SYSCTL nor any other device will be able to read the **CLEI**. Circuit pack information is not readable for the **CLEI**.

ECI

Equipment catalog item. This parameter is a 6-character code identifying each circuit pack. This code corresponds to the bar-code label on the face-plate of the circuit pack, and is uniquely equivalent to **CLEI**.

SLN

Serial number. This parameter is a 12-character code uniquely identifying each circuit pack and indicating the date and place of manufacture.

VRSN

Program version. This parameter is the version of the software currently stored in the circuit pack. Prior the Release 8.1, the format of **VRSN** is OLS_RELEASE_x.y.z-OLS. Beginning with Release 8.1, the format of **VRSN** is RELEASE_x.y.z-EON.

WAVLNTH

The wavelength of the low-speed plug-in transceiver modules (SFP) on the MUX OTUs. The valid choices are: 850nm and 1310nm.

MODE

The mode of the low-speed plug-in transceiver modules (SFP) on the MUX OTUs. The valid choices are: MM (Multi-mode) and SM (Single Mode)

The network element will include in its response equipage information on only equipped slots.

The network element will successfully complete the **RTRV-EQPT** command and return a COMPLD even if the *aid* in the command points to slot(s) that is/are not equipped.

The slot numbering for the OTU, QOTU, OTPM, and OUPSRs is consecutive. Each OTU slot is reported in ascending order from 1-32. If an OTU slot contains the first slot of a QOTU the QOTU is reported, followed by each port module in ascending order from 1-4, followed by the extension (EXT) slot.

The initial QOTU slot and its extension (EXT) slot will display the same information in the same order. Only equipped OTPM slots will be displayed.

If the circuit pack in an equipped slot is removed, declared failed, or replaced with a pack of different type, the **TYPE** of the provisioned (removed/failed) circuit pack is retained and reported in the normal fashion except in some specific cases where it is reported as specified in other requirements in this document. The **CLEI** value is lost and

1. COMMON LANGUAGE is a registered trademark and CLEI is a trademark of Telcordia Technologies, Inc.

is not reported. The **CLEI** is reported in some specific cases where error conditions are reported by the NE as specified in other requirements in this document.

When the *aid* of the slot in the input command is SYSCTL or SYSMEM, the network element will return the equipage information for both SYSCTL and SYSMEM *aids*.

The program version information is reported whenever the report includes information on a circuit pack on which a downloadable program is stored.

The order and syntax of the information for the *info* field is given as:
cccccc,aaaaaaaa,ssss,nnnnnnnnnnnn

where,

cccccc :

is the Circuit pack type of the installed circuit pack if available, otherwise reported as a dash.

aaaaaaaa :

is the Apparatus Code of the installed circuit pack if available, otherwise reported as a dash.

ssss :

is the Series Number of the installed circuit pack if available, otherwise reported as a dash.

nnnnnnnnnnnn :

is the Serial Number of the installed circuit pack if available, otherwise reported as a dash.

Note: the serial number for circuit packs are 12 digits long, and for the plug-in transceiver modules on the MUX OTUs are 16 digits long.

wwwww

is the Wavelength of the plug-in transceiver module if available, otherwise not reported.

mm

is the Mode of the plug-in transceiver module if available, otherwise not reported.

If the circuit pack in an equipped slot is replaced with a pack of different but known type, the **CLEI** field for that slot or quad will be set to *installed_CP_mismatch_(info)*, where *info* field contains any information available on the installed CP in the order of CP type, apparatus code, series number and serial number respectively separated by commas. If any one of these pieces of information is unavailable, a dash is reported in its place.

If the circuit pack in an equipped slot is replaced with a pack of different and unknown type, the **TYPE** field is set to the expected CP type and the **CLEI** field for that slot or quad is set to *installed_CP_unknown_(info)*, where *info* field contains any information available on the installed CP in the order of CP type, apparatus code, series number and serial number respectively separated by commas. If any one of these pieces of information is unavailable, nothing is reported.

If an unequipped slot is populated with a pack of unknown type, the **TYPE** field will not appear and the **CLEI** field for that slot or quad is set to `installed_CP_unknown_(info)`, where *info* field contains any information available on the installed CP in the order of CP type, apparatus code, series number and serial number respectively separated by commas. If any one of these pieces of information is unavailable a dash is reported in its place.

The allowed **TYPE** values for the OT are: OTU for an OTU pack (this includes the 2.5G OTU pack, GbE pack and 10G OTU pack); QOTU and EXT for a Quad OTU pack (this includes the Quad Low Speed carrier pack for OC3/OC12/LSBB/ELSBB, the Quad 2.5G carrier pack, and the Quad UBB carrier pack); OTPM for a Quad OT Port Module (this includes the Quad OC3 OT Port Module, the Quad OC12 OT Port Module, the Quad LSBB OT Port Module, the Quad ELSBB OT Port Module, the Quad 2.5G OT Port Module, and the Quad UBB OT Port Module); OUPSR for an OUPSR pack; 2DM25 for an 2DM25 pack; SFP for the SFP pluggable modules; and OTCTL for an OTCTL pack.

If the CP in an equipped slot is removed, the **CLEI** is set to `CP_removed_complete_information_not_available`.

NOTE: This requirement does not apply to OMU and ODU circuit packs.

If the CP in an equipped slot is failed, and when the alternative pack is not identified by software, the **CLEI** is set to `installed_CP_failed_alternative_CP_information_not_available`.

If the CP in the slot specified by the *aid* in the user input command is declared failed and if the software is able to identify a single alternative CP to be replaced, then the **CLEI** will be set to `CP_failed_alternative_CP_(info)`, where *info* field contains any information available on the alternative CP in the order of slot address, CP type, and apparatus code respectively separated by commas. If any one of these three pieces on information is unavailable a dash is reported in its place.

For SFPs, the CLEI and ECI fields are removed.

EXAMPLE INPUT/OUTPUT

The following example requests the equipage information in the SYSCTL slot.

```
rtrv-eqpt:LT-OLS:sysctl:123456;
IP 123456
<
  LT-OLS 93-10-26 16:42:11
M 123456 COMPLD
  "sysctl: :TYPE=SYSCTL, APP=LAA23, SSN=12345, CLEI=1234567890, ECI=123456,
  SLN=123456789012, VRSN=RELEASE_8.1.0-EON"
  "sysmem: :TYPE=SYSMEM, APP=LAA25, SSN=12345, CLEI=1234567890, ECI=123456,
  SLN=123456789012, VRSN=RELEASE_8.1.0-EON"
;
```


The following example requests telemetry information on a repeater shelf.

```
rtrv-eqpt:LT-OLS:t lm-all:123456;  
IP 123456  
<  
LT-OLS 93-10-26 16:42:11  
M 123456 COMPLD  
  t lm-1a::TYPE=TLM,APP=LDA1,SSN=S1-3,CLEI=SNC2R00BAC,ECI=216539,  
    SLN=96MV09070837  
  t lm-1b::TYPE=TLM,APP=LDA1,SSN=S1-3,CLEI=SNC2R00BAC,ECI=216539,  
    SLN=96MV09070837  
;
```

The following example requests the equipage information for the OA slots.

```
rtrv-eqpt:LT-OLS:OA-ALL:123456;  
  
IP 123456  
<  
  
  LT-OLS 01-10-26 16:42:11  
M 123456 COMPLD  
  "oa-1a::TYPE=OA2,APP=LEA207,SSN=12345,CLEI=1234567890,ECI=123456,  
    SLN=123456789012"  
  "oa-1b::TYPE=LIRCV,APP=LEA209,SSN=12345,CLEI=1234567890,ECI=123456,  
    SLN=123456789012"  
  "oa-2a::TYPE=OMON,APP=LEA208,SSN=12345,CLEI=1234567890,ECI=123456,  
    SLN=123456789012"  
;
```

The following example requests equipage for an OT. The last two shelves are not

equipped.

```

rtrv-eqpt:breckenridge:otu-2-all:taub;
IP taub
<
BRECKENRIDGE 02-02-10 05:14:25
M taub COMPLD
"otu-2-1::TYPE=OTU,APP=41B,SSN=S1-1,CLEI=SNCLBT0AAA,ECI=214183,
SLN=95MV12095517"
"otu-2-2::TYPE=OTU,APP=41B,SSN=S1-1,CLEI=SNCLBT0AAA,ECI=214183,
SLN=95MV12095518"
"otu-2-3::TYPE=Q0TU,APP=41S,SSN=S1-1,CLEI=SNCLBT0AAB,ECI=214183,
SLN=95MV12095519"
"otpm-2-3-1::TYPE=OTPM,APP=42A2,SSN=S1-1,CLEI=SNCLBT0AAC,
ECI=214183,SLN=95MV12095520"
"otpm-2-3-3::TYPE=OTPM,APP=43A4,SSN=S1-1,CLEI=SNCLBT0AAE,
ECI=214183,SLN=95MV12095522"
"otpm-2-3-4::TYPE=OTPM,APP=43A5,SSN=S1-1,CLEI=SNCLBT0AAF,
ECI=214183,SLN=95MV12095523"
"otu-2-4::TYPE=EXT"
"otu-2-5::TYPE=Q0TU,APP=41T,SSN=S1-1,CLEI=SNCLBT0AAB,ECI=214183,
SLN=01MV12095524"
"otpm-2-5-1::TYPE=OTPM,APP=46A2,SSN=S1-1,CLEI=SNCLBT0AAC,
ECI=214183,SLN=01MV12095525"
"otpm-2-5-2::TYPE=OTPM,APP=46A3,SSN=S1-1,CLEI=SNCLBT0AAD,
ECI=214183,SLN=01MV12095526"
"otpm-2-5-3::TYPE=OTPM,APP=46B,SSN=S1-1,CLEI=SNCLBT0AAE,
ECI=214183,SLN=01MV12095527"
"otu-2-6::TYPE=EXT"
"otu-2-7::TYPE=Q0TU,APP=41U,SSN=S1-1,CLEI=WM1CGH2BAA,ECI=296114,
SLN=02MV04095326"
"otpm-2-7-1::TYPE=OTPM,APP=47A6,SSN=S1-1,CLEI=WM3WPD0BAA,
ECI=292223,SLN=02MV02133362"
"otpm-2-7-2::TYPE=OTPM,APP=47A12,SSN=S1-1,CLEI=WMW9H0RAAA,
ECI=292250,SLN=02MV03107526"
"otpm-2-7-3::TYPE=OTPM,APP=47A8,SSN=S1-1,CLEI=WM3WR0JBAA,
ECI=292223,SLN=02MV04035222"
"otpm-2-7-4::TYPE=OTPM,APP=47B,SSN=S1-1,CLEI=WMW3F70AAA,
ECI=292791,SLN=02MV02094726"
"otu-2-8::TYPE=EXT"
"2dm25-2-9::TYPE=2DM25,APP=41M1A,SSN=S1-1,CLEI=SNCLBT0AAA,ECI=214183,
SLN=02MV12095517"
"sfp-2-9-1::TYPE=SFP,APP=AGILENT,SSN=HFBR-5701L,
SLN=0123456789ABCDEF,WAVLNTH=850nm,MODE=MM"
"sfp-2-9-2::TYPE=SFP,APP=AGILENT,SSN=HFBR-5701L,
SLN=0123456789ABCDEF,WAVLNTH=1310nm,MODE=SM"
"otu-2-10::TYPE=OTU,APP=41H10A,SSN=S1-1,CLEI=SNCLBT0AAA,ECI=214183,
SLN=02MV12095517"
"oupsr-2-11::TYPE=OUPSR,APP=LEP3,SSN=S1-1,CLEI=WMW3F70AAA,ECI=296168,
SLN=02MV04095398"
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The requirements listed there also apply to the **RTRV-EQPT** command.

If the network element receives a **RTRV-EQPT** command without an *aid* or with an invalid *aid* the following error response is returned to the user:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier */
;
```

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-FECOM

RTRV-FECOM: Retrieve Far_End_Communications

The privilege level for this command is REPORTS.

The OSI category for this command is SECURITY.

This command is available in OLS Release 2.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-FECOM:*tid::ctag;*

DESCRIPTION

The **RTRV-FECOM** command can be initiated by general users to retrieve the provisioned state of network element's section data communication channel (DCC) as set by the **ENT-FECOM** command.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters

comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the **RTRV - FECOM** request, the following far-end communication output report is given (details on parameter values are as follows):

```
sid date time
M ctag COMPLD
"::rar,roa"
;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV - HDR**. Additional parameters that specifically apply to this command response are defined as follows:

rar

Remote activity reporting. This parameter indicates whether the remote activity reporting is enabled or disabled.

roa

Remote office alarms. This parameter shows whether the remote office alarms are enabled or disabled.

EXAMPLE INPUT/OUTPUT

The following example shows a **RTRV - FECOM** command output.

```
RTRV - FECOM:LT - PF - 2000 : :123456;
IP 123456
<
LT - PF - 2000 9 - 10 - 26 16 : 42 : 11
M 123456 COMPLD
"::RAR=enabled,ROA=enabled"
;
```

ERROR RESPONSES

Refer to the **RTRV - HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

RELATED TL1 COMMANDS/MESSAGES

ENT - FECOM

RTRV-HDR

RTRV-HDR: Retrieve Header

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-HDR:*tid::ctag;*

DESCRIPTION

RTRV-HDR commands can be initiated to request that the network element return a normal completion response.



NOTE:

This command may be used as a "keep-alive" signal.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

Valid values for *ctag* include strings of up to 6 characters comprised of identifiers (alphanumerics beginning with a letter) or decimal numerals (a string of decimal digits with an optional non-trailing ".").

All position defined parameters (for example, *tid* and *ctag*) may be specified by a name=value format, or, as a value only. Therefore,

RTRV-HDR:LT-PF-2000::123; and

RTRV-HDR:TID=LT-PF-2000::CTAG=123; and

RTRV-HDR:TID=LT-PF-2000::123; and

RTRV-HDR:LT-PF-2000::CTAG=123; are equivalent.

OUTPUT FORMAT

After receiving this command, the following normal completion response is returned:

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

OUTPUT PARAMETERS

sid

Source identifier (or Target identifier, *tid*). This is the system name.

date

Date output message is generated. This has the format YY-MM-DD (year-month-day) for a SONET environment and DD-MM-YY (day-month-year) for an SDH environment. Date output message is generated. This has the format YYYY-MM-DD (year-month-day). The date has this format when the NE has been provisioned for four-digit years.

time

Time output message is generated. This has the format HH:MM:SS (hours:minutes:seconds).

M

This indicates the output message is generated in response to a manual command.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters

comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

COMPLD

This indicates that the command has been completed.

EXAMPLE INPUT/OUTPUT

```
RTRV-HDR:LT-PF-2000::123456;  
LT-PF-2000 94-10-26 16:42:11  
M 123456 COMPLD  
;
```

```
RTRV-HDR:LT-OLS::123456;  
LT-OLS 94-10-26 16:42:11  
M 123456 COMPLD  
;
```

ERROR RESPONSES

The following error conditions are not unique to the **RTRV-HDR** command but may apply to any TL1 command received by the network element. When the TL1 security feature is enabled, the GNE only responds for another addressed network element if the user is logged into the GNE; however, a user does not have to be logged into the GNE to get an error response from a remote network element.

If any TL1 command outputs "?" in an OUTPUT PARAMETER field that is not defined to output a "?" it means the retrieved data value is invalid. Use a SET command with known good values to clear the data value.

If network element receives a command, but cannot parse the command for at least 3 colons (:) before the TL1 end-of-message semicolon (;), instead of returning an in-progress (IP) acknowledgment, the following error response is returned, using the sid value of the Gateway Network Element:

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

If network element receives a command, but can parse the command for more than the maximum number of colons (:) allowed for any supported TL1 command before the TL1 end-of-message semicolon (;), instead of returning an in-progress (IP)

acknowledgment, the following error response is returned, using the *sid* value of the addressed network element:

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

If a GNE receives a command for which a *tid* value (non-null) is required but no *tid* value is included, instead of returning an in-progress (IP) acknowledgment, the following error response is returned, using the *sid* value of the GNE:

```
sid date time
M ctag DENY
ICNV
/* Input, Command Not Valid, TID must be specified */
;
```

If a GNE receives a command with a syntactically incorrect *tid* value, instead of returning an in-progress (IP) acknowledgment, the following error response is returned, using the *sid* value of the GNE:

```
sid date time
M ctag DENY
IITA
/* Invalid TID, unallowed characters or too long */
;
```

If a GNE receives a command (other than **RTRV-HDR**) with a valid *tid* value but the addressed remote network element is temporarily unable to communicate with the GNE due to exhaustion of allocated resources at either the GNE or remote network element, instead of returning an in-progress (IP) acknowledgment, the following error response is returned, using the *sid* value of the addressed network element:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

If the network element receives a command but cannot recognize a valid *ctag* value, instead of returning an in-progress (IP) acknowledgment, the following error response is returned, using the *sid* value of the addressed network element:

```
sid date time
M 0 DENY
IICT
/* Input, Invalid Correlation Tag (CTAG) */
;
```

If a GNE receives a command with an unknown *tid* value (a *tid* value that does not exist in the GNE's subnetwork), instead of returning an in-progress (IP) acknowledgment, the following error response is returned, using the *sid* value of the GNE:

```
sid date time
M ctag DENY
IITA
/* Unknown TID */
;
```

If a GNE receives a command with a valid *tid* value but the addressed remote network element is temporarily unable to communicate with the GNE, instead of returning an in-progress (IP) acknowledgment, the following error response is returned, using the *sid* value of the addressed remote network element:

```
sid date time
M ctag DENY
IITA
/* Communication Failure */
;
```

If a network element receives a TL1 command other than those supported, the following error response is returned, using the *sid* value of the addressed network element:

```
sid date time
M ctag DENY
ICNV
/* Input, Command Not Valid, Network Element does not support
Command = xxxxxxxxxxxxxxxxx */
;
```

where xxxxxxxxxxxxxxxxx is the first 16 characters of the command received (up to, but excluding, the first colon [:], semicolon [;], or null [end of message indicator]).

When the TL1 security feature is enabled, if the network element receives a command requiring a privilege higher than that of the user issuing the command, the following error response is returned, using the *sid* value of the addressed network element:

```
sid date time
M ctag DENY
PICC
/* Privilege, Illegal Command Code */
;
```

If the network element receives any TL1 command (except **RTRV-PM**) for which it is unable to complete the request due to internal system processing problems, the following error response is returned, using the *sid* value of the addressed network element:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

If a command is received with a *modifier* which is not one of the allowed modifiers for that command, the following error response is returned, using the *sid* value of the addressed network element:

```
sid date time
M ctag DENY
ICNV
/* Input, Command Not Valid, invalid modifier */
;
```

If the network element receives a command with any extra (beyond the command-specific input format specification) null or non-null command parameter blocks (:), parameters (,), or termination characters (;), or if a command with a name-defined parameter block includes an invalid parameter name label, the following error response is returned:

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



NOTE:

The network element does accept and ignore some extra non-null entries in some **RTRV** commands only.

If the network element receives a command with more than 256 characters, the following error response is returned:

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

If the network element strips out white space characters from all input commands before beginning to parse that command, it is acceptable if it applies the limit of 256 characters in a command after stripping out the white space characters.

The intent of this requirement is to limit the number of bytes that a TL1-GNE forwards over the DCC or IAO-LAN to a remote network element. The limit of 256 applies to the characters sent in this situation, so if the TL1-GNE strips out white space characters before forwarding, the actual number of accepted input characters may be greater than 256.

If the X.25 interface of the TL1-GNE is provisioned for a packet size of 128 bytes, this requirement implies that the TL1-GNE will process the more-bit for input commands exceeding 128 characters including the white space characters.

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-IP-MAP

RTRV-IP-MAP: Retrieve access control map (also called application context ID map).

The privilege level for this command is REPORTS.

The OSI category for this command is SECURITY.

This command is available starting in OLS Release 8.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-IP-MAP:*tid::ctag;*

DESCRIPTION



NOTE:

While this command is allowed at all network elements in the subnetwork, only the map at the enabled TL1 TCP/IP-OSI GNE node is valid. The maps at disabled TL1 TCP/IP-OSI GNE nodes can be modified, but they have no effect. The **ENT-SYS** command **IPGNE** parameter enables/disables the GNE functionality.

RTRV-IP-MAP command can be initiated by a user to retrieve the entries from the access control map (also called application context ID map) created by the **ENT-IP-MAP** command. This map provides a list of OSs which specifies the application context identifier to be used for each OS. This list of OSs doubles as an access control list. If the OS does not appear in the list the incoming TCP connection is refused. The list contains the IP addresses of the OSs, host names of the OSs (optional field) and the application context identifier to be used for each OS.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)
& (ampersand)
* (star)
- (dash)
_ (underscore)
/ (slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with this command, the following output message is returned:

```
sid date time
M ctag COMPLD
  "IP_AD=x,HOST=x,ACID=x"
  ...
  "IP_AD=x,HOST=x,ACID=x"
;
```

The entry with the **IP_AD** as "0.0.0.0" will not be reported in the output.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

IP_AD

IP Address. This is the 32-bit IPv4 address of the OS. It is made up of four dot-separated decimal numbers ranging from 0 to 255.

HOST

Host name. This is the host name of the OS. The host name consists of 1 to 15 alphanumeric characters. Note that the host name does not include the domain name.

This parameter is optional. If host name is not entered from **ENT-IP-MAP** command, the retrieved value will be set to the **NULL**.

ACID

OS application context identifier. This is a value of up to four alphanumeric characters, which is the application context ID to be assigned to the particular IP address. *ACID* has one of the following values:

MT, MA, CMDR, OTHR, RST.

MT means maintenance, **MA** means memory-administration, **CMDR** means command-response-only, **OTHR** means other, and **RST** means restoration.

The default *ACID* value is **MT**.

EXAMPLE INPUT/OUTPUT

The following example shows the response to a query:

```
rtrv-ip-map:LT-PF-2000::123456;  
  
IP 123456  
<  
  
LT-PF-2000 01-10-26 16:42:11  
M 123456 COMPLD  
"IP_AD=198.78.46.8,HOST=OS1,ACID=MT"  
"IP_AD=198.82.58.10,HOST=OS2,ACID=CMDR"  
"IP_AD=198.84.65.20,HOST=NULL,ACID=MT"  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (not supported by the network element, delimited by ","), or termination characters (;), the following error response is returned:

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

RELATED TL1 COMMANDS/MESSAGES

ENT-IP-MAP

DLT-IP-MAP

ENT-SYS

RTRV-SYS

RTRV-LOG

RTRV-LOG: Retrieve Log

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 2.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-LOG:*tid::ctag;*

DESCRIPTION

The **RTRV-LOG** command can be initiated by users to generate a history log for the NE. This report contains up to 500 of the most recent events. Events include the start and end of alarm and status conditions, and all craft/OS input activities that affect or would affect the state of the network element, successfully completed or denied.

The history log displays the events in last in-first out order, and each event is time stamped.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the command is accepted, the following output message is returned:

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

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**. Additional parameters that specifically apply to this command response are defined as follows:

aid

The *aid* is a source identifier. For user initiated commands the value is **UID** and for all other conditions the value is the source address of the event.

opdpb

The *OPDPD* is a position defined parameter block to report various attributes. The format will be *value1, value2*. All applicable attributes are reported.

The actual attributes reported are:

date

This is the date on which the event occurred. The format used is MM-DD.

Normally the events are displayed in order of date/time-stamp with the most recent event being displayed first and the oldest being displayed last. If the system clock is reset, however the date and time stamps may be displayed in monotonically decreasing order.

time

This is the time at which the event occurred. The format used is HH-MM-SS.

almlvl

This is the alarm level of the system immediately after the event. It takes one of the following values:

- *CR*
- *MJ*
- *MN*
- *ABN*
- *NE_ACTY*
- *FE_ACTY*
- *(if_no_alarm_conditions_exist_in_the_system)*

The alarm level reported is not necessarily related to the event or condition described in the report entry. The alarm level reported is the highest alarm level active in the system when the condition is reported. The intention of the information in the history log is to give a system level record of events.

However, the alarm level reported for each condition listed in the Retrieve-Alarm output report is the alarm level associated with that particular condition. The intention of the information in the Retrieve-Alarm output report is to report the severity of EACH active condition so that intelligent priority calls can be made in those circumstances when multiple conditions are active.

evt_desc

This is a brief event description. The description must be enclosed using delimiters. The delimiter to be used is \" (that is, backslash followed by double-quotes). Alarm condition descriptions can be found in the REPT ALM message page.

EXAMPLE OUTPUT

The following example shows a **RTRV-LOG** command for a network element.

```
rtrv-log:LT-PF-2000::123456;
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
  "tl1-x25:01-01,00-06-20,MJ,\"Login:LT01\""
  "cit-dce:01-01,00-05-40,MJ,\"Login:LT01\""
  "oa-1b:01-01,00-02-48,MJ,\"OA failure-cleared\""
  "t1m-1a:01-01,00-02-38,MJ,\"optical line ID mismatch\""
  "system:01-01,00-02-31,MJ,\"reset in progress-cleared\""
  "system:01-01,00-02-29,MJ,\"OLS system startup in progress\""
  "dccsupr-1b:01-01,00-02-25,MJ,\"inc. (from Supr) DCC failure\""
  "oline-1b:01-01,00-02-22,MJ,\"incoming optical line LOS\""
  "oline-2a:01-01,00-02-22,MJ,\"incoming optical line LOS\""
  "oline-2b:01-01,00-02-22,MJ,\"incoming optical line LOS\""
  "oa-1b:01-01,00-02-21,MJ,\"OA failure\""
  "system:01-01,00-00-08,MJ,\"reset in progress\""
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If a **RTRV-LOG** command is received when any **TEST-AUTO** command is being executed, then the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-MAP-NETWORK

RTRV-MAP-NETWORK: Retrieve Map Network

The privilege level for this command is REPORTS.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-MAP-NETWORK:*tid::ctag[:[:]]*;

DESCRIPTION

The **RTRV-MAP-NETWORK** command is issued to the network element to retrieve the list of all network elements in the local SONET subnetwork, including the communication status, capabilities, the product and NE types and alarm group of each network element reachable via the DCN (SONET DCC on either the optical interfaces or IAO-LAN) from the local network element (that is, the network element to which this command is issued).

When the network element receives a **RTRV-MAP-NETWORK** command from the user, the network element will return a report containing names (target identifiers, or TIDs) of every network element in the local SONET subnetwork (set of all network elements in the same DCC domain as the network element to which the command is addressed), communication status to each one of those network elements from the local network element, the product and network element types, capabilities and alarm group the systems in the local SONET subnetwork.



CAUTION:

If there is a duplicate dsne condition at the time that this command is executed at the addressed network element, the returned report could be incorrect. Be sure such error conditions do not exist while attempting this command.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)
)] } (close parenthesis)
@ (at sign)
\$ (dollar sign)
& (ampersand)
* (star)
- (dash)
_ (underscore)
/ (slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

In response to a valid **RTRV-MAP-NETWORK** command, the following output report is returned to the user similar to the craft interface output.

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

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

spec_block

Specific block. This parameter field is used for returning the current equipage information for the slot. 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 parameters are listed and explained below.

TID

This is the target identifier of the network element. Refer to the **RTRV-HDR INPUT PARAMETERS** section. The character set requirements for *tid* listed there apply to the **TID** also. The **TID** is provisioned by the TL1 command **ENT-SYS**.

DCCSTATUS

This field can take on the values of good or FAIL and indicates the status of the Data Communications Channel from the local system. This field can be omitted from the output report if the **DCCSTATUS** is good for the identified systems.

PRODTYPE

Product Type = EON

NETYPE

This field can take on the values of DSNE, ASNE, DSNE/ASNE or - (dash) and indicates whether or not the system identified in the TID is serving as the Directory Service Network Element, as an Alarm Server, both or neither. This field can be omitted for the systems in the subnetwork that are not serving as either a DSNE or an ASNE.

ALARMGRP

This field can take on integer values from 0 or 255 and indicates the Alarm Group, or SONET Maintenance Sub-Branch (SMSB), to which the listed network element belongs.

The Alarm Group identifies a set of network elements that exchange remote alarm information via one or more Alarm Gateway Network Elements. The value 0 is specially designated to mean the network element does not share alarm information with any other remote network elements.

Beyond placing the local NE first in the report, ordering of the report is a product-specific matter.

For a closed local (OLS) ring composed of repeaters, back-to-back end terminals connected using telemetry feed-thru or IAO LAN, and dual facing terminals only, the topmost entry in the network map report represents the OLS with the lowest NSAP followed by OLS neighbors connected to "nA" optical lines in transmit direction of side 1 for repeaters, 1A-TX end terminals, and side 2 of dual facing terminals until the ring is completed. Side 1 for repeaters implies n=1-4. Side 2 for dual facing terminal implies n=2,4.

For an open OLS ring, the topmost entry in the network map report represents an end terminal provisioned in "1A-TX" or "DUAL" mode with only side 2 equipped. The topmost entry is followed by OLS neighbors connected to transmit direction of "nA" optical lines of side 1 for repeaters/end terminals (non-dual) and side 2 of dual facing terminals. The last entry should be an OLS end terminal in "1A-RCV" or "DUAL" mode with only side 1 equipped. Side 1 for repeaters implies n=1-4. Side 2 for dual facing terminal implies n=2,4. Side 1 for dual facing terminals implies n=1,3.

The ring map report will display the local OLS system. For incomplete open or closed OLS rings, only the local node shall be displayed in the report. If, at the OLS end terminal where optical amplifier 1A is receiving traffic, the DIRN value is not 1A-RCV or DUAL and/or the supervisory channels on lines 1A(and 2A in DCC protected configurations) are not entering the telemetry packs, then incoming DCC failure is declared at that end terminal.

If an open or closed ring is incomplete, the ring map only reports the local node. This implies all other nodes in the incomplete ring will be displayed like nodes which are not part of local ring.

Data which is unavailable for the report will be represented by a question ("?) mark (for example, DCCSTATUS=?).

EXAMPLE INPUT/OUTPUT

The **RTRV-MAP-NETWORK** command is issued at ols-1. The OLS span consists of two end-terminals with three intermediate nodes:

```
rtrv-map-network:LT-PF-2000::123456;
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
  "TID=OLS-1,DCCSTATUS=good,PRODTYPE=EON,NETYPE=DSNE,ALARMGRP=56"
  "TID=OLS-2,DCCSTATUS=good,PRODTYPE=EON,NETYPE=-,ALARMGRP=56"
  "TID=OLS-3,DCCSTATUS=good,PRODTYPE=EON,NETYPE=-,ALARMGRP=56"
  "TID=OLS-4,DCCSTATUS=good,PRODTYPE=EON,NETYPE=-,ALARMGRP=56"
  "TID=OLS-5,DCCSTATUS=good,PRODTYPE=EON,NETYPE=-,ALARMGRP=56"
;
```

The **RTRV-MAP-NETWORK** command is issued at ols-1. The OLS span consists of two end-terminals with three intermediate nodes, and there is a failure between two of the repeater sites.

```
rtrv-map-network:LT-PF-2000::123456;
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
  "TID=OLS-1,DCCSTATUS=good,PRODTYPE=EON,NETYPE=DSNE,ALARMGRP=56"
  "TID=OLS-2,DCCSTATUS=good,PRODTYPE=EON,NETYPE=-,ALARMGRP=56"
  "TID=OLS-3,DCCSTATUS=FAIL,PRODTYPE=EON,NETYPE=-,ALARMGRP=56"
  "TID=OLS-4,DCCSTATUS=FAIL,PRODTYPE=EON,NETYPE=-,ALARMGRP=56"
  "TID=OLS-5,DCCSTATUS=FAIL,PRODTYPE=EON,NETYPE=-,ALARMGRP=56"
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives a **RTRV-MAP-NETWORK** with an otherwise valid set of input parameter values but the command could not be completed by the network element, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

ENT-SYS

RTRV-SYS

RTRV-MAP-RING

RTRV-MAP-RING

RTRV-MAP-RING: Retrieve Map Ring

The privilege level for this command is REPORTS.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-MAP-RING:*tid::ctag;*

DESCRIPTION

The **RTRV-MAP-RING** command generates a report listing all network elements in the local transmission ring.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters

comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

In response to a valid **RTRV-MAP-RING** command, the following output report is returned to the user.

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

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

spec_block

Specific block. This parameter field is used for returning the ring map information of the network. 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 parameters are listed and explained below.

It should be noted, however, that the network element will return the parameters within the *spec_block* in the following order: **TID**, **DSNE**, **DCCSTATUS**, **FBRCONN**.

TID

This is the target identifier of the network element. Refer to the **RTRV-HDR INPUT PARAMETERS** section. The character set requirements for *tid* listed there apply to the **TID** also. The **TID** is provisioned by the TL1 command **ENT-SYS**.

DSNE

This field can take on the values of *yes* or *no* and indicates whether or not the system identified in the **TID** is serving as the Directory Service Network Element.

DCCSTATUS

This field can take on the values of *good* or *FAIL* and indicates the status of the Data Communications Channel from the local system.

FBRCONN

Fiber Connection (FBRCONN) helps indicate the direction of traffic carried by optical line 1A in the OLS subnetwork. This field can take on values of {"1A-TX", "1A-TX-THRU", "1A-RCV", "1A-RCV-THRU", "-", "DUAL"}.

This parameter indicates the direction of transmission for optical lines nA (n=1,4) at each OLS and is crucial in determining the order of entries in the report. The "-" value represents a repeater node. End Terminals provisioned as "1A-TX-32", "1A-TX-THRU-32", "1A-RCV-32", or "1A-RCV-THRU-32" will be displayed as "1A-TX", "1A-TX-THRU", "1A-RCV", or "1A-RCV-THRU" in this report output. Refer to the **RTRV-SYS** command to retrieve the specific value.

For a closed local (OLS) ring composed of repeaters, back-to-back end terminals connected using telemetry feed-thru or IAO LAN, and dual facing terminals only, the topmost entry in the network map report represents the OLS with the lowest NSAP followed by OLS neighbors connected to "nA" optical lines in transmit direction of side 1 for repeaters, 1A-TX end terminals, and side 2 of dual facing terminals until the ring is completed. Side 1 for repeaters implies n=1-4. Side 2 for dual facing terminal implies n=2,4.

For an open OLS ring, the topmost entry in the network map report represents an end terminal provisioned in "1A-TX" or "DUAL" mode with only side 2 equipped. The topmost entry is followed by OLS neighbors connected to transmit direction of "nA" optical lines of side 1 for repeaters/end terminals (non-dual) and side 2 of dual facing terminals. The last entry should be an OLS end terminal in "1A-RCV" or "DUAL" mode with only side 1 equipped. Side 1 for repeaters implies n=1-4. Side 2 for dual facing terminal implies n=2,4. Side 1 for dual facing terminals implies n=1,3.

The ring map report will display the local OLS system. For incomplete open or closed OLS rings, only the local node shall be displayed in the report. If, at the OLS end terminal where optical amplifier 1A is receiving traffic, the DIRN value is not 1A-RCV or DUAL and/or the supervisory channels on lines 1A (and 2A in DCC protected configurations) are not entering the telemetry packs, then incoming DCC failure is declared at that end terminal.

In single OA configuration, the supervisory channel on lines 1B is entering telemetry pack in 1A-RCV or DUAL mode.

When this condition exists, the **DCCSTATUS** and **FBRCONN** parameters for this end terminal take on the values "FAILED" and "?", respectively, in the reports at all other nodes whose ring maps include the end terminal.

If IAO LAN instead of telemetry feed-thru is used between back-to-back end terminals, COMPANION_TID should be entered using ENT-SYS for a correct ring map report.

Data which is unavailable for the report will be represented by a question mark ("?", mark (for example, **DCCSTATUS=?**).

EXAMPLE OUTPUT

The following OLS example requests the map of an OLS ring. The **RTRV-MAP-RING** command is issued at ols-1, which is also provisioned in "1A-TX" mode. The sub-network consists of two end-terminals with two intermediate nodes:

```
rtrv-map-ring:ols-1::123456;  
IP 123456  
<  
  OLS-1 94-06-15 12:28:133  
M 123456 COMPLD  
  "TID=OLS-1, DSNE=yes, DCCSTATUS=good, FBRCONN=1A-TX  
  "TID=OLS-2, DSNE=no, DCCSTATUS=good, FBRCONN=-  
  "TID=OLS-3, DSNE=no, DCCSTATUS=good, FBRCONN=-  
  "TID=OLS-5, DSNE=no, DCCSTATUS=good, FBRCONN=1A-RCV"  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives a **RTRV-MAP-RING** with an otherwise valid set of input parameter values but the command could not be completed by the network element, the following error response is returned to the user:

```
sid date time  
M ctag DENY  
SROF  
/* Status, Requested Operation Failed */  
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-MAP-NETWORK

RTRV-NE-SECU

RTRV-NE-SECU: Retrieve Network_Element Security

The privilege level for this command is REPORTS.

The OSI category for this command is SECURITY.

This command is available starting in OLS Release 2.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-NE-SECU:*tid::ctag;*

DESCRIPTION

The **RTRV-NE-SECU** command can be initiated by users to retrieve network element global security information. The user can determine whether logins are allowed, whether the password aging interval is set and its value, and whether the login aging interval is set and its value.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters

comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If there is provisioned security information to report, the following output message is returned:

```
sid date time
M ctag COMPLD
":, :ONDPB"
;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV - HDR**. Additional parameters that specifically apply to this command response are defined as follows:

ONDPB

The *ONDPB* is a name defined parameter block to report various attributes. The format will be *keyword1=value1, keyword2=value2*. All applicable attributes are reported.

alw_uid

Allow user ID. This parameter shows whether or not non-expert logins are allowed to login or not. Expert logins are always allowed. This parameter can take one of the values: "YES", or "NO".

page

Password aging interval. This parameter shows the password lifetime interval in days. It can take a value between 7 and 999 days, or 0. The value 0 indicates that the password aging mechanism is disabled.

uout

User ID aging interval. This parameter shows the period in days during which each general or report-only user should login at least once to retain the login. It can take a value between 7 and 999 days, or 0. The value 0 indicates that the login aging mechanism is disabled.

EXAMPLE OUTPUT

```
rtrv-ne-secu:LT-PF-2000::123456;  
IP 123456  
<  
  LT-PF-2000 94-03-22 16:12:12  
M 123456 COMPLD  
  ":, :ALW_UID=Yes,PAGE=60,UOUT=90"  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

RELATED TL1 COMMANDS/MESSAGES

ENT-NE-SECU

RTRV-OCHAN

RTRV-OCHAN: Retrieve Optical_Channel

The privilege level for this command is REPORTS.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-OCHAN:*tid:aid:ctag[:type];*

DESCRIPTION

RTRV-OCHAN command messages can be initiated by a user to retrieve the current provisioned state and current state of the optical channel (OCHAN). This command retrieves all optical channel parameter settings that are provisionable via **ENT-OCHAN** commands pertaining to the addressed OLS, reported one line per optical channel.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This is the address of the entity for which the report is requested.

Entity: Optical Channel

Legal Values: (OCHAN)-(ALL), (OCHAN)-(1A,1B,2A,2B)-(ALL,1-32)

CenterLink CIT selection options: (OCHAN)-(ALL, 1A, 1B, 2A, 2B)-(ALL, 1-32)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

type

Type. A value for this parameter is neither expected nor allowed.

OUTPUT FORMAT

Because the network element supports pre-provisioning of parameters, lines are included for all applicable *aid* values in response to this command, whether or not the present equipage is capable of supporting the type of facility specified.

Line wrapping is not supported in the **OUTPUT FORMAT**. Output lines are broken here only for the convenience of the reader.

In response to a valid **RTRV-OCHAN** command, the following output report is returned, sorted on OCHAN data, by the *ochan_aid* value.

```
sid date time
M ctag COMPLD
  "ochan_aid::::pst"
  "ochan_aid::::pst"
  . . .
  . . .
  . . .
  "ochan_aid::::pst"
;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

ochan_aid

Optical Channel access identifier. This is the optical channel address for which output is being reported.

pst

Primary state. This parameter reports the current primary state of the addressed optical channel (OCHAN). The *pst* will have one of the primary states supported by OLS.

The primary state for optical channel will have one of the following values:

IS

In service. This specifies that the optical channel addressed by *ochan_aid* is in the in service state.

OOS-MA-AS

Out of service, memory administration, assigned. This specifies that the optical channel addressed by *ochan_aid* is in the OLS "AUTO" state and will transition to in-service upon detection of a valid signal.

OOS

Out of service. This specifies that the optical channel addressed by *ochan_aid* is in the OLS "NMON" state.

RDNA

Requested data not available. If the requested *pst* data for the addressed optical channel is corrupted, this value is reported.

EXAMPLE INPUT/OUTPUT

Line wrapping is not supported in the **OUTPUT FORMAT**. Output lines are broken here **only** for the convenience of the reader.

The example below shows the response to a query concerning all optical channels associated with optical line 1a ("ochan-1a-all").

```
rtrv-ochan:LT-OLS:ochan-1a-all:123456;  
IP 123456  
<  
  LT-OLS 93-10-26 16:42:11  
M 123456 COMPLD  
  "ochan-1a-1:::IS"  
  "ochan-1a-2:::IS"  
  "ochan-1a-3:::IS"  
  "ochan-1a-4:::IS"  
  "ochan-1a-5:::IS"  
  "ochan-1a-6:::IS"  
  "ochan-1a-7:::OOS-MA-AS"  
  "ochan-1a-8:::OOS-MA-AS"  
  "ochan-1a-9:::IS"  
  "ochan-1a-10:::RDNA"  
  "ochan-1a-11:::IS"  
  "ochan-1a-12:::RDNA"  
  "ochan-1a-13:::IS"  
  "ochan-1a-14:::IS"  
  "ochan-1a-15:::OOS-MA-AS"  
  "ochan-1a-16:::RDNA"  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (.), or termination characters (;), the following error response is returned:

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

If the network element receives a **RTRV** command without an *aid* value or with an *aid* value that is invalid for this command, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier, AID missing or inconsistent
with modifier value */
;
```

If the network element receives this command with an invalid *type* value, the following error response is returned:

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

RELATED TL1 COMMANDS/MESSAGES

ENT-OCHAN

RTRV-OLINE

RTRV-OLINE: Retrieve Optical_Line

The privilege level for this command is REPORTS.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 2.1.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-OLINE: *tid:aid:ctag[:type];*

DESCRIPTION

RTRV-OLINE command messages can be initiated by a user to retrieve the channel loading factor (CLF) on all in-service (IS) optical lines.

The measured power output level needs to be calibrated with information about the number of channels as well as the type of channels in the system. The selection of the LBO depends on this information.

This command allows a user to see the current channel loading factor (CLF). The CLF will be calculated by the network element to provide an index into an installation LBO table. This index may be used to identify the correct LBO value in conjunction to other required parameters of the channel being added.

The **RTRV-OLINE** command will allow a user to see the channel loading factor (CLF) on all in-service (IS) optical lines. The equation to compute the CLF is:

$$\text{CLF} = 3 * (\text{Number of OC3/OC12/LSBB/UBB} [< 1\text{Gb/s}] \text{ channels present}) + 8 * (\text{Number of OC48/UBB} [\geq 1\text{Gb/s}] / \text{OC-192 channels present})$$

The DCM loss and DCM tilt values are used by the OA3 circuit pack to compensate for the DCM(s) connected between the DCM OUT and DCM IN connectors.

The OA gain value is used by the OA2 or OA3 circuit pack to adjust its operating gain.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)
 @ (at sign)
 \$ (dollar sign)
 & (ampersand)
 * (star)
 - (dash)
 _ (underscore)
 / (slash)

aid

Access identifier. This is the address of the entity for which the report is requested.

Entity: Optical Line

Legal Values: (OLINE)-(ALL, 1A, 1B, 2A, 2B)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

type

Type. A value for this parameter is neither expected nor allowed.

OUTPUT FORMAT

In response to a valid **RTRV-OLINE** command, the following output report is returned, sorted by the *oline_aid* value.

```
sid date time
M ctag COMPLD
"oline_aid::clf,dcm_loss,dcm_tilt,oa_gain"
"oline_aid::clf,dcm_loss,dcm_tilt,oa_gain"
. . . . .
. . . . .
. . . . .
"oline_aid::clf,dcm_loss,dcm_tilt,oa_gain"
;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

oline_aid

Optical line access identifier. This is the optical line address for which output is being reported.

clf

Channel Loading Factor. This parameter is the channel loading factor (CLF) threshold for the facility serviced by the addressed optical line port. The *clf* parameter is reported in *CLF=xxx* format.

For single OA configuration, installation procedures will require an upstream login to find the channel loading factor at the mux end OA. If an OA is not present or if an OA is failed, then the reported value for CLF will be a dash ("-").

dcm_loss

This parameter is the DCM loss in dB for the facility serviced by the addressed optical line port. The *dcm_loss* parameter is reported in *dcm_loss=xxx* format. The default value is 0.5. This parameter is only used by the OA3 circuit pack but will be displayed for all equipped OA types.

dcm_tilt

This parameter is the DCM slope across the wavelength band in dB for the facility serviced by the addressed optical line port. The *dcm_tilt* parameter is reported in *dcm_tilt=xxx* format. The default value is 0. This parameter is only used by the OA3 circuit pack but will be displayed for all equipped OA types.

oa_gain

This parameter is the OA gain in dB for the facility serviced by the addressed optical line port. The *oa_gain* parameter is reported in *oa_gain=xx* format. The values are **normal** (default) and **high**. This parameter is only used by the OA2 or OA3 circuit pack but will be displayed for all equipped OA types.

EXAMPLE INPUT/OUTPUT

The following example shows the response to a query concerning all optical lines.

```
rtrv-oline:LT-PF-2000:oline-all:789012;  
IP 789012  
<  
  LT-PF-2000 93-10-26 16:42:11  
M 789012 COMPLD  
"oline-1a:::CLF=48,dcm_loss=0.5,dcm_tilt=0,oa_gain=normal"  
"oline-1b:::CLF=48,dcm_loss=0.5,dcm_tilt=0,oa_gain=normal"  
"oline-2a:::CLF=48,dcm_loss=3.5,dcm_tilt=0.8,oa_gain=high"  
"oline-2b:::CLF=48,dcm_loss=4.5,dcm_tilt=-0.5,oa_gain=high"  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (.), or termination characters (;), the following error response is returned:

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

If the network element receives a **RTRV** command without an *aid* value or with an *aid* value that is invalid for this command, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier, AID missing or inconsistent
with modifier value */
;
```

If the network element receives this command with an invalid *type* value, the following error response is returned:

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

RELATED TL1 COMMANDS/MESSAGES

ENT-OLINE

RTRV-OSI

RTRV-OSI: Retrieve OSI

The privilege level for this command is REPORTS.

The OSI category for this command is SECURITY.

This command is available starting in OLS Release 4.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-OSI:*tid::ctag;*

DESCRIPTION

RTRV-OSI command messages can be initiated by a user to retrieve the provisioned area address list and IS/IS protocol levels for the node and the LAN.

This command retrieves all parameter settings that are provisionable via **ENT-OSI** commands.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters

comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If there is OSI information to report, the following output message is returned:

```
sid date tim
M ctag COMPLD
"localaddress,oper_sid,prov_sid,lanisislvl,nodeisislvl,drp,transfermode"
;
```

OUTPUT PARAMETERS

Refer to the **RTRV - HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command

localaddress

Local Area Address. This is used to report the area to which this node belongs. Areas may be introduced to reduce the mutual exchange of routing information between nodes, so that larger management networks are possible.

oper_sid

Operational System Identifier. This parameter is used to report the current System Identifier value stored in the sysctl EEPROM.

prov_sid

Provisioned System Identifier. This parameter is used to report the new System Identifier value required to replace the current value stored in the sysctl EEPROM. The change is complete upon execution of the **INIT-SYS**, ph 3 command.

lanisislvl

LAN ISIS Level. This parameter reports the LAN ISIS protocol.

nodeisislvl

Node ISIS Level. This parameter reports the ISIS protocol.

drp

Designated Router Priority. This parameter reports the designated router priority for the Level-2 ISIS protocol

transfermode

Transfer Mode. This parameter identifies the transfer mode of the SDCC

EXAMPLE INPUT/OUTPUT

Line wrapping is not supported in the **OUTPUT FORMAT**. Output lines are broken here only for the convenience of the reader.

The following example shows the response to a query:

```
rtrv-osi:LT-PF-2000::789012;  
IP 789012  
<  
  LT-PF-2000 93-10-26 16:42:11  
M 789012 COMPLD  
  "localaddress=390000080000000000000000000000,lanisislvl=level-1,  
  nodeisislvl=level-2,drp=100,transfermode=uits"  
;
```

ERROR RESPONSES

Refer to the **RTRV - HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (.), or termination characters (;), the following error response is returned:

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

If the network element receives a **RTRV** command with an invalid command code modifier, the following error response is returned:

```
sid date time  
M ctag DENY  
ICNV  
/* Input, Command Not Valid, invalid modifier */  
;
```

RELATED TL1 COMMANDS/MESSAGES

ENT-OSI

RTRV-OTPS

RTRV-OTPS: Retrieve OT_Port_Signal

The privilege level for this command is REPORTS.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 3.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-OTPS:*tid:aid:ctag;*

DESCRIPTION

RTRV-OTPS command messages can be initiated by a user to retrieve the current provisioned state of port parameters related to optical translator port signal (OTPS) facilities. This command retrieves all parameter settings that are provisionable via **ENT-OTPS** commands.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access Identifier. This is the address of the optical translator port for which the command is intended. The *aid all* is allowed. When used, it will retrieve the OTU and OTPM port information.

Entity: All

Legal Values: (ALL)

Entity: Port (OTU)

Legal Values: (OTU)-(ALL), (OTU)-(1,2)-(ALL,1-32)-(1)

CenterLink CIT selection options: (OTU)-(ALL, 1, 2)-(ALL, 1-32)-(1)

Entity: Port (OT Port Module)

Legal Values: (OTPM)-(ALL),
(OTPM)-(1,2)-(ALL,1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31)-(ALL,1-4)-(1)

CenterLink CIT selection options: (OTPM)-(ALL, 1, 2)-(ALL, 1, 3, 5, 7, 9, 11, 13, 15,
17, 19, 21, 23, 25, 27, 29, 31)-(ALL, 1-4)-(1)

Entity: Port (2DM25)

Legal Values: (2DM25)-(ALL), (2DM25)-(1,2)-(ALL), (2DM25)-(1,2)-(1-32)-(ALL,
HS, P1, P2)

CenterLink CIT selection options: (2DM25)-(ALL, 1, 2)-(ALL, 1-32)-(ALL,
HS,P1,P2)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

The output will only display slots that are either equipped with supported circuit packs or slots that are pre-provisioned. Pre-provisioned slots will be displayed as it is provisioned, regardless of whether the circuit pack inserted is capable of supporting such parameters.

The parameters `port_aid`, `level`, `ntfcncde`, `optlinecde`, `wavlnth` and `pst` are common parameter and are reported for all OTU or OTPM circuit packs.

The parameter `LSBBRATE` is only displayed if the slot is occupied by a LSBB circuit pack or if this parameter is pre-provisioned with a supported value.

The parameters `UBBRATE`, `UBBRATECURR`, `UBBDRMNC` are displayed only if the slot is occupied by an UBB circuit pack or if these parameters are pre-provisioned with supported values.

The parameters `OC192IN` and `OC192OUT` are displayed only if the slot is occupied with a 10G OTU circuit pack or if these parameters are pre-provisioned with supported values.

The parameters `CXP2DM25`, `CW2DM25` and `CACT2DM25` are displayed only if the slot is occupied by an 2DM25 circuit pack and information on the client ports (P1 and P2) is requested or if these parameters are pre-provisioned with supported values. Only the common parameters are reported for the high speed port (HS) of the 2DM25 OTU.

Circuit packs such as OC-3, OC-12, OC-48 and GbE only report the common parameters.

Line wrapping is not supported in the **OUTPUT FORMAT**. Output lines are broken here **only** for the convenience of the reader.

In response to a valid **RTRV-OTPS** command, the following output report is returned, sorted on port data by *port_aid* value.

```

sid date time
M ctag COMPLD
"port_aid:::level,[lsbbbrate],[ubbrate],[ubbratecurr],[ubbdmnc],
[oc192in],[oc192out],[cexp2dm25],[cw2dm25],[cact2dm25],
ntfcncde,optlinecde,wavlenth:pst"
"port_aid:::level,[lsbbbrate],[ubbrate],[ubbratecurr],[ubbdmnc],
[oc192in],[oc192out],[cexp2dm25],[cw2dm25],[cact2dm25],
ntfcncde,optlinecde,wavlenth:pst"
. . . . .
. . . . .
"port_aid:::level,[lsbbbrate],[ubbrate],[ubbratecurr],[ubbdmnc],
[oc192in],[oc192out],[cexp2dm25],[cw2dm25],[cact2dm25],
ntfcncde,optlinecde,wavlenth:pst"
;

```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

port_aid

Port access identifier. This is the port address of the facility for which output is being reported.

level

Signal Level. This parameter reports the signal type, which is one of the following values:

OC3

An OC3 signal

OC12

An OC12 signal

OC48

An OC48 signal

OC192

An OC192 signal

STM1

An STM1 signal

STM4

An STM4 signal

STM16

An STM16 signal

STM64

An STM64 signal

OCh10G

An OCh10G signal (OC192 or STM64 signal with WaveWrapper)

GbE - 1

A 1.0 Gb/s Ethernet signal

LSBB

A Low Speed Broad Band signal

UBB

A Universal Broad Band signal

2DM25

A 2:1 Data Mux OTU at 2.5G signal (for the low speed ports, P1 and P2, only)

NOTE: OTU, QUTU, and EXT are not signal levels. They are hardware related.

The High Speed port (HS) of the 2DM25 OTU will be reported as a OC48 or STM64 signal.

lsbbrate

Low Speed Broad Band Bit Rate. This parameter reports the bit rate for the Low Speed Broad Band (LSBB) OTPM. The valid values are **High_Band** and **Low_Band**.

No *lsbbrate* value is reported for OTU port signals.

UBBRATE

Universal Broad Band Bit Rate. This parameter reports the incoming signal's provisioned data bit rate of the Universal Broad Band (UBB) OTPM. The parameter has one of the following values:

ETR

External Timing Request. An IBM Mainframe protocol with a data rate of 16Mb/s.

CLO

Control Link Oscillator. An IBM Mainframe protocol with a data rate of 16Mb/s.

ESCON

Enterprise System CONnection. An IBM Mainframe protocol with a data rate of 200Mb/s and 8B/10B encoding.

ISC_CF

Inter-System Channel or Coupling Facility. These are IBM Mainframe protocol with a data rate of 1.062Gb/s.

FICON

Fiber CONnection. An IBM Mainframe protocol with a data rate of 1.062Gb/s and 8B/10B encoding.

FX

100Base-FX. Fast Ethernet with a data rate of 125Mb/s and 4B/5B encoding.

GbE - 1

1000Base-LX. Gigabit Ethernet with a data rate of 1.25Gb/s and 8B/10B encoding.

FDDI

Fiber Distributed Data Interface with a data rate of 125Mb/s and 4B/5B encoding.

FC - 12

Fiber Channel with a data rate of 133Mb/s and 8B/10B encoding.

FC - 25

Fiber Channel with a data rate of 266Mb/s and 8B/10B encoding.

FC - 50

Fiber Channel with a data rate of 531Mb/s and 8B/10B encoding.

FC - 100

Fiber Channel with a data rate of 1.062Gb/s and 8B/10B encoding.

D1 - V

Video signal with a data rate of 270Mb/s.

OC3

A SONET OC3 signal.

OC12

A SONET OC12 signal.

OC48

A SONET OC48 signal.

STM1

A SDH STM1o signal.

STM4

A SDH STM4o signal.

STM16

A STM16o signal.

UNKNOWN

An unknown signal within the range of 16Mb/s to 2.5Gb/s.
No *UBBRATE* value is reported for OTU port signals.

UBBRATECURR

Current Universal Broad Band Bit Rate. This parameter reports the current measured data rate of the addressed Universal Broad Band (UBB) OTPM aid's incoming signal in Mbps. It may or may not be identical to the provisioned incoming data rate. If it is greater than the provisioned data rate by 5%, an alarm will be generated. This parameter is only applicable to the UBB Add pack. The *UBBRATECURR* parameter is reported in *UBBRATECURR=xxxxMbps* format.

No *UBBRATECURR* value is reported for UBB Drop pack and OTU port signals.

UBBDRMNC

Universal Broad Band Data Rate Mismatch Notification code. This parameter is the alarm level (i.e. notification code) provisioned for the signal data rate mismatch condition occurred at the addressed port. This parameter is only applicable to the UBB Add pack. The *UBBDRMNC* parameter is reported in *UBBDRMNC=xx* format where xx has one of the following values:

CR

Critical (if provisioned for SONET)

MJ

Major (if provisioned for SONET)

MN

Minor (if provisioned for SONET)

NA

Not alarmed (if provisioned for SONET)

NR

Not reported (if provisioned for SONET) (No autonomous report will be generated.)

NO

Ignored (if provisioned for SONET) (No autonomous or on-demand report will be generated.)

Prompt

Prompt (if provisioned for SDH)

Deferred

Deferred (if provisioned for SDH)

No_Alarm

No Alarm (if provisioned for SDH)

No_Report

No Report (if provisioned for SDH) (No autonomous report will be generated.)

Not_Indicated

Not Indicated (if provisioned for SDH) (No autonomous or on-demand report will be generated.)

If the `level` is not equal to UBB, this parameter should display a "-". This parameter should also display a "-" if the circuit pack is a UBB Drop pack.

OC192IN

OC-192 Input. The reported value will be "OC192", "OCH" or "DEFAULT".

When the value of the **OC192IN** parameter is set to "DEFAULT" by TL1 command ENT-OTPS, the value of OC192IN reported by RTRV-OTPS will be "DEFAULT", regardless of the operating mode of the OTU, and the value of OC192OUT will be blank.

When the value of the **OC192IN** parameter is provisioned to be "DEFAULT", the operation is as follows, regardless of the value of **OC192OUT**:

- If the OTU circuit pack in the related slot is an add-type OTU, the behavior will be as if OC192IN was set "OC192" and OC192OUT was set to "OCH". That is, the OTU will operate as an optical channel overhead source.
- If the OTU circuit pack in the related slot is a through-type OTU, the behavior will be as if OC192IN was set to "OCH" and OC192OUT was set to "OCH". That is, the OTU will operate as an optical channel overhead repeater.
- If the OTU circuit pack in the related slot is an drop-type OTU, the behavior will be as if OC192IN was set to "OCH" and OC192OUT was set "OC192". That is, the OTU will operate as an optical channel overhead sink.

OC192OUT

OC-192 Output. The reported value will be "OC192" or "OCH".

CEXP2DM25

2DM25 Client Expected Input. This parameter indicates the incoming signal's expected data bit rate of the Dual Data Muxing (2DM25) OTU. This parameter must have one of the following values:

ESCON

Enterprise System CONnection. An IBM Mainframe protocol with a data rate of 200Mb/s and 8B/10B encoding.

ISC_CF

Inter-System Channel or Coupling Facility. These are IBM Mainframe protocol with a data rate of 1.062Gb/s.

FICON

Fiber CONnection. An IBM Mainframe protocol with a data rate of 1.062Gb/s and 8B/10B encoding.

GbE-1

1000Base-LX. Gigabit Ethernet with a data rate of 1.25Gb/s and 8B/10B encoding.

FC-100

Fiber Channel with a data rate of 1.062Gb/s and 8B/10B encoding.

UNEQPT

Un-equipped.

CW2DM25

2DM25 Client Wavelength. This parameter indicates the input client wavelength of the Dual Data Muxing OTU. This parameter must have one of the following values:

MM850nm

The input wavelength is Multimode 850 nm.

MM1310nm

The input wavelength is Multimode 1310 nm.

SM1310nm

The input wavelength is Singlemode 1310 nm.

CACT2DM25

2DM25 Client Actual Transmitted/Received Data Type. This parameter indicates the actual data type read from the overhead byte of the Generic Framing Protocol (GFP). This parameter must have one of the following values:

ESCON

Enterprise System CONnection. An IBM Mainframe protocol with a data rate of 200Mb/s and 8B/10B encoding.

ISC_CF

Inter-System Channel or Coupling Facility. These are IBM Mainframe protocol with a data rate of 1.062Gb/s.

FICON

Fiber CONnection. An IBM Mainframe protocol with a data rate of 1.062Gb/s and 8B/10B encoding.

GbE - 1

1000Base-LX. Gigabit Ethernet with a data rate of 1.25Gb/s and 8B/10B encoding.

FC - 100

Fiber Channel with a data rate of 1.062Gb/s and 8B/10B encoding.

UNEQPT

Un-equipped. The data signal is not equipped.

NA

Not Available. The 2DM25 circuit pack is un-reachable or the GFP overhead is un-readable.

ntfcncde

Notification code. This parameter is the alarm level provisioned for failures of facilities serviced by the addressed port. The *ntfcncde* parameter is reported in NTFNCNDE=xx format where xx has one of the following values:

CR

Critical (if provisioned for SONET)

MJ

Major (if provisioned for SONET)

MN

Minor (if provisioned for SONET)

NA

Not alarmed (if provisioned for SONET)

NR

Not reported (if provisioned for SONET) (No autonomous report will be generated.)

NO

Ignored (if provisioned for SONET) (No autonomous or on-demand report will be generated.)

Prompt

Prompt (if provisioned for SDH)

Deferred

Deferred (if provisioned for SDH)

No_Alarm

No Alarm (if provisioned for SDH)

No_Report

No Report (if provisioned for SDH) (No autonomous report will be generated.)

Not_Indicated

Not Indicated (if provisioned for SDH) (No autonomous or on-demand report will be generated.)

If the `Level=EXT` or `Q0TU`, this parameter should display a "-".

NOTE: OTU, Q0TU, and EXT are not signal levels. They are hardware related.

opt linecde

Optical Line coding. The line coding parameter is only reported in the specific block for OC-48 and OC-192 lines, optical low speed ports, OTUs, or OTPMs. It specifies the type of optical line coding used on the Optical Interface. The *opt linecde* parameter is reported in `OPTLINECDE=xx` format where `xx` is one of the following values:

NRZ

Non-return to Zero.

For the UBB OTPM, if the input signal is GbE, FC-xx, ESCON, FICON, or ISC, then the *opt linecde* value is NRZ. This parameter should display a "-" for any other signals.

No *opt linecde* value is reported for unequipped slots, ports, or lines. If the `Level=EXT`, `OTU`, or `Q0TU`, this parameter should display a "-".

NOTE: OTU, Q0TU, and EXT are not signal levels. They are hardware related.

wavlnth

Optical Wavelength. The optical wavelength parameter is only reported in the specific block for OTUs and OTPMs. It specifies the optical wavelength used on the UBB, LSBB, 2DM25, OC-192/STM-64, OC-48/STM-16, OC-12/STM-4, or OC-3/STM-1 Optical Interface. The *wavlnth* parameter is reported in WAVLNTH=xxxx.xx format where xxxx.xx is (expressed in nanometers):

No *wavlnth* value is reported for unequipped slots, OTUs, or OTPMs. If the Level=EXT, OTU, or QOTU, this parameter should display a "-".

NOTE: OTU, QOTU, and EXT are not signal levels, They are hardware related.

pst

Primary state. This parameter reports the current primary state of the addressed port. The *pst* will have one of the primary states supported by the network element.

The primary port state for OTUs and OTPMs will have one of the following values:

IS

In service. This specifies that the low speed port addressed by *port_aid* is in the in service state.

OOS-MA-AS

Out of service, memory administration, assigned. This specifies that the low speed port addressed by *port_aid* is in the "AUTO" state.

OOS

Out of service. This specifies that the low speed port addressed by *port_aid* is in the "NMON" state.

RDNA

Requested data not available. If the requested *pst* data for the addressed low speed port is corrupted, this value is reported.

EXAMPLE INPUT/OUTPUT

Line wrapping is not supported in the **EXAMPLE INPUT/OUTPUT**. Output lines are broken here only for the convenience of the reader.

The following example shows the response to a query concerning all ports contained in the Optical Translator ("all").

```

rtrv-otps:LT-PF-2000:all:789012;
IP 789012
<
  LT-PF-2000 02-2-26 16:42:11
M 789012 COMPLD
  "otu-1-1-1:::LEVEL=0Ch10G,OC192IN=DEFAULT,OC192OUT=-,NTFCNCDE=MN,
  OPTLINECDE=NRZ,WAVLNTH=1560.61:IS"
  "otu-1-2-1:::LEVEL=0Ch10G,OC192IN=OC192,OC192OUT=0CH,NTFCNCDE=MJ,
  OPTLINECDE=NRZ,WAVLNTH=1550.12:00S-MA-AS"
  "otu-1-3-1:::LEVEL=0Ch10G,OC192IN=0CH,OC192OUT=OC192,NTFCNCDE=MJ,
  OPTLINECDE=NRZ,WAVLNTH=1554.94:00S"
  "otu-1-7-1:::LEVEL=0C48,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1559.79:00S"
  "otu-1-8-1:::LEVEL=0C48,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1554.94:00S"
  "otu-1-11-1:::LEVEL=0C48,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1555.75:00S"
  "otu-1-12-1:::LEVEL=0C48,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1557.36:00S"
  "otpm-1-17-1-1:::LEVEL=LSBB,LSBBRATE=Low_Band,NTFCNCDE=MJ,
  OPTLINECDE=NRZ,WAVLNTH=1554.94:00S-MA-AS"
  "otpm-1-20-1-1:::LEVEL=UBB,UBBRATE=FC-100,UBBRATECURR=1010Mbps,
  UBBDRMNC=MN,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1560.61:00S"
  "otpm-1-20-2-1:::LEVEL=UBB,UBBRATE=FC-100,UBBRATECURR=1033Mbps,
  UBBDRMNC=MN,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1560.61:00S"
  "otpm-1-20-3-1:::LEVEL=UBB,UBBRATE=FDDI,UBBRATECURR=120Mbps,
  UBBDRMNC=MN,NTFCNCDE=MJ,OPTLINECDE=-,WAVLNTH=1560.61:00S"
  "2dm25-1-21-p1:::LEVEL=2DM25,CEXP2DM25=ESCON,CW2DM25=MM1310nm,
  CACT2DM25=ESCON,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=-:IS"
  "2dm25-1-21-p2:::LEVEL=2DM25,CEXP2DM25=FICON,CW2DM25=SM1310nm,
  CACT2DM25=ESCON,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=-:IS"
  "2dm25-1-21-hs:::LEVEL=0C48,NTFCNCDE=MJ,OPTLINECDE=NRZ,
  WAVLNTH=1555.75:00S"
  "2dm25-1-21-p1:::LEVEL=2DM25,CEXP2DM25=UNEQPT,CW2DM25=MM850nm,
  CACT2DM25=UNEQPT,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=-:IS"
  "2dm25-1-21-p2:::LEVEL=2DM25,CEXP2DM25=ESCON,CW2DM25=MM1310nm,
  CACT2DM25=ESCON,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=-:IS"
  "2dm25-1-21-hs:::LEVEL=0C48,NTFCNCDE=MJ,OPTLINECDE=NRZ,
  WAVLNTH=1555.75:00S"
;
```

The following example shows the response to a query concerning all OC48 OTU ports contained in OT bay 1 ("otu-1-all"), of which there are fourteen equipped with OC48 Optical Translator interfaces and five with QUAD OTUs.

```
rtrv-otps:LT-PF-2000:otu-1-all:789012;  
IP 789012  
<  
  LT-PF-2000 2-2-26 16:42:11  
M 789012 COMPLD  
  "otu-1-1-1:::LEVEL=0Ch10G,OC192IN=DEFAULT,OC192OUT=-,NTFCNCDE=MN,  
  OPTLINECDE=NRZ,WAVLNTH=1549.32.61:IS"  
  "otu-1-2-1:::LEVEL=0Ch10G,OC192IN=OC192,OC192OUT=0CH,NTFCNCDE=MJ,  
  OPTLINECDE=NRZ,WAVLNTH=1550.92:00S-MA-AS"  
  "otu-1-3-1:::LEVEL=0Ch10G,OC192IN=0CH,OC192OUT=OC192,NTFCNCDE=MJ,  
  OPTLINECDE=NRZ,WAVLNTH=1552.52:00S"  
  "otu-1-7-1:::LEVEL=OC48,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1559.79:00S"  
  "otu-1-8-1:::LEVEL=OC48,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1554.94:00S"  
  "otu-1-11-1:::LEVEL=OC48,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1555.75:00S"  
  "otu-1-12-1:::LEVEL=OC48,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1557.36:00S"  
;
```

The following example shows the response to a query concerning all OTPM ports contained in the OT, bay 1 ("otpm-1-all").

```

rtrv-otps:LT-PF-2000:otpm-1-all:789012;
IP 789012
<
  LT-PF-2000 2-2-26 16:42:11
M 789012 COMPLD
  "otpm-1-1-1-1:::LEVEL=OC3,LSBBRATE=High_Band,NTFCNCDE=MJ,
  OPTLINECDE=NRZ,WAVLNTH=1560.61:IS"
  "otpm-1-3-1-1:::LEVEL=LSBB,LSBBRATE=High_Band,NTFCNCDE=MJ,
  OPTLINECDE=NRZ,WAVLNTH=1560.61:OOS"
  "otpm-1-5-1-1:::LEVEL=OC12,LSBBRATE=High_Band,NTFCNCDE=MJ,
  OPTLINECDE=NRZ,WAVLNTH=1550.12:OOS"
  "otpm-1-7-1-1:::LEVEL=LSBB,LSBBRATE=Low_Band,NTFCNCDE=MJ,
  OPTLINECDE=NRZ,WAVLNTH=1554.94:OOS-MA-AS"
  "otpm-1-10-1-1:::LEVEL=UBB,UBBRATE=FC-100,UBBRATECURR=1010Mbps,
  UBBDRMNC=MN,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1560.61:OOS"
  "otpm-1-10-2-1:::LEVEL=UBB,UBBRATE=FC-100,UBBRATECURR=1033Mbps,
  UBBDRMNC=MN,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1560.61:OOS"
  "otpm-1-10-3-1:::LEVEL=UBB,UBBRATE=FDDI,UBBRATECURR=120Mbps,
  UBBDRMNC=MN,NTFCNCDE=MJ,OPTLINECDE=-,WAVLNTH=1560.61:OOS"
  "otpm-1-10-4-1:::LEVEL=UBB,UBBRATE=FC-25,UBBRATECURR=255Mbps,
  UBBDRMNC=MN,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1560.61:OOS"
  "otpm-1-12-1-1:::LEVEL=UBB,UBBRATE=ESCON,UBBRATECURR=195Mbps,
  UBBDRMNC=MN,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1554.94:OOS"
  "otpm-1-12-2-1:::LEVEL=UBB,UBBRATE=ESCON,UBBRATECURR=189Mbps,
  UBBDRMNC=MN,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1554.94:OOS"
  "otpm-1-12-3-1:::LEVEL=UBB,UBBRATE=ESCON,UBBRATECURR=15Mbps,
  UBBDRMNC=MN,NTFCNCDE=MJ,OPTLINECDE=-,WAVLNTH=1554.94:OOS"
  "otpm-1-12-4-1:::LEVEL=ESCON,UBBRATE=ESCON,UBBRATECURR=185Mbps,
  UBBDRMNC=MN,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1554.94:OOS"
  "otpm-1-19-1-1:::LEVEL=UBB,UBBRATE=FICON,UBBRATECURR=-,
  UBBDRMNC=-,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1550.12:OOS"
  "otpm-1-19-2-1:::LEVEL=UBB,UBBRATE=FICON,UBBRATECURR=1053Mbps,
  UBBDRMNC=MN,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1550.12:OOS"
  "otpm-1-19-3-1:::LEVEL=UBB,UBBRATE=FDDI,UBBRATECURR=-,
  UBBDRMNC=-,NTFCNCDE=MJ,OPTLINECDE=-,WAVLNTH=1550.12:OOS"
  "otpm-1-19-4-1:::LEVEL=UBB,UBBRATE=FC-100,UBBRATECURR=-,
  UBBDRMNC=-,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1550.12:OOS"
  "otpm-1-21-1-1:::LEVEL=UBB,UBBRATE=ESCON,UBBRATECURR=196Mbps,
  UBBDRMNC=MN,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1560.61:OOS"
  "otpm-1-21-2-1:::LEVEL=UBB,UBBRATE=ESCON,UBBRATECURR=169Mbps,
  UBBDRMNC=MN,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1560.61:OOS"
  "otpm-1-21-3-1:::LEVEL=UBB,UBBRATE=UNKNOWN,UBBRATECURR=1062Mbps,
  UBBDRMNC=MN,NTFCNCDE=MJ,OPTLINECDE=-,WAVLNTH=1560.61:OOS"
  "otpm-1-21-4-1:::LEVEL=UBB,UBBRATE=D1-V,UBBRATECURR=266Mbps,
  UBBDRMNC=MN,NTFCNCDE=MJ,OPTLINECDE=NRZ,WAVLNTH=1560.61:OOS"
;

```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (.), or termination characters (;), the following error response is returned:

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

If the network element receives a **RTRV** command with an invalid command code modifier, the following error response is returned:

```
sid date time
M ctag DENY
ICNV
/* Input, Command Not Valid, invalid modifier */
;
```

If the network element receives a **RTRV** command without an *aid* value or with an *aid* value that is invalid for this command, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier, AID missing or inconsistent
with modifier value */
;
```

If the network element receives this command with an invalid *type* value, the following error response is returned:

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

RELATED TL1 COMMANDS/MESSAGES

ENT-OTPS

RTRV-PATHTRC

RTRV-PATHTRC: Retrieve Path_Trace

The privilege level for this command is REPORTS.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 8.2.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-PATHTRC:*tid:aid:ctag;*

DESCRIPTION

RTRV-PATHTRC command retrieves transmitted, received and expected path trace overhead (J1 byte), and the status of the path trace.

This command is utilized by MUX OTUs only.

This command retrieves path trace information pertaining to the addressed path terminating entity in a line-by-line format.

INPUT PARAMETERS

<i>tid</i>	Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set: [A-Z][a-z][0-9] . (period) + (plus) % (percentage) # (pound) { [((open parenthesis))] } (close parenthesis) @ (at sign) \$ (dollar sign) & (ampersand) * (star)

	- (dash)
	_ (underscore)
	/ (slash)
<i>aid</i>	Access identifier. This is the address of the entity for which the report is requested. Entity: Port (2DM25) Legal Values: (2DM25)-(ALL), (2DM25)-(1,2)-(ALL), (2DM25)-(1,2)-(1-32)-(ALL,HS,P1,P2) CenterLink CIT selection options: (2DM25)-(ALL, 1, 2)-(ALL, 1-32)-(ALL,HS,P1,P2)
<i>ctag</i>	Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for <i>ctag</i> are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If there is path trace information to report, the following output message is returned:

```
sid date time
M ctag COMPLD
"aid:::status=x,ntfcncde=xx,INCPATHTRC=\"xxxxxxxxxxxxxx\",
EXPPATHTRC=\"xxxxxxxxxxxxxx\"
. . . . .
. . . . .
. . . . .
"aid:::status=x,ntfcncde=xx,INCPATHTRC=\"xxxxxxxxxxxxxx\",
EXPPATHTRC=\"xxxxxxxxxxxxxx\"
;
```

The output message line length is limited to 15 characters regardless of the length of the path trace to be reported.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

<i>AID</i>	Access Identifier. This is the address of the signal for which the path trace is to be retrieved.

STATUS	Path Trace Status. This is a status report of the incoming path trace. For RTRV_PATHTRC messages status can take one of the following values:
GOOD	Good. This indicates that the <i>INCPATHTRC</i> and the <i>EXPPATHTRC</i> match.
MISMATCH	Mismatch. This indicates that the <i>INCPATHTRC</i> and the <i>EXPPATHTRC</i> do not match.
UNAVAILABLE	Unavailable. This indicates that there is no <i>INCPATHTRC</i> because there has been either control system failures or loss of signal (LOS), loss of frame (LOF), the addressed slot is empty, or device failures at the MUX OTU.
NTFCNCDE	Notification code. This parameter is the alarm level provisioned for failures of facilities serviced by the addressed port. The <i>ntfcncde</i> parameter is reported in NTFCNCDE=xx format where xx has one of the following values:
CR	Critical (if provisioned for SONET)
MJ	Major (if provisioned for SONET)
MN	Minor (if provisioned for SONET)
NA	Not alarmed (if provisioned for SONET)
NR	Not reported (if provisioned for SONET) (No autonomous report will be generated.)
NO	Ignored (if provisioned for SONET) (No autonomous or on-demand report will be generated.)
Prompt	Prompt (if provisioned for SDH)
Deferred	Deferred (if provisioned for SDH)
No_Alarm	No Alarm (if provisioned for SDH)
No_Report	No Report (if provisioned for SDH) (No autonomous report will be generated.)
Not_Indicated	Not Indicated (if provisioned for SDH) (No autonomous or on-demand report will be generated.)
TXPATHTRC	Transmitted path trace message. This indicates the content of the transmitted path trace overhead byte (J1). The TXPATHTRC is a string of 15 ASCII characters transmitted in the path trace bytes (J1) of the egress high-speed signal of the MUX OTU as provisioned by the user. If the user did not provision this parameter, the default value is printed. Any trailing 0x00 bytes will be truncated from the reported value. The trailing 0x00 bytes occur as a result of padding to 15 characters when the path trace entered by ENT_PATHTRC was less than 15 characters.
INCPATHTRC	Incoming Path trace message. This indicates the incoming Path Trace (J1) content. The <i>INCPATHTRC</i> is a string of 15 ASCII characters received in the Path trace bytes (J1) of the SONET signal.

If the *INCPATHTRC* is **UNAVAILABLE**, 15 question marks ("??") are reported for the *INCPATHTRC*.

The path trace is unavailable when there has been a path interruption.

With the exception of the default path trace byte which is a sequence of 16 consecutive representations of binary one, if the *INCPATHTRC* contains non-printable characters, the non-printable characters will be reported as question marks ("??"). The default path trace byte is represented as "RESET_PATHTRC".

Any trailing 0x00 bytes will be truncated from the reported value. The trailing 0x00 bytes occur as a result of padding to 15 characters when the path trace entered by ENT_PATHTRC was less than 15 characters.

EXPPATHTRC

Expected incoming Path trace message. This indicates the expected Path Trace (J1) content. The *EXPPATHTRC* is a string of the first 15 ASCII characters received in the Path trace bytes (J1) of the SONET/SDH signal.

If there are invalid characters *EXPPATHTRC*, the status will be set to **MISMATCH**.

The ASCII characters allowed for the path trace are letters "A" through "Z" and "a" through "z", numbers "0" through "9", and special characters: "#" (pound), "\$" (dollar), "%" (percent), "&" (ampersand), "*" (asterisk), "(" (open parenthesis), ")" (close parenthesis), "+" (plus), "|" (pipe), "-" (hyphen), "[" (open square bracket), "]" (close square bracket), "{" (open bracket), "}" (close bracket), "'" (apostrophe), "`" (grave accent), "." (period), "/" (slash), "<" (less than), and ">" (greater than).

Any trailing 0x00 bytes will be truncated from the reported value. The trailing 0x00 bytes occur as a result of padding to 15 characters when the path trace entered by ENT_PATHTRC was less than 15 characters.

Each one of the 15 characters of the J1 path trace byte has a unique 0x01 hex 7 bit representation as described by the T.50 standard. Any character whose 0x01 hex 7 bit representation does not correspond to one of the allowed characters in the trace messages will be mapped to question mark ("??") in the output. Nulls and spaces will be displayed as space (" ").

If the path trace is **MISMATCH** (status=MISMATCH) and the OTU port state changes to **NMON**, the following changes must take place:

- n The path trace status should change from status=**MISMATCH** to status=**UNAVAILABLE** and
- n *INCPATHTRC* must display *INCPATHTRC*=\"????????????????\".

EXAMPLE INPUT/OUTPUT

The following example shows a **RTRV-PATHTRC** command with the system equipped with MUX OTUs. This command can always be issued regardless

whether the system is equipped with MUX OTUs. Only Slots 11through 14 are equipped with MUX OTUs.

```
rtrv-pathtrc:LT-PF-2000:2dm25-1-all:789012;
IP 789012
<
  LT-PF-2000 93-10-26 16:42:11
M 789012 COMPLD
  "2dm25-1-11-hs::status=G00D,ntfcncde=NA,TPATHTRC=\"RESET_PATHTRC\",
  INCPATHTRC=\"RESET_PATHTRC\",EXPPATHTRC=\"RESET_PATHTRC\"""
  "2dm25-1-12-hs::status=MISMATCH,ntfcncde=NA,TPATHTRC=\"RESET_PATHTRC\",
  INCPATHTRC=\"TRACE123???q\",EXPPATHTRC=\"TRACE123\"""
  "2dm25-1-13-hs::status=MISMATCH,ntfcncde=NA,TPATHTRC=\"RESET_PATHTRC\"
  INCPATHTRC=\"TEST456\",EXPPATHTRC=\"TEST123\"""
  "2dm25-1-14-hs::status=NOT_AVAILABLE,ntfcncde=NA,
  TPATHTRC=\"RESET_PATHTRC\",INCPATHTRC=\"??????????????\",
  EXPPATHTRC=\"TEST123\"""
  "2dm25-1-11-hs::status=G00D,ntfcncde=NA,TPATHTRC=\"RESET_PATHTRC\",
  INCPATHTRC=\"TRACE1234\",EXPPATHTRC=\"TRACE1234\"""
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If a **RTRV-PATHTRC** command is received with an invalid *aid* value, the following error response is returned:

```
sid date time
M ctag DENY
  IIAC
  /* Input, Invalid Access Identifier */
;
```

If the network element receives this command with an otherwise valid *aid* value but for which the command is directed to an unequipped slot (slot in AUTO state), or a slot equipped with circuit packs which do not support reading or writing the J1 Path Trace Byte, the following error response is returned:

```
sid date time
M ctag DENY
  IDNV
  /* Input, Data Not Valid, AID value inconsistent with current
  equipage */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-PATHTRC

ENT-OCHAN

RTRV-STATE

RTRV-PM-ALL

RTRV-PM-ALL: Retrieve Performance_Monitoring All

The privilege level for this command is REPORTS.

The OSI category for this command is PERFORMANCE.

This command is available beginning in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-PM-ALL:*tid:aid:ctag::[montype],[monlev],[locn],
[dirn],[tmper],[mondatt],[montm];*



NOTE:

The above single-line command is presented as two lines for ease of reading.

DESCRIPTION



WARNING:

Use of this command may have a detrimental effect on the OS/network element network bandwidth. Lucent Technologies does not recommend the use of this command. Upon receiving this command, the network element could be required to transmit over 1 Megabyte of data from its performance-monitoring bins to report for one network element Terminal. Furthermore, Telcordia Technologies strongly suggests to NMA users via SR-ST5-001665, Issue 2, that this command construct not be used due to the potential strain it may place on the OS/network element network bandwidth.

The **RTRV-PM-ALL** command is initiated by an OS or OS user to request the network element to send the current and/or historical performance-monitoring (PM) data associated with all facilities of any type.

Performance monitoring data is retrieved for all optical channels, optical lines, the supervisory signal, and optical translator port signals.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)
% (percentage)
(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@ (at sign)
\$ (dollar sign)
& (ampersand)
* (star)
- (dash)
_ (underscore)
/ (slash)

aid

Access identifier. This is the address of the facility for which the performance-monitoring data is requested.

Entity: All

Legal Values: (ALL)

tag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *tag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

This is the PM parameter type for which PM data is requested.

This parameter must be specified for one of the following values:

LBC-P1

(Laser Bias Current for Pump 1),

LBC-P2

(Laser Bias Current for Pump 2),

LBFC-P1

(Laser Backface Current for Pump 1),

LBFC-P2

(Laser Backface Current for Pump 2),

TOPR-OL

(Total Optical Power Received - Optical Line),

TOPT-OL

(Total Optical Power Transmitted - Optical Line),

SPR - C

(Optical Channel Signal Power),

CVL

(Coding violation count - Line Near End),

ESL

(Errored second count - Line Near End),

SESL

(Severely errored second count - Line Near End),

UASL

(Unavailable second count - Line Near End),

SPR - SU

(Signal power - OC-3 Supervisory Signal only),

LBC - SU

(Laser Bias Current - OC-3 Supervisory Signal only),

LBCL

(Laser Bias Current - Line).

OPT

(Optical power transmitted - optics)

OPR

(Optical power received - optics)

CVS

(Coding violation count - Section Near End),

ESS

(Errored second count - Section Near End),

SESS

(Severe errored second count - Section Near End),

SEFS

(Severe errored framing seconds count - Section Near End OOF), or

ALL

(all applicable *montype* values).

If no value is provided for *montype*, the network element will respond with all performance monitoring data applicable to the *aid*.

monlev

Monitored parameter level. This provides the level and direction which are used to discriminate which performance monitoring data is being requested. This parameter, if specified, must have one of the following values: "1-UP" or "0-UP".

1 - UP

For digital parameters, 1-UP monlev value means that the network element only reports data that are "non-zero and positive". For analog parameters, A 1-UP monlev value means that the network element only reports data that are "out of range".

0 - UP

A 0-UP monlev value means that the network element reports data on all requested PM parameters without regard for their value.

All the network element PM data can have only non-negative values. If no value is provided for this parameter, 1-UP is assumed.

Several Optical PM montypes should be reported regardless of what the input monlev parameter value is. The monlev parameter (0-UP and 1-UP) does not apply to optical parameters LBC, LBC-P1, LBC-P2, LBFC-P1 and LBFC-P2 because they are represented as a fractional number ("real valued") and is non-zero in the normal case.

locn

Location. This parameter indicates the location being monitored for performance. This parameter may have the following value, "NEND".

dirn

Direction of monitoring. This parameter indicates the direction for which the performance data is being retrieved and is relative to the facility identified by the AID. This parameter, if specified, must have one of the following values: "NA", "RCV", or "AZ".

NA

Not applicable (default)

RCV

Receive direction of transmission

AZ

A-Z direction which is functionally the same as **RCV**

If no value is provided for this parameter, **NA** is assumed.

tper

Time period. This parameter requests performance monitoring data information for a specified time interval. This parameter, if specified, must have one of the following values: "**15-MIN**", "**1-DAY**", or "**ALL**".

15-MIN

This requests PM data in 15-minute intervals.

1-DAY

This requests daily PM data.

ALL

This requests PM data both in 15-minute and daily intervals (default).

Note: If no input value is provided for this parameter, the network element responds by using **ALL**.

When *tmper* is **ALL**, the value for both *mondatt* and *montm* will be assumed to be **ALL**.

mondatt

Monitored date. This requests the beginning date of the interval for which the PM data is to be reported.

For a *tmper* value of **15-MIN**, the maximum allowable range of valid dates supported by *mondatt* include only the current day.

Note: The maximum number of 15-MIN periods of data stored is 32 periods. This equates to 8 hours of contiguous 15-MIN periods. Therefore the allowable range for *mondatt* is the current 15-MIN period plus the immediate previous 8 hours of 15-MIN data. Fifteen minute data that is outside the 8 hour window is not stored in the system. Therefore, previous day's data is available only if the previous day's data is within 8 hours of the current period.

For a *tmper* value of **1-DAY**, the maximum allowable range of valid dates supported by *mondatt* include the current and previous six days. This parameter, if specified, must have the values of **ALL** or be in the format of MM-DD (month-day).

MM-DD

Month-day.

ALL

Current and previous day(s), as described in the previous paragraphs.

If no value is entered for *mondatt*, the current date is assumed. If the *mondatt* specifies a date other than the current date or the previous day(s)'s date, as described in the previous paragraph, the network element responds to the user using the current date as the *mondatt* value. If no value is entered for *mondatt*, the current date is assumed.

montm

Monitored time. This specifies the beginning time of day of the requested performance-monitoring period specified in *tmper*. This parameter, if specified, must have the values of **ALL** or has the format HOD-MOH (hour of day-minute of hour), where HOD ranges from 00 to 23 and MOH ranges from 00 to 59.

HOD-MOH

Hour of day-minute of hour.

ALL

All applicable beginning times for the given *mondatt* value.

If no value is entered for *montm*, the current HOD-MOH is assumed. If the *montm* value provided does not correspond exactly to the network element PM reporting boundary, the value is rounded down to the last applicable boundary (for example, **01-03** for a 15-minute PM data is rounded down to **01-00**). If the *tmper* value is **1-DAY** then the *montm* parameter is not used.

The following table specifies the performance-monitoring data output based on the input values of *tmper*, *mondatt*, and *montm* parameters. The term, "other" is used to refer to

any input value that is not covered by another entry for the subject parameter. The term, "any" is used to refer to any input value (no validation is needed - don't care if valid or invalid).

RTRV-PM Output Data Relating to MONDAT, TMPER, and MONTM Input Parameters			
TMPER	MONDAT	MONTM	Output PM Data
15-MIN	ALL	any	15 min. data from the present time to the previous 8.25 hours
15-MIN	current day or no value	ALL	15 min. data from the present time to the previous midnight or 8.25 earlier than the present, whichever is more recent.
15-MIN	current day or no value	no value	15 min. data for the current interval HOD-MOH for the current day (see also REQ RTRV_PM-montm).
15-MIN	previous day	no value	15 min. data beginning at MONDAT for the current interval HOD-MOH (see also REQ RTRV_PM-montm).
15-MIN	previous day	ALL	15 min. data from the previous midnight to 8 hours earlier than the present time. If the current time is later than 8
15-MIN	previous day, current day, or no value	value of MONDAT and MONTM within 8.25 hours of current time	single 15 min. interval of data beginning at MONDAT and MONTM
15-MIN	current day, previous day, or no value	value of MONDAT and MONTM outside of the 8.25 hours of current time, or other	return error response (invalid MONTM)
15-MIN	other	any	return error response (invalid MONDAT)
1-DAY	ALL	any	current and previous 6 days data
1-DAY	current day or no value	any	current 1-day data
1-DAY	any one of the previous six days	any	appropriate previous 1-day data
1-DAY	other	any	return error response (invalid MONDAT)
other	any	any	return error response (invalid TMPER)

RTRV-PM Output Data Relating to MONDAT, TMPER, and MONTM Input Parameters			
TMPER	MONDAT	MONTM	Output PM Data
15-MIN	ALL	any	15 min. data from the present time to the previous 8.25 hours
ALL or no value	any	ALL	return error response (invalid MONDAT)
ALL or no value	ALL	any	return error response (invalid MONTM)
ALL or no value	ALL	ALL	data from current and previous six days plus 15 min. data from the present time to the previous midnight or 8.25 hour earlier than the present time, whichever is more recent

OUTPUT FORMAT

If there is no data to return for the given valid command, the following message is returned:

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

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV - HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the facility for which the PM data is being reported.

aidtype

Access identifier type. This has one of the following values:

OLINE

This reports performance-monitoring information at the optical lines for an OLS terminal.

OCHAN

This reports performance-monitoring information at the optical channels for an OLS terminal.

SUPR

This reports performance-monitoring information at the supervisory channel which is in OC3 (CEPT1 for the E1 telemetry circuit pack) format for an OLS terminal.

OTPS

This reports performance-monitoring information at the optical translator and OT port modules for an OT bay.

montype

Monitored parameter type.

Digital PM parameters include: **CVL**, **ESL**, **SESL**, and **UASL**; they are collected per 15 min. bin, and 1 day bin for each SUPR channel so that each has 2 values for each supervisory channel. Optical parameters include: **SPR-SU** and **LBC-SU**, and are collected on a per channel basis.

monval

Monitored value. This contains the measured value of the parameter specified in *montype*. For OLS PM parameters which do not accumulate over time, the PM monitored value shall be frozen when the threshold is reached (and TCA reported) until the current 15-minute time interval expires and the next bin becomes active.

stat

Status indicator. This indicates the validity of the PM data or if threshold has been exceeded by the PM data. This parameter, if specified, must have one of the following values:

NA

Data is not available. This includes counts not available because of trouble conditions that cause performance-monitoring to be suspended. *stat* shall be set to **NA** when data has not yet been collected.

OVFL

This indicates counts that overflow their registers.

TCA

Threshold Crossing Alert.

PRTL

Data is accumulated over a complete interval but is corrupted or data is incomplete because it is not accumulated over a complete portion of the requested time period.

If the status is not specified, the data is valid and below the threshold level for that parameter.

For *stat*, **OVFL** has a higher priority than **TCA** and **TCA** has a higher priority than **PRTL**.

locn

Location. The location field, if specified, must have the value (**NEND**).

dirn

Direction. This specifies the direction in which the threshold value(s) are to be retrieved and is relative to the facility identified by the aid.

tmper

Time period. This parameter has the value **15-MIN** or **1-DAY**.

mondat

Monitored date. This is the beginning date of the interval for which PM data is reported. This parameter has the format
MM-DD (month-day).

montm

Monitored time. This is the beginning time of the interval for which the PM data is reported. This parameter has the format HOD-MOH (hour of day-minute of hour).
MOH is in quarter hour increments (that is, 00, 15, 30 and 45).

EXAMPLE INPUT/OUTPUT

The command to retrieve performance monitoring data for all optical lines, optical and supervisory channels is:

```
rtrv-pm-all:LT-OLS:all:123456::,,,,,;
IP 123456
<
  LT-OLS 97-08-08 17:32:01
M 123456 COMPLD
"oline-1a,oline:LBC-P1,1.03,,,,15-MIN,08-08,17-00"
"oline-1a,oline:LBC-P2,1.00,,,,15-MIN,08-08,17-00"
"oline-1a,oline:LBFC-P1,1.01,,,,15-MIN,08-08,17-00"
"oline-1a,oline:LBFC-P2,1.01,,,,15-MIN,08-08,17-00"
"oline-1a,oline:TOPR-OL,80,,,,15-MIN,08-08,17-00"
"oline-1b,oline:LBC-P1,1.03,,,,15-MIN,08-08,17-00"
"oline-1b,oline:LBC-P2,1.00,,,,15-MIN,08-08,17-00"
"oline-1b,oline:LBFC-P1,1.00,,,,15-MIN,08-08,17-00"
"oline-1b,oline:LBFC-P2,1.00,,,,15-MIN,08-08,17-00"
"oline-1b,oline:TOPR-OL,80,,,,15-MIN,08-08,17-00"
"ochan-1a-1,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1a-2,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1a-3,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1a-4,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1a-5,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1a-6,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1a-7,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1a-8,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1a-9,ochan:SPR-C,80,,,,15-MIN,08-08,17-00"
"ochan-1a-10,ochan:SPR-C,80,,,,15-MIN,08-08,17-00"
"ochan-1a-11,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1a-12,ochan:SPR-C,80,,,,15-MIN,08-08,17-00"
"ochan-1a-13,ochan:SPR-C,80,,,,15-MIN,08-08,17-00"
"ochan-1a-14,ochan:SPR-C,80,,,,15-MIN,08-08,17-00"
"ochan-1a-15,ochan:SPR-C,80,,,,15-MIN,08-08,17-00"
"ochan-1a-16,ochan:SPR-C,80,,,,15-MIN,08-08,17-00"
"ochan-1b-1,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-2,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-3,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-4,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-5,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-6,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-7,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-8,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-9,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-10,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-11,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-12,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-13,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-14,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-15,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-16,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"supr-1a,supr:LBC-SU,0.99,,,,15-MIN,08-08,17-00"
"supr-1a,supr:SPR-SU,0,,,,15-MIN,08-08,17-00"
;
```


The command to retrieve performance monitoring data for all optical lines, optical and supervisory channels, and optical translator port states is:

```
rtrv-pm-all:LT-OLS:all:123456::,,,,,;
IP 123456
<
  LT-OLS 97-08-08 17:32:01
M 123456 COMPLD
"oline-1a,oline:LBC-P1,1.03,,,,15-MIN,08-08,17-00"
"oline-1a,oline:LBC-P2,1.00,,,,15-MIN,08-08,17-00"
"oline-1a,oline:LBFC-P1,1.01,,,,15-MIN,08-08,17-00"
"oline-1a,oline:LBFC-P2,1.01,,,,15-MIN,08-08,17-00"
"oline-1a,oline:TOPR-OL,80,,,,15-MIN,08-08,17-00"
"oline-1b,oline:LBC-P1,1.03,,,,15-MIN,08-08,17-00"
"oline-1b,oline:LBC-P2,1.00,,,,15-MIN,08-08,17-00"
"oline-1b,oline:LBFC-P1,1.00,,,,15-MIN,08-08,17-00"
"oline-1b,oline:LBFC-P2,1.00,,,,15-MIN,08-08,17-00"
"oline-1b,oline:TOPR-OL,80,,,,15-MIN,08-08,17-00"
"ochan-1a-1,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1a-2,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1a-3,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1a-4,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1a-5,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1a-6,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1a-7,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1a-8,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1a-9,ochan:SPR-C,80,,,,15-MIN,08-08,17-00"
"ochan-1a-10,ochan:SPR-C,80,,,,15-MIN,08-08,17-00"
"ochan-1a-11,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1a-12,ochan:SPR-C,80,,,,15-MIN,08-08,17-00"
"ochan-1a-13,ochan:SPR-C,80,,,,15-MIN,08-08,17-00"
"ochan-1a-14,ochan:SPR-C,80,,,,15-MIN,08-08,17-00"
"ochan-1a-15,ochan:SPR-C,80,,,,15-MIN,08-08,17-00"
"ochan-1a-16,ochan:SPR-C,80,,,,15-MIN,08-08,17-00"
"ochan-1b-1,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-2,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-3,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-4,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-5,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-6,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-7,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-8,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-9,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-10,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-11,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-12,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-13,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-14,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-15,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"ochan-1b-16,ochan:SPR-C,,NA,,,15-MIN,08-08,17-00"
"supr-1a,supr:LBC-SU,0.99,,,,15-MIN,08-08,17-00"
"supr-1a,supr:SPR-SU,80,,,,15-MIN,08-08,17-00"
```

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"otu-1-1-1,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-2,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-3,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-4,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-5,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-6,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-7,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-8,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-9,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-10,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-11,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-12,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-13,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-14,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-15,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-16,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-17,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-18,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-19,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-20,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-21,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-22,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-23,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-24,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-25,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-26,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-27,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-28,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-29,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-30,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-31,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otu-1-1-32,otps:LBCL,1.00,,,15-MIN,08-08,17-00"
"otpm-1-1-1-1,otps:ESS,25,,,15-MIN,08-08,17-00"
"otpm-1-1-1-2,otps:ESS,25,,,15-MIN,08-08,17-00"
"otpm-1-1-1-3,otps:ESS,25,,,15-MIN,08-08,17-00"
"otpm-1-1-1-4,otps:ESS,25,,,15-MIN,08-08,17-00"
"otpm-1-1-3-1,otps:ESS,25,,,15-MIN,08-08,17-00"
"otpm-1-1-3-2,otps:ESS,25,,,15-MIN,08-08,17-00"
"otpm-1-1-3-3,otps:ESS,25,,,15-MIN,08-08,17-00"
"otpm-1-1-3-4,otps:ESS,25,,,15-MIN,08-08,17-00"
"otpm-1-1-5-1,otps:ESS,25,,,15-MIN,08-08,17-00"
"otpm-1-1-5-2,otps:ESS,25,,,15-MIN,08-08,17-00"
"otpm-1-1-5-3,otps:ESS,25,,,15-MIN,08-08,17-00"
"otpm-1-1-5-4,otps:ESS,25,,,15-MIN,08-08,17-00"
"otpm-1-1-7-1,otps:ESS,25,,,15-MIN,08-08,17-00"
"otpm-1-1-7-2,otps:ESS,25,,,15-MIN,08-08,17-00"
"otpm-1-1-7-3,otps:ESS,25,,,15-MIN,08-08,17-00"
"otpm-1-1-7-4,otps:ESS,25,,,15-MIN,08-08,17-00"

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```
"otpm-1-1-9-1,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-9-2,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-9-3,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-9-4,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-11-1,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-11-2,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-11-3,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-11-4,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-13-1,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-13-2,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-13-3,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-13-4,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-15-1,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-15-2,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-15-3,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-15-4,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-17-1,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-17-2,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-17-3,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-17-4,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-19-1,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-19-2,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-19-3,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-19-4,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-21-1,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-21-2,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-21-3,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-21-4,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-23-1,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-23-2,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-23-3,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-23-4,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-25-1,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-25-2,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-25-3,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-25-4,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-27-1,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-27-2,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-27-3,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-27-4,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-29-1,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-29-2,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-29-3,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-29-4,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-31-1,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-31-2,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-31-3,otps:ESS,25,,,,15-MIN,08-08,17-00"  
"otpm-1-1-31-4,otps:ESS,25,,,,15-MIN,08-08,17-00"
```

;

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command without an *aid* or with an invalid *aid* value, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier */
;
```

If the network element receives this command with a *montype* value that is not supported by the network element, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONTYPE */
;
```

If the network element receives this command with an invalid *tmper*, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid TMPER */
;
```

If the network element receives this command with a *monlev* which is any value other than **0-UP** or **1-UP**, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONLEV */
;
```

If the network element receives this command with an invalid *dirn* value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid DIRN */
;
```

If the network element receives this command with an invalid *montm* value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONTM */
;
```

If the network element receives this command with an invalid *mondatt* format, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONDAT */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-PM-XXX

REPT EVT

RTRV-PM-OCHAN

RTRV-PM-OCHAN: Retrieve Performance_Monitoring Optical_Channel

The privilege level for this command is REPORTS.

The OSI category for this command is PERFORMANCE.

This command is available beginning in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-PM-OCHAN:*tid:aid:ctag::[montype],[monlev],[locn],*
[dirn],[tmper],[mondatt],[montm];



NOTE:

The above single-line command is presented as two lines for ease of reading.

DESCRIPTION

The **RTRV-PM-OCHAN** command is initiated by an OS or OS user to request the network element to send the current and/or historical performance-monitoring (PM) data associated with one or more optical channels for an OLS terminal.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This is the address of the facility for which the performance-monitoring data is requested.

Entity: Optical Channel

Legal Values:(OCHAN)-(ALL), (OCHAN)-(1A,1B,2A,2B)-(ALL,1-32)

CenterLink CIT selection options: (OCHAN)-(ALL, 1A, 1B, 2A, 2B)-(ALL, 1-32)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

This is the PM parameter type for which PM data is requested. This parameter must be specified for one of the following values:

SPR - C

(Optical Channel Signal Power),

ALL

(all applicable *montype* values).

If no value is provided for *montype*, the network element will respond with all performance monitoring data applicable to the *aid*.

monlev

Monitored parameter level. This provides the level and direction which are used to discriminate which performance monitoring data is being requested. This parameter, if specified, must have one of the following values: "**1 - UP**" or "**0 - UP**".

1 - UP

For digital parameters, **1 - UP** *monlev* value means that the network element only reports data that are "non-zero and positive". For analog parameters, A **1 - UP** *monlev* value means that the network element only reports data that are "out of range".

0 - UP

A **0 - UP** *monlev* value means that the network element reports data on all requested PM parameters without regard for their value.



NOTE:

If no value is provided for this parameter, **1 - UP** is assumed.

locn

Location. This parameter indicates the location being monitored for performance. This parameter may have the following value, "**NEND**".

dirn

Direction of monitoring. This parameter indicates the direction for which the performance data is being retrieved and is relative to the facility identified by the AID. This parameter, if specified, must have one of the following values: "**NA**", "**RCV**", or "**AZ**".

NA

Not applicable (default)

RCV

Receive direction of transmission

AZ

A-Z direction which is functionally the same as **RCV**

If no value is provided for this parameter, **NA** is assumed.

tmper

Time period. This parameter requests performance monitoring data information for a specified time interval. This parameter, if specified, must have one of the following values: "**15-MIN**", "**1-DAY**", or "**ALL**".

15-MIN

This requests PM data in 15-minute intervals.

1-DAY

This requests daily PM data.

ALL

This requests PM data both in 15-minute and daily intervals (default).

Note: If no input value is provided for this parameter, the network element responds by using **ALL**.

When *tmper* is **ALL**, the value for both *mondatt* and *montm* will be assumed to be **ALL**.

mondatt

Monitored date. This requests the beginning date of the interval for which the PM data is to be reported.

For a *tmper* value of **15-MIN**, the maximum allowable range of valid dates supported by *mondatt* include only the current day.

Note: The maximum number of 15-MIN periods of data stored is 32 periods. This equates to 8 hours of contiguous 15-MIN periods. Therefore the allowable range for *mondatt* is the current 15-MIN period plus the immediate previous 8 hours of 15-MIN data. Fifteen minute data that is outside the 8 hour window is not stored in the system. Therefore, previous day's data is available only if the previous day's data is within 8 hours of the current period.

For a *tmper* value of **1-DAY**, the maximum allowable range of valid dates supported by *mondatt* include the current and previous six days. This parameter, if specified, must have the values of **ALL** or be in the format of MM-DD (month-day).

MM-DD

Month-day.

ALL

Current and previous day(s), as described in the previous paragraphs.

If no value is entered for *mondatt*, the current date is assumed. If the *mondatt* specifies a date other than the current date or the previous day(s)'s date, as described in the previous paragraph, the network element responds to the user using the current date as the *mondatt* value.

montm

Monitored time. This specifies the beginning time of day of the requested performance-monitoring period specified in *tmper*. This parameter, if specified, must have the values of **ALL** or has the format HOD-MOH (hour of day-minute of hour), where HOD ranges from 00 to 23 and MOH ranges from 00 to 59.

HOD-MOH

Hour of day-minute of hour.

ALL

All applicable beginning times for the given *mondatt* value.

If no value is entered for *montm*, the current HOD-MOH is assumed. If the *montm* value provided does not correspond exactly to the network element PM reporting boundary, the value is rounded down to the last applicable boundary (for example, **01-03** for a 15-minute PM data is rounded down to **01-00**). If the *tmper* value is **1-DAY** then the *montm* parameter is not used.

The following table specifies the performance-monitoring data output based on the input values of *tmper*, *mondatt*, and *montm* parameters. The term, "other" is used to refer to any input value that is not covered by another entry for the subject parameter. The term, "any" is used to refer to any input value (no validation is needed - don't care if valid or invalid).

RTRV-PM Output Data Relating to MONDAT, TMPER, and MONTM Input Parameters

TMPER	MONDAT	MONTM	Output PM Data
15-MIN	ALL	any	15 min. data from the present time to the previous 8.25 hours
15-MIN	current day or no value	ALL	15 min. data from the present time to the previous midnight or 8.25 earlier than the present, whichever is more recent.
15-MIN	current day or no value	no value	15 min. data for the current interval HOD-MOH for the current day (see also REQ RTRV_PM-montm).

RTRV-PM Output Data Relating to MONDAT, TMPER, and MONTM Input Parameters

TMPER	MONDAT	MONTM	Output PM Data
15 - MIN	previous day	no value	15 min. data beginning at MONDAT for the current interval HOD-MOH (see also REQ RTRV_PM-montm).
15 - MIN	previous day	ALL	15 min. data from the previous mid-night to 8 hours earlier than the present time. If the current time is later than 8
15 - MIN	previous day, current day, or no value	value of MONDAT and MONTM within 8.25 hours of current time	single 15 min. interval of data beginning at MONDAT and MONTM
15 - MIN	current day, previous day, or no value	value of MONDAT and MONTM outside of the 8.25 hours of current time, or other	return error response (invalid MONTM)
15 - MIN	other	any	return error response (invalid MONDAT)
1 - DAY	ALL	any	current and previous 6 days data
1 - DAY	current day or no value	any	current 1-day data
1 - DAY	any one of the previous six days	any	appropriate previous 1-day data
1 - DAY	other	any	return error response (invalid MONDAT)
other	any	any	return error response (invalid TMPER)
ALL or no value	any	ALL	return error response (invalid MONDAT)
ALL or no value	ALL	any	return error response (invalid MONTM)
ALL or no value	ALL	ALL	data from current and previous six days plus 15 min. data from the present time to the previous midnight or 8.25 hour earlier than the present time, whichever is more recent

OUTPUT FORMAT

After receiving a valid command and having data to report, the following output message is returned:

```
sid date time
M ctag COMPLD
  "aid,aidtype:montype,monval,[stat],[locn],,tmper,mondat[,montm]"
  . . . . .
  . . . . .
  . . . . .
  "aid,aidtype:montype,monval,[stat],[locn],,tmper,mondat[,montm]"
;
```

The following conditions will result in no data being reported:

- Requested *MONLEV=1-up* and there are no non-zero counts.
- Mismatch between the slot equipage and the command modifier .
- Circuit pack removal

Applicable output lines are ordered as follows:

1. By *aid* in order corresponding to the shelf architecture.
2. By requested time intervals, starting with the current time interval.
3. By applicable PM parameters per *aid*.

If there is no data to return for the given valid command, the following message is returned:

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

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the facility for which the PM data is being reported.

aidtype

Access identifier type.

OCHAN

This reports performance-monitoring information at the optical channels for an OLS terminal.

montype

Monitored parameter type. This parameter must be specified for one of the following values:

"SPR-C" (Optical Channel Signal Power),

"ALL" (all applicable *montype* values). Digital PM parameters include: CVL, ESL, SESL, and UASL; they are collected per 15 min. bin, and 1 day bin for each SUPR channel so that each has 2 values for each supervisory channel. Optical parameters include: SPR-SU and LBC-SU, and are collected on a per channel basis.

monval

Monitored value. This contains the measured value of the parameter specified in *montype*. For OLS PM parameters which do not accumulate over time, the PM monitored value shall be frozen when the threshold is reached (and TCA reported) until the current 15-minute time interval expires and the next bin becomes active. The optical line, and its constituent optical channel(s), DEMUXed at a single OA OLS End Terminal without a LIRCV is not directly monitored because there is no OA or Line Interface directly preceding the ODU.

The *SPR-C* value will report an integer in a scale of 0 to 100 relative to the baselined value for optical lines using tone based channel detection. If the optical line is using the OMON circuit pack for channel detection then a real number "XX.X" will report the actual measured dBm value.

stat

Status indicator. This indicates the validity of the PM data or if threshold has been exceeded by the PM data. This parameter, if specified, must have one of the following values:

NA

Data is not available. This includes counts not available because of trouble conditions that cause performance-monitoring to be suspended. *stat* shall be set to **NA** when data has not yet been collected.

OVFL

This indicates counts that overflow their registers.

TCA

Threshold Crossing Alert.

PRTL

Data is accumulated over a complete interval but is corrupted or data is incomplete because it is not accumulated over a complete portion of the requested time period.

If the status is not specified, the data is valid and below the threshold level for that parameter.

For *stat*, **OVFL** has a higher priority than **TCA** and **TCA** has a higher priority than **PRTL**.

locn

Location. The location field, if specified, must have the value (**NEND**).

dirn

Direction. The direction field will always appear as a blank between two commas, i.e. ",,".

tmper

Time period. This parameter has the value **15-MIN** or **1-DAY**.

mondat

Monitored date. This is the beginning date of the interval for which PM data is reported. This parameter has the format MM-DD (month-day).

montm

Monitored time. This is the beginning time of the interval for which the PM data is reported. This parameter has the format HOD-MOH (hour of day-minute of hour).

EXAMPLE INPUT/OUTPUT

The command to retrieve the optical channel signal power (SPR-C) performance monitoring data for ochan-1a-4 for a system using OMON is:

```
rtrv-pm-ochan:LT-OLS:ochan-1a-4:123456::all,,,,,;
IP 123456
<
  LT-OLS 97-07-10 13:02:07
M 123456 COMPLD
  "ochan-1a-4,ochan:SPR-C,-15.5,,,,15-MIN,07-10,15-00"
;
```

The command to retrieve the optical channel signal power (SPR-C) performance monitoring data for ochan-1a-4 for a Single OA is:

```
rtrv-pm-ochan:LT-OLS:ochan-1a-4:123456::all,,,,,;
IP 123456
<
  LT-OLS 97-07-10 13:02:07
M 123456 COMPLD
  "ochan-1a-4,ochan:SPR-C,,,,,15-MIN,07-10,15-00"
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command without an *aid* or with an invalid *aid* value, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier */
;
```

If the network element receives this command with a *montype* value that is not supported by the network element, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONTYPE */
;
```

If the network element receives this command with a *monlev* which is any value other than **0-UP** or **1-UP**, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONLEV */
;
```

If the network element receives this command with an invalid *timper*, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid TMPER */
;
```

If the network element receives this command with an invalid *dirn* value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid DIRN */
;
```

If the network element receives this command with an invalid *mondatt* format, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONDAT */
;
```

If the network element receives this command with an invalid *montm* value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONTM */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-TH-OCHAN

SET-TH-OCHAN

RTRV-PM-OLINE

RTRV-PM-OLINE: Retrieve Performance_Monitoring Optical_Line

The privilege level for this command is REPORTS.

The OSI category for this command is PERFORMANCE.

This command is available beginning in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-PM-OLINE:*tid:aid:ctag::[montype],[monlev],[locn],
[dirn],[tmper],[mondatt],[montm];*



NOTE:

The above single-line command is presented as two lines for ease of reading.

DESCRIPTION

The **RTRV-PM-OLINE** command is initiated by an OS or OS user to request the network element to send the current and/or historical performance-monitoring (PM) data associated with one or more optical lines for an OLS terminal.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This is the address of the facility for which the performance-monitoring data is requested.

Entity: Optical Line

Legal Values: (OLINE)-(ALL, 1A, 1B, 2A, 2B)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

This is the PM parameter type for which PM data is requested. This parameter must be specified for one of the following values:

LBC-P1

(Laser Bias Current for Pump 1),

LBC-P2

(Laser Bias Current for Pump 2),

LBFC-P1

(Laser Backface Current for Pump 1),

LBFC-P2

(Laser Backface Current for Pump 2),

TOPR-OL

(Total Optical Power Received - Optical Line),

TOPT-OL

(Total Optical Power Transmitted - Optical Line),

ALL

(all applicable *montype* values).

If no value is provided for *montype*, the network element will respond with all performance monitoring data applicable to the *aid*.

monlev

Monitored parameter level. This provides the level and direction which are used to discriminate which performance monitoring data is being requested. This parameter, if specified, must have one of the following values: "**1-UP**" or "**0-UP**".

1-UP

For digital parameters, **1-UP** *monlev* value means that the network element only reports data that are "non-zero and positive".

For analog parameters, A **1-UP** *mon lev* value means that the network element only reports data that are "out of range".

0-UP

A **0-UP** *mon lev* value means that the network element reports data on all requested PM parameters without regard for their value.

Note: If no value is provided for this parameter, **1-UP** is assumed.

locn

Location. This parameter indicates the location being monitored for performance. This parameter may have the following value, "**NEND**".

dirn

Direction of monitoring. This parameter indicates the direction for which the performance data is being retrieved and is relative to the facility identified by the AID. This parameter, if specified, must have one of the following values: "**NA**", "**RCV**", or "**AZ**".

NA

Not applicable (default)

RCV

Receive direction of transmission

AZ

A-Z direction which is functionally the same as **RCV**

If no value is provided for this parameter, **NA** is assumed.

tmper

Time period. This parameter requests performance monitoring data information for a specified time interval. This parameter, if specified, must have one of the following values: "**15-MIN**", "**1-DAY**", or "**ALL**".

15-MIN

This requests PM data in 15-minute intervals.

1-DAY

This requests daily PM data.

ALL

This requests PM data both in 15-minute and daily intervals (default).

Note: If no input value is provided for this parameter, the network element responds by using **ALL**.

When *tmper* is **ALL**, the value for both *mondatt* and *montm* will be assumed to be **ALL**.

mondatt

Monitored date. This requests the beginning date of the interval for which the PM data is to be reported.

For a *tmper* value of **15-MIN**, the maximum allowable range of valid dates supported by *mondatt* include only the current day.

Note: The maximum number of 15-MIN periods of data stored is 32 periods. This equates to 8 hours of contiguous 15-MIN periods. Therefore the allowable range for *mondatt* is the current 15-MIN period plus the immediate previous 8 hours of 15-MIN data. Fifteen minute data that is outside the 8 hour window is not stored in the system. Therefore, previous day's data is available only if the previous day's data is within 8 hours of the current period.

For a *tmper* value of **1-DAY**, the maximum allowable range of valid dates supported by *mondatt* include the current and previous six days. This parameter, if specified, must have the values of **ALL** or be in the format of MM-DD (month-day).

MM-DD

Month-day.

ALL

Current and previous day(s), as described in the previous paragraphs.

If no value is entered for *mondatt*, the current date is assumed. If the *mondatt* specifies a date other than the current date or the previous day(s)'s date, as described in the previous paragraph, the network element responds to the user using the current date as the *mondatt* value. If no value is entered for *mondatt*, the current date is assumed.

montm

Monitored time. This specifies the beginning time of day of the requested performance-monitoring period specified in *tmper*. This parameter, if specified, must have the values of **ALL** or has the format HOD-MOH (hour of day-minute of hour), where HOD ranges from 00 to 23 and MOH ranges from 00 to 59.

HOD-MOH

Hour of day-minute of hour.

ALL

All applicable beginning times for the given *mondatt* value.

If no value is entered for *montm*, the current HOD-MOH is assumed. If the *montm* value provided does not correspond exactly to the network element PM reporting boundary, the value is *rounded down* to the last applicable boundary (for example, **01-03** for a 15-minute PM data is rounded down to **01-00**). If the *tmper* value is **1-DAY** then the *montm* parameter is not used.

The following table specifies the performance-monitoring data output based on the input values of *tmper*, *mondat*, and *montm* parameters. The term, "other" is used to refer to any input value that is not covered by another entry for the subject parameter. The term, "any" is used to refer to any input value (no validation is needed - don't care if valid or invalid).

RTRV-PM Output Data Relating to MONDAT, TMPER, and MONTM Input Parameters			
TMPER	MONDAT	MONTM	Output PM Data
15 - MIN	ALL	any	15 min. data from the present time to the previous 8.25 hours
15 - MIN	current day or no value	ALL	15 min. data from the present time to the previous midnight or 8.25 earlier than the present, whichever is more recent.
15 - MIN	current day or no value	no value	15 min. data for the current interval HOD-MOH for the current day (see also REQ RTRV_PM-montm).
15 - MIN	previous day	no value	15 min. data beginning at MONDAT for the current interval HOD-MOH (see also REQ RTRV_PM-montm).
15 - MIN	previous day	ALL	15 min. data from the previous midnight to 8 hours earlier than the present time. If the current time is later than 8
15 - MIN	previous day, current day, or no value	value of MONDAT and MONTM within 8.25 hours of current time	single 15 min. interval of data beginning at MONDAT and MONTM
15 - MIN	current day, previous day, or no value	value of MONDAT and MONTM outside of the 8.25 hours of current time, or other	return error response (invalid MONTM)
15 - MIN	other	any	return error response (invalid MONDAT)
1 - DAY	ALL	any	current and previous 6 days data
1 - DAY	current day or no value	any	current 1-day data
1 - DAY	any one of the previous six days	any	appropriate previous 1-day data
1 - DAY	other	any	return error response (invalid MONDAT)
other	any	any	return error response (invalid TMPER)

RTRV-PM Output Data Relating to MONDAT, TMPER, and MONTM Input Parameters

TMPER	MONDAT	MONTM	Output PM Data
ALL or no value	any	ALL	return error response (invalid MON-DAT)
ALL or no value	ALL	any	return error response (invalid MONTM)
ALL or no value	ALL	ALL	data from current and previous six days plus 15 min. data from the present time to the previous midnight or 8.25 hour earlier than the present time, whichever is more recent

OUTPUT FORMAT

After receiving a valid command and having data to report, the following output message is returned:

```
sid date time
M ctag COMPLD
"aid,aidtype:montype,monval,[stat],[locn],,tmper,mondatt[,montm]"
. . . . .
. . . . .
. . . . .
"aid,aidtype:montype,monval,[stat],[locn],,tmper,mondatt[,montm]"
;
```

The following conditions will result in no data being reported:

- Requested *MONLEV=1-UP* and there are no non-zero counts.
- Mismatch between the slot equipage and the command modifier.
- Circuit pack removal

Applicable output lines are ordered as follows:

1. By *aid* in order corresponding to the shelf architecture.
2. By requested time intervals, starting with the current time interval.
3. By applicable PM parameters per *aid*.

If there is no data to return for the given valid command, the following message is returned:

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

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV - HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the facility for which the PM data is being reported.

aidtype

Access identifier type.

OLINE

This reports performance-monitoring information at the optical lines for an OLS terminal.

montype

Monitored parameter type. This parameter must be specified for one of the following values:

LBC - P1

(Laser Bias Current for Pump 1),

LBC - P2

(Laser Bias Current for Pump 2),

LBFC - P1

(Laser Backface Current for Pump 1),

LBFC - P2

(Laser Backface Current for Pump 2),

TOPR - OL

(Total Optical Power Received - Optical Line),

TOPT - OL

(Total Optical Power Transmitted - Optical Line),

ALL

(all applicable *montype* values).

If no value is provided for *montype*, the network element will respond with all performance monitoring data applicable to the *aid*.

monval

Monitored value. This contains the measured value of the parameter specified in *montype*. For OLS PM parameters which do not accumulate over time, the PM monitored value shall be frozen when the threshold is reached (and TCA reported) until the current 15-minute time interval expires and the next bin becomes active.

The optical line, and its constituent optical channel(s), DEMUXed at a single OA OLS End Terminal without a LIRCU is not directly monitored because there is no OA or Line Interface directly preceding the ODU.

The "**TOPR-OL**" and "**TOPT-OL**" values will report an actual dBm value " $\pm XX.X$ " when the optical line is equipped with LEA207 or LEA307 Optical Amplifier(s). For any other optical amplifiers or Line Interface circuit packs "**TOPT-OL**" will report an null and "**TOPR-OL**" will report integer in a scale of 0 to 100 relative to the baselined value.

stat

Status indicator. This indicates the validity of the PM data or if threshold has been exceeded by the PM data. This parameter, if specified, must have one of the following values:

NA

Data is not available. This includes counts not available because of trouble conditions that cause performance-monitoring to be suspended. *stat* shall be set to **NA** when data has not yet been collected.

OVFL

This indicates counts that overflow their registers.

TCA

Threshold Crossing Alert.

PRTL

Data is accumulated over a complete interval but is corrupted or data is incomplete because it is not accumulated over a complete portion of the requested time period.

If the status is not specified, the data is valid and below the threshold level for that parameter.

For *stat*, **OVFL** has a higher priority than **TCA** and **TCA** has a higher priority than **PRTL**.

locn

Location. The location field, if specified, must have the value (**NEND**).

dirn

Direction. The direction field will always appear as a blank between two commas, i.e. ",,".

tmper

Time period. This parameter has the value **15-MIN** or **1-DAY**.

mondat

Monitored date. This is the beginning date of the interval for which PM data is reported. This parameter has the format:

MM-DD (month-day).

montm

Monitored time. This is the beginning time of the interval for which the PM data is reported. This parameter has the format HOD-MOH (hour of day-minute of hour).

EXAMPLE INPUT/OUTPUT

In the following example, the **RTRV-PM-OLINE** command returns Total optical power (TOPR-L) performance monitoring data for optical lines 1a, 1b, 2a, 2b at 15 minute intervals on Oct.26, starting at 17:00.

```
rtrv-pm-oline:LT-OLS:oline-all:314152::TOPR-OL,, ,15-MIN,10-26;  
  
IP 314152  
>  
  LT-PF-2000 91-10-26 17:12:31  
M 314152 COMPLD  
  "oline-1a,OLINE:TOPR-OL,70,, ,15-MIN,10-26,17-00"  
  "oline-1b,OLINE:TOPR-OL,70,, ,15-MIN,10-26,17-00"  
  "oline-2a,OLINE:TOPR-OL,80,TCA,, ,15-MIN,10-26,17-00"  
  "oline-2b,OLINE:TOPR-OL,60,, ,15-MIN,10-26,17-00"  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command without an *aid* or with an invalid *aid* value, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier */
;
```

If the network element receives this command with a *montype* value that is not supported by the network element, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONTYPE */
;
```

If the network element receives this command with a *monlev* which is any value other than **0-UP** or **1-UP**, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONLEV */
;
```

If the network element receives this command with an invalid *tmper*, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid TMPER */
;
```

If the network element receives this command with an invalid *dirn* value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid DIRN */
;
```

If the network element receives this command with an invalid *mondatt* format, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONDAT */
;
```

If the network element receives this command with an invalid *montm* value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONTM */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-TH-OLINE

SET-TH-OLINE

RTRV-PM-OTPS

RTRV-PM-OTPS: Retrieve Performance_Monitoring OT_Port_Signal

The privilege level for this command is REPORTS.

The OSI category for this command is PERFORMANCE.

This command is available beginning in OLS Release 3.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-PM-OTPS:*tid:aid:ctag::[montype],[monlev],[locn],
[dirn],[tmper],[mondatt],[montm];*



NOTE:

The above single-line command is presented as two lines for ease of reading.

DESCRIPTION

The **RTRV-PM-OTPS** 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 optical translator units (OTU) or port modules (OTPM).

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+ (plus)
% (percentage)
(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@ (at sign)
\$ (dollar sign)
& (ampersand)
* (star)
- (dash)
_ (underscore)
/ (slash)

aid

Access identifier. This is the address of the facility for which the performance-monitoring data is requested. The *aid all* is allowed. When used, it will retrieve the OTU and OTPM port information.

Entity: Port (OTU)

Legal Values: (OTU)-(ALL), (OTU)-(1,2)-(ALL,1-32)-(1)

CenterLink CIT selection options: (OTU)-(ALL, 1, 2)-(ALL, 1-32)-(1)

Entity: Port (OT Port Module)

Legal Values: (OTPM)-(ALL),
(OTPM)-(1,2)-(ALL,1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31)-(ALL,1-4)-(1)

CenterLink CIT selection options: (OTPM)-(ALL, 1, 2)-(ALL, 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31)-(ALL, 1-4)-(1)

Entity: Port (2DM25)

Legal Values: (2DM25)-(ALL), (2DM25)-(1,2)-(ALL,1-32)-(HS, P1, P2)

CenterLink CIT selection options: (2DM25)-(ALL, 1, 2)-(ALL, 1-32)-(ALL, HS, P1, P2)

tag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *tag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

This is the PM parameter type for which PM data is requested.

This parameter must be specified for one of the following values:

LBCL

Laser bias current (line) - optics, OC48/STM16, GbE-1 & UBB only

OPT

Optical power transmitted - optics, OC48/STM16, GbE-1, & UBB only

OPR

Optical power received - optics, OC48/STM16, GbE-1, & UBB only

CVS

Coding violation count - Section Near End. This parameter refers to 8B10B Coding violations for 8B10B encoded data signals

ESS

Errored second count - Section Near End,

SESS

Severe errored second count - Section Near End,

SEFS

Severe errored framing seconds count - Section Near End OOF,

CVP

Digital Coding Violation - Path: Applies to the High Speed (HS) port of Muxing OTU

ESP

Digital Errored Second - Path: Applies to the High Speed (HS) port of Muxing OTU

SESP

Digital Severely Errored Second - Path: Applies to the High Speed (HS) port of Muxing OTU

SEFSP

Digital Errored Frame Second - Path: Applies to the High Speed (HS) port of Muxing OTU

FEC-EC

FEC Error Count, OC-192/STM-64 only,

FEC-UBC

FEC Uncorrectable Block Count, OC192/STM-64 only.

ALL

(all applicable *montype* values). If no value is provided for *montype*, the network element will respond with all performance monitoring data applicable to the *aid*.

monlev

Monitored parameter level. This provides the level and direction which are used to discriminate which performance monitoring data is being requested. This parameter, if specified, must have one of the following values: "**1-UP**" or "**0-UP**".

1-UP

For digital parameters, **1-UP monlev** value means that the network element only reports data that are "non-zero and positive". For analog parameters, A **1-UP monlev** value means that the network element only reports data that are "out of range".

0-UP

A **0-UP monlev** value means that the network element reports data on all requested PM parameters without regard for their value.



NOTE:

If no value is provided for this parameter, **1-UP** is assumed.

locn

Location. This parameter indicates the location being monitored for performance. This parameter may have the following value, "**NEND**".

dirn

Direction of monitoring. This parameter indicates the direction for which the performance data is being retrieved and is relative to the facility identified by the AID. This parameter, if specified, must have one of the following values: "**NA**", "**RCV**", or "**AZ**".

NA

Not applicable (default)

RCV

Receive direction of transmission

AZ

A-Z direction which is functionally the same as **RCV**

If no value is provided for this parameter, **NA** is assumed.



NOTE:

In the implementation, the use of the **NA**, **RCV** and the **AZ** values for *dirn* are functionally the same. Telcordia Technologies TR-833, Issue 3 used the term **AZ** to specify the "A-to-Z" direction, and other (**ZA**) to specify the "Z-to-A" direction of collection of performance monitoring. In an attempt to clarify their usage, TR-833, Issue 4 uses the terms **RCV** and **TRMT** to accomplish the same thing. To maintain full compatibility with surveillance OSs designed to be compliant to TR-833, our product supports (and equates) both **AZ** and **RCV**.

In general, all monitored parameters for the network element apply strictly to the **RCV** direction of transmission.

tmper

Time period. This parameter requests performance monitoring data information for a specified time interval. This parameter, if specified, must have one of the following values: "**15-MIN**", "**1-DAY**", or "**ALL**".

15-MIN

This requests PM data in 15-minute intervals.

1-DAY

This requests daily PM data.

ALL

This requests PM data both in 15-minute and daily intervals (default).

Note: If no input value is provided for this parameter, the network element responds by using **ALL**.

When *tmper* is **ALL**, the value for both *mondatt* and *montm* will be assumed to be **ALL**.

mondatt

Monitored date. This requests the beginning date of the interval for which the PM data is to be reported.

For a *tmper* value of **15-MIN**, the maximum allowable range of valid dates supported by *mondatt* include only the current day.

Note: The maximum number of 15-MIN periods of data stored is 32 periods. This equates to 8 hours of contiguous 15-MIN periods. Therefore the allowable range for *mondatt* is the current 15-MIN period plus the immediate previous 8 hours of 15-MIN data. Fifteen minute data that is outside the 8 hour window is not stored in the system. Therefore, previous day's data is available only if the previous day's data is within 8 hours of the current period.

For a *tmper* value of **1-DAY**, the maximum allowable range of valid dates supported by *mondatt* include the current and previous six days. This parameter, if specified, must have the values of **ALL** or be in the format of MM-DD (month-day).

MM-DD

Month-day.

ALL

Current and previous day(s), as described in the previous paragraphs.

If no value is entered for *mondatt*, the current date is assumed. If the *mondatt* specifies a date other than the current date or the previous day(s)'s date, as described in the previous paragraph, the network element responds to the user using the current date as the *mondatt* value.

montm

Monitored time. This specifies the beginning time of day of the requested performance-monitoring period specified in *tmper*. This parameter, if specified, must have the values of **ALL** or has the format HOD-MOH (hour of day-minute of hour), where HOD ranges from 00 to 23 and MOH ranges from 00 to 59.

HOD-MOH

Hour of day-minute of hour.

ALL

All applicable beginning times for the given *mondatt* value.

If no value is entered for *montm*, the current **HOD-MOH** is assumed. If the *montm* value provided does not correspond exactly to the network element PM reporting boundary, the value is *rounded down* to the last applicable boundary (for example, **01-03** for a 15-minute PM data is rounded down to **01-00**). If the *tmper* value is **1-DAY** then the *montm* parameter is not used.

The following table specifies the performance-monitoring data output based on the input values of *tmper*, *mondatt*, and *montm* parameters. The term, "other" is used to refer to any input value that is not covered by another entry for the subject parameter. The term,

"any" is used to refer to any input value (no validation is needed - don't care if valid or invalid).

RTRV-PM Output Data Relating to MONDAT, TMPPER, and MONTM Input Parameters

TMPPER	MONDAT	MONTM	Output PM Data
15 - MIN	ALL	any	15 min. data from the present time to the previous 8.25 hours
15 - MIN	current day or no value	ALL	15 min. data from the present time to the previous midnight or 8.25 earlier than the present, whichever is more recent.
15 - MIN	current day or no value	no value	15 min. data for the current interval HOD-MOH for the current day (see also REQ RTRV_PM-montm).
15 - MIN	previous day	no value	15 min. data beginning at MONDAT for the current interval HOD-MOH (see also REQ RTRV_PM-montm).
15 - MIN	previous day	ALL	15 min. data from the previous midnight to 8 hours earlier than the present time. If the current time is later than 8
15 - MIN	previous day, current day, or no value	value of MONDAT and MONTM within 8.25 hours of current time	single 15 min. interval of data beginning at MONDAT and MONTM
15 - MIN	current day, previous day, or no value	value of MONDAT and MONTM outside of the 8.25 hours of current time, or other	return error response (invalid MONTM)
15 - MIN	other	any	return error response (invalid MONDAT)
1 - DAY	ALL	any	current and previous 6 days data
1 - DAY	current day or no value	any	current 1-day data
1 - DAY	any one of the previous six days	any	appropriate previous 1-day data
1 - DAY	other	any	return error response (invalid MONDAT)
other	any	any	return error response (invalid TMPPER)

RTRV-PM Output Data Relating to MONDAT, TMPER, and MONTM Input Parameters

TMPER	MONDAT	MONTM	Output PM Data
ALL or no value	any	ALL	return error response (invalid MON-DAT)
ALL or no value	ALL	any	return error response (invalid MONTM)
ALL or no value	ALL	ALL	data from current and previous six days plus 15 min. data from the present time to the previous midnight or 8.25 hour earlier than the present time, whichever is more recent

OUTPUT FORMAT

After receiving a valid **RTRV-PM-OTPS** command, the following output message is returned:

```

sid date time
M ctag COMPLD
  "aid,aidtype:montype,monval,[stat],[locn],,tmper,mondatt[,montm]"
  . . . . .
  . . . . .
  . . . . .
  "aid,aidtype:montype,monval,[stat],[locn],,tmper,mondatt[,montm]"
;
```

Applicable output lines are ordered as follows:

1. By *aid* in order corresponding to the shelf architecture.
2. By requested time intervals, starting with the current time interval.
3. By applicable PM parameters per *aid*.

If there is no data to return for the given valid command, the following message is returned:

```

sid date time
M ctag COMPLD
;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the facility for which the PM data is being reported.

aidtype

Access identifier type.

OTPS

The optical translator port states encompass the AID types for OTU, QOTU, and OTPM packs.

montype

Monitored parameter type. This parameter must be specified for one of the following values:

LBCL

Laser bias current (line) - optics, OC48/STM16 , GbE-1 & UBB only

OPT

Optical power transmitted - optics, OC48/STM16, GbE-1, & UBB only

OPR

Optical power received - optics, OC48/STM16, GbE-1, & UBB only

CVS

Coding violation count - Section Near End, This parameter refers to 8B10B Coding violations for 8B10B encoded data signals

ESS

Errored second count - Section Near End,

SESS

Severe errored second count - Section Near End,

SEFS

Severe errored framing seconds count - Section Near End OOF,

CVP

Digital Coding Violation - Path: Applies to the High Speed (HS) port of Muxing OTU

ESP

Digital Errored Second - Path: Applies to the High Speed (HS) port of Muxing OTU

SESP

Digital Severely Errored Second - Path: Applies to the High Speed (HS) port of Muxing OTU

SEFSP

Digital Errored Frame Second - Path: Applies to the High Speed (HS) port of Muxing OTU

FEC-EC

FEC Error Count, OC-192/STM-64 only,

FEC-UBC

FEC Uncorrectable Block Count, OC192/STM-64 only.

ALL

all applicable *montype* values. If no value is provided for *montype*, the network element will respond with all performance monitoring data applicable to the *aid*.

monval

Monitored value. This contains the measured value of the parameter specified in *montype*.

stat

Status indicator. This indicates the validity of the PM data or if threshold has been exceeded by the PM data. This parameter, if specified, must have one of the following values:

NA

Data is not available. This includes counts not available because of trouble conditions that cause performance-monitoring to be suspended. *stat* shall be set to **NA** when data has not yet been collected.

stat shall be set to **NA** when LBCL, OPT, OPR parameters are reported for OC-3/STM1 or OC-12/STM4 circuit packs.

OVFL

This indicates counts that overflow their registers.

TCA

Threshold Crossing Alert.

PRTL

Data is accumulated over a complete interval but is corrupted or data is incomplete because it is not accumulated over a complete portion of the requested time period.

If the status is not specified, the data is valid and below the threshold level for that parameter.

For *stat*, **OVFL** has a higher priority than **TCA** and **TCA** has a higher priority than **PRTL**.

locn

Location. The location field, if specified, must have the value (**NEND**).

tmper

Time period. This parameter has the value **15-MIN** or **1-DAY**.

mondat

Monitored date. This is the beginning date of the interval for which PM data is reported. This parameter has the format MM-DD (month-day).

montm

Monitored time. This is the beginning time of the interval for which the PM data is reported. This parameter has the format HOD-MOH (hour of day-minute of hour).

EXAMPLE INPUT/OUTPUT

In the following example, the **RTRV-PM-OTPS** command returns coding violation (CVS) performance monitoring data for all OTPMs on slot 1, bay 1 at 15-minute intervals on Oct.26, starting at 17:00.

```
rtrv-pm-otps:LT-OLS:otpm-1-1-all:314152::CVS,0-UP,,,15-MIN,10-26;  
  
IP 314152  
>  
  LT-PF-2000 91-10-26 17:12:31  
M 314152 COMPLD  
  "otpm-1-1-1,OTPS:CVS,0,,,15-MIN,10-26,17-00"  
  "otpm-1-1-2,OTPS:CVS,0,,,15-MIN,10-26,17-00"  
  "otpm-1-1-3,OTPS:CVS,0,TCA,,,15-MIN,10-26,17-00"  
  "otpm-1-1-4,OTPS:CVS,0,,,15-MIN,10-26,17-00"  
;
```

In the following example, the **RTRV-PM-OTPS** command returns section coding violations (CV-S) performance monitoring data for the OTU in bay 1, slot 1, at 15 minute intervals on Oct.26, ending at 17:00.

```
rtrv-pm-otps:LT-PF-2000:otu-1-1:314152::CVS,,,,15-MIN,10-26;  
  
IP 314152  
>  
  LT-PF-2000 91-10-26 17:12:31  
M 314152 COMPLD  
  "otu-1-1,OTPS:CVS,7,,,15-MIN,10-26,17-00"  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command without an *aid* or with an invalid *aid* value, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier */
;
```

If the network element receives this command with a *montype* value that is not supported by the network element, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONTYPE */
;
```

If the network element receives this command with a *monlev* which is any value other than **0-UP** or **1-UP**, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONLEV */
;
```

If the network element receives this command with an invalid *dirn* value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid DIRN */
;
```

If the network element receives this command with an invalid *timper*, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid TMPER */
;
```

If the network element receives this command with an invalid *mondatt* format, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONDAT */
;
```

If the network element receives this command with an invalid *montm* value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONTM */
;
```

RELATED TL1 COMMANDS/MESSAGES

None.

RTRV-PM-STIME

RTRV-PM-STIME: Retrieve Performance_Monitoring Start_Time

The privilege level for this command is REPORTS.

The OSI category for this command is PERFORMANCE.

This command is available starting in OLS Release 2.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-PM-STIME:*tid::ctag;*

DESCRIPTION

The **RTRV-PM-STIME** command can be initiated by all users to retrieve the start time for measuring the day bins.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)

- (dash)

_ (underscore)

/ (slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters

comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

When reporting the provisioning information, the following output message is returned:

```
sid date time
M ctag COMPLD
":start_hour"
;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV -HDR**. Additional parameters that specifically apply to this command response are defined below.

start_hour

START_HOUR is a position defined parameter to report the start hour for day bin measurements. It is reported in HH-00 format.

EXAMPLE OUTPUT

The following example shows a command *tid* for a network element.

```
rtrv-pm-stime:LT-PF-2000::CTAG;
IP 123456
<
LT-PF-2000 93-10-26 16:42:11
M CTAG COMPLD
":23-00"
;
```

ERROR RESPONSES

Refer to the **RTRV -HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

RELATED TL1 COMMANDS/MESSAGES

SET-PM-STIME

RTRV-PM-SUPR

RTRV-PM-SUPR: Retrieve Performance_Monitoring Supervisory

The privilege level for this command is REPORTS.

The OSI category for this command is PERFORMANCE.

This command is available beginning in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-PM-SUPR:*tid:aid:ctag::[montype],[monlev],[locn],
[dirn],[tmper],[mondatt][,montm];*



NOTE:

The above single-line command is presented as two lines for ease of reading.

DESCRIPTION

The **RTRV-PM-SUPR** command is initiated by an OS or OS user to request the network element to send the current and/or historical performance-monitoring (PM) data associated with the supervisory channel, which is in E1 format, for an OLS terminal.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)

- (dash)

_ (underscore)

/ (slash)

aid

Access identifier. This is the address of the facility for which the performance-monitoring data is requested.

Entity: Supervisory Channel [End terminals and Repeaters]

Legal Values: (SUPR)-(ALL, 1A, 1B, 2A, 2B)

tag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *tag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

This is the PM parameter type for which PM data is requested. This parameter must be specified for one of the following values:

CVL

(Coding violation count - Line Near End),

ESL

(Errored second count - Line Near End),

SESL

(Severely errored second count - Line Near End),

UASL

(Unavailable second count - Line Near End)

SPR-SU

(Signal Power - OC-3 Supervisory Signal only)

LBC-SU

(Laser Bias Current OC-3 Supervisory Signal only)

ALL

(all applicable *montype* values).

The *MONTYPE* value shall be reported as "NA" for **SPR-SU** and **LBC-SU** for an OLS equipped with the E1 TLM circuit pack.

If no value is provided for *montype*, the network element will respond with all performance monitoring data applicable to the *aid*.

locn

Location. This parameter indicates the location being monitored for performance. This parameter may have the following value, "**NEND**".

dirn

Direction of monitoring. This parameter indicates the direction for which the performance data is being retrieved and is relative to the facility identified by the AID. This parameter, if specified, must have one of the following values: "**NA**", "**RCV**", or "**AZ**".

NA

Not applicable (default)

RCV

Receive direction of transmission

AZ

A-Z direction which is functionally the same as RCV

If no value is provided for this parameter, **NA** is assumed.

tmper

Time period. This parameter requests performance monitoring data information for a specified time interval. This parameter, if specified, must have one of the following values: "**15-MIN**", "**1-DAY**", or "**ALL**".

15-MIN

This requests PM data in 15-minute intervals.

1-DAY

This requests daily PM data.

ALL

This requests PM data both in 15-minute and daily intervals (default).

Note: If no input value is provided for this parameter, the network element responds by using **ALL**.

When *tmper* is **ALL**, the value for both *mondatt* and *montm* will be assumed to be **ALL**.

mondatt

Monitored date. This requests the beginning date of the interval for which the PM data is to be reported.

For a *tmper* value of **15-MIN**, the maximum allowable range of valid dates supported by *mondatt* include only the current day.

Note: The maximum number of 15-MIN periods of data stored is 32 periods. This equates to 8 hours of contiguous 15-MIN periods. Therefore the allowable range for *mondatt* is the current 15-MIN period plus the immediate previous 8 hours of 15-MIN data. Fifteen minute data that is outside the 8 hour window is not stored in the system. Therefore, previous day's data is available only if the previous day's data is within 8 hours of the current period.

For a *tmper* value of **1-DAY**, the maximum allowable range of valid dates supported by *mondatt* include the current and previous six days. This parameter, if specified, must have the values of **ALL** or be in the format of MM-DD (month-day).

MM-DD

Month-day.

ALL

Current and previous day(s), as described in the previous paragraphs.

If no value is entered for *mondat*, the current date is assumed. If the *mondat* specifies a date other than the current date or the previous day(s)'s date, as described in the previous paragraph, the network element responds to the user using the current date as the *mondat* value. If no value is entered for *mondat*, the current date is assumed.

montm

Monitored time. This specifies the beginning time of day of the requested performance-monitoring period specified in *tmper*. This parameter, if specified, must have the values of **ALL** or has the format HOD-MOH (hour of day-minute of hour), where HOD ranges from 00 to 23 and MOH ranges from 00 to 59.

HOD-MOH

Hour of day-minute of hour.

ALL

All applicable beginning times for the given *mondat* value. If no value is entered for *montm*, the current HOD-MOH is assumed. If the *montm* value provided does not correspond exactly to the network element PM reporting boundary, the value is *rounded down* to the last applicable boundary (for example, **01-03** for a 15-minute PM data is rounded down to **01-00**). If the *tmper* value is **1-DAY** then the *montm* parameter is not used.

The following table specifies the performance-monitoring data output based on the input values of *tmper*, *mondat*, and *montm* parameters. The term, "other" is used to refer to any input value that is not covered by another entry for the subject parameter. The term, "any" is used to refer to any input value (no validation is needed - don't care if valid or invalid).

RTRV-PM Output Data Relating to MONDAT, TMPER, and MONTM Input Parameters

TMPER	MONDAT	MONTM	Output PM Data
15 - MIN	ALL	any	15 min. data from the present time to the previous 8.25 hours
15 - MIN	current day or no value	ALL	15 min. data from the present time to the previous midnight or 8.25 earlier than the present, whichever is more recent.
15 - MIN	current day or no value	no value	15 min. data for the current interval HOD-MOH for the current day (see also REQ RTRV_PM-montm).
15 - MIN	previous day	no value	15 min. data beginning at MONDAT for the current interval HOD-MOH (see also REQ RTRV_PM-montm).
15 - MIN	previous day	ALL	15 min. data from the previous midnight to 8 hours earlier than the present time. If the current time is later than 8
15 - MIN	previous day, current day, or no value	value of MONDAT and MONTM within 8.25 hours of current time	single 15 min. interval of data beginning at MONDAT and MONTM
15 - MIN	current day, previous day, or no value	value of MONDAT and MONTM outside of the 8.25 hours of current time, or other	return error response (invalid MONTM)
15 - MIN	other	any	return error response (invalid MONDAT)
1 - DAY	ALL	any	current and previous 6 days data
1 - DAY	current day or no value	any	current 1-day data
1 - DAY	any one of the previous six days	any	appropriate previous 1-day data
1 - DAY	other	any	return error response (invalid MONDAT)
other	any	any	return error response (invalid TMPER)
ALL or no value	any	ALL	return error response (invalid MONDAT)
ALL or no value	ALL	any	return error response (invalid MONTM)
ALL or no value	ALL	ALL	data from current and previous six days plus 15 min. data from the present time to the previous midnight or 8.25 hour earlier than the present time, whichever is more recent

OUTPUT FORMAT

After receiving a valid command and having data to report, the following output message is returned:

```
sid date time
M ctag COMPLD
  "aid,aidtype:montype,monval,[stat],[locn],,tmper,mondatt[,montm]"
  . . . . .
  . . . . .
  . . . . .
  "aid,aidtype:montype,monval,[stat],[locn],,tmper,mondatt[,montm]"
;
```

The following conditions will result in no data being reported:

- Requested *MONLEV=1-up* and there are no non-zero counts.
- Mismatch between the slot equipage and the command modifier (e.g., **RTRV-PM-T3** executed for slot equipped with OC3 pack).
- LNCT failure/removal
- Circuit pack removal

Applicable output lines are ordered as follows:

1. By *aid* in order corresponding to the shelf architecture.
2. By requested time intervals, starting with the current time interval.
3. By applicable PM parameters per *aid*.

If there is no data to return for the given valid command, the following message is returned:

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

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the facility for which the PM data is being reported.

aidtype

Access identifier type.

SUPR

This reports performance-monitoring information at the supervisory channel, which is in OC3 format, for an OLS terminal.

montype

Monitored parameter type. This parameter must be specified for one of the following values:

CVL

(Coding violation count - Line Near End),

ESL

(Errored second count - Line Near End),

SESL

(Severely errored second count - Line Near End),

UASL

(Unavailable second count - Line Near End)

SPR-SU

(Signal Power - OC-3 Supervisory Signal only)

LBC-SU

(Laser Bias Current OC-3 Supervisory Signal only)

ALL

(all applicable *montype* values).

The *MONTYPE* value shall be reported as "NA" for **SPR-SU** and **LBC-SU** for an OLS equipped with the E1 TLM circuit pack.

monval

Monitored value. This contains the measured value of the parameter specified in *montype*. For OLS PM parameters which do not accumulate over time, the PM monitored value shall be frozen when the threshold is reached (and TCA reported) until the current 15-minute time interval expires and the next bin becomes active.

stat

Status indicator. This indicates the validity of the PM data or if threshold has been exceeded by the PM data. This parameter, if specified, must have one of the following values:

NA

Data is not available. This includes counts not available because of trouble conditions that cause performance-monitoring to be suspended. *stat* shall be set to **NA** when data has not yet been collected.

OVFL

This indicates counts that overflow their registers.

TCA

Threshold Crossing Alert.

PRTL

Data is accumulated over a complete interval but is corrupted or data is incomplete because it is not accumulated over a complete portion of the requested time period.

If the status is not specified, the data is valid and below the threshold level for that parameter.

For *stat*, **OVFL** has a higher priority than **TCA** and **TCA** has a higher priority than **PRTL**.

locn

Location. The location field, if specified, must have the value (**NEND**).

dirn

Direction. The direction field will always appear as a blank between two commas, i.e. ",,".

tmper

Time period. This parameter has the value **15-MIN** or **1-DAY**.

mondat

Monitored date. This is the beginning date of the interval for which PM data is reported. This parameter has the format

MM-DD (month-day).

montm

Monitored time. This is the beginning time of the interval for which the PM data is reported. This parameter has the format HOD-MOH (hour of day-minute of hour).

EXAMPLE INPUT/OUTPUT

The command to retrieve performance monitoring data for *supr-1a* is:

```
rtrv-pm-supr:LT-OLS:supr-1a:123456::,,,,,;
IP 123456
<
LT-OLS 97-08-29 15:03:15
M 123456 COMPLD
"supr-1a, supr:LBC-SU,1.01,,,,15-MIN,01-02,08-00"
"supr-1a, supr:SPR-SU,0,,,,15-MIN,01-02,08-00"
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command without an *aid* or with an invalid *aid* value, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier */
;
```

If the network element receives this command with a *montype* value that is not supported by the network element, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONTYPE */
;
```

If the network element receives this command with a *monlev* which is any value other than **0-UP** or **1-UP**, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONLEV */
;
```

If the network element receives this command with an invalid *dirn* value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid DIRN */
;
```

If the network element receives this command with an invalid *timper*, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid TMPER */
;
```

If the network element receives this command with an invalid *mondatt* format, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONDAT */
;
```

If the network element receives this command with an invalid *montm* value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONTM */
;
```

RELATED TL1 COMMANDS/MESSAGES

ENT-SUPR

SET-TH-SUPR

RTRV-PROTN-GROUP

RTRV-PROTN-GROUP: Retrieve optical unidirectional path switch ring protection group.

The privilege level for this command is REPORTS.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 8.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-PROTN-GROUP:*tid:aid:ctag;*

DESCRIPTION

The **RTRV-PROTN-GROUP** command message can be initiated by an OS or users to retrieve the OUPSR protection tail-end switching group. An OUPSR protection tail-end switching group is created when the OUPSR circuit pack is inserted and recognized by the NE software.

Provided that the input command is syntactically correct and uses input parameter values that are consistent with those supported by OLS, this command is never DENY-ed.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access Identifier. This is the address of the OUPSR circuit pack for which the command is intended.

Entity: OUPSR

Legal Values: OUPSR-(ALL), OUPSR-(1,2)-(ALL,1-32), OUPSR-(1,2)-(1-32)-(ALL, COUT)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the association retrieval request, the following output message is returned:

```
sid date time
M ctag COMPLD
"AID=value,ACTIVE_PORT=value, SWITCH_STATUS=value"
"AID=value,ACTIVE_PORT=value, SWITCH_STATUS=value"
. . . . .
. . . . .
. . . . .
"AID=value,ACTIVE_PORT=value, SWITCH_STATUS=value"
```

If multiple lines are reported, the output is sorted by the *aid* in ascending order.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

aid

Access Identifier. This is the address of the OUPSR circuit pack for which the command is intended.

Entity: OUPSR

Legal Values: OUPSR-(1,2)-(1-32)-(COUT)

active_port

Active port. This specifies the address of the OUPSR active port in an OUPSR tail-end protection group.

Entity: OUPSR

Legal Values: OUPSR-(1-2)-(1-32)-(AIN,BIN)

switch_status

Switch Status. It reports the switch status.

INH

Inhibit. This specifies that an inhibit request is active.

FS

Forced. This specifies that a forced protection switching request is active.

SF

Automatic protection switch due to Signal Fail. This specifies that the signal fail automatic switching request is active if there is an outstanding Loss of Signal (LOS).

SD

Automatic protection switch due to signal degrade. This specifies that the signal degrade automatic switching request is active if the signal degrade measurement exceeds the threshold.

NR

No Request. There is no automatic switch request.

RDNA

Requested Data Not Available. In the presence of the two associations required for the OUPSR Protection Tail-end Switching group, software shall set the *active_port* parameter to "**RDNA**" (Requested Data Not Available) if the OUPSR circuit pack cannot be reached. An OUPSR circuit pack cannot be reached may result from the OUPSR circuit pack not inserted into the slot, system failure, or system controller pack not plugged in.

EXAMPLE INPUT/OUTPUT

The following example requests the OUPSR-1-10 for active OUPSR tail-end switching groups information. This example shows that OUPSR-1-10-AIN's switching group is an active tail-end switching group (that is it has both associations).

```
rtrv-protn-group:OLS-80G:oupsr-1-10-COUT:123456;  
IP 123456  
<  
  OLS-80G 2000-10-26 16:42:11  
M 123456 COMPLD  
  "AID=OUPSR-1-10-COUT,ACTIVE_PORT=OUPSR-1-10AIN,  
  SWITCH_STATUS=NR"  
;
```

The output is wrapped around for ease of reading. The actual output should not contain line break.

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If this command is received with an invalid access identifier, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier */
;
```

If the network element receives this command with any extra (beyond the input format specification just shown) null or non-null command parameter blocks (:), parameters (not supported by OLS, delimited by ","), or termination characters (;), the following error response is returned:

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

RELATED TL1 COMMANDS/MESSAGES

OPR-PROTNSW-OUPSR

RLS-PROTNSW-OUPSR

ENT-ASSOC-OTPS

RTRV-ASSOC-OTPS

RTRV-STATE

REPT SW

REPT DBCHG

RTRV-RELSR

RTRV-RELSR: Retrieve Relative_Signal_Power

The privilege level for this command is REPORTS.

The OSI category for this command is PERFORMANCE.

This command is available starting in OLS Release 2.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-RELSR:*tid:aid:ctag;*

DESCRIPTION

The **RTRV-RELSR** command can be initiated by users to report instantaneous signal power of each channel in an optical line relative to the strongest signal in a scale of 0 to 100 when the optical amplifiers are using tone based channel detection. The command can be applied at any site, but the tone based relative signal report is meaningful only for the end terminals with OMU. When an OMON circuit pack is present the report will give the dBm power of each channel. The OMON data is meaningful at all sites.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)

- (dash)

_ (underscore)

/ (slash)

aid

Access identifier. This is the address of the optical line. The *aid* value may also be **all** (default value).

Entity: Optical Line

Legal Values: (OLINE)-(ALL, 1A, 1B, 2A, 2B)

tag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *tag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

The following output message is returned if a valid input command is issued:

```
sid date time
M tag COMPLD
"aid:OPDDB"
"aid:OPDDB"
;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**. Additional parameters that specifically apply to this command response are defined as follows:

aid

Access Identifier. This is the address of an optical line.

OPDDB

The OPDDB is a position defined block to report various attributes. The format will be *value1:value2: . . .*. All applicable attributes are reported.

stime

Start Time. This parameter indicates the time when the relative signal power per channel is measured. It is reported as hh-mm.

relspr_c

Relative Signal Power per Channel. This parameter indicates the measured signal power of a channel relative to the strongest signal. It is reported in a scale of 0 to 100. If the optical amplifier is using the OMON circuit pack for channel detection then "-" will be shown in the data fields. If **relspr_c** data are requested on optical channels and the corresponding optical line is IS but the OA circuit pack is not inserted (or removed and no Update command issued), then the "-" will be shown in the data fields. If **relspr_c** data are

requested on optical lines that are not equipped, then the "-" will be shown in the data fields. The optical line, and its constituent optical channel(s), DEMUXed at a single OA OLS End Terminal without a LIRCV circuit pack is not directly monitored because there is no OA or Line Interface directly preceding the ODU.

measpr_c

Measured Signal Power per Channel. This parameter reports the measured channel power in dBm that is measured by the OMON circuit pack. If the OMON circuit pack is not equipped then "-" will be shown in the data fields. If the OMON circuit pack is equipped then "±XX.X" will be shown in the data fields for OLINE 1A and OLINE 1B. OLINE 2A and 2B will always show "-" in the data fields. If the optical amplifier is using tone based channel detection and the OMON circuit pack is equipped then both relspr_c and measpr_c will contain valid data.

The receiving optical line, and its constituent optical channel(s), DEMUXed at a single OA OLS End Terminal with a LIRCV circuit pack is not monitored because there is no OMON port on the LIRCV circuit pack. The receiving optical line will display "-" in the data field.

EXAMPLE OUTPUT

The following example shows the results of a **RTRV-RELSRP** command using OMON detection:

```
rtrv-relspr:LT-OLS:all:123456;  
IP 123456  
<  
  LT-OLS 97-09-16 15:35:00  
M 123456 COMPLD  
  "ochan-1a-1:08-29:-:-15.5"  
  "ochan-1a-2:08-29:-:-15.5"  
  "ochan-1a-3:08-29:-:-15.5"  
  "ochan-1a-4:08-29:-:-15.5"  
  "ochan-1a-5:08-29:-:-15.5"  
  "ochan-1a-6:08-29:-:-15.5"  
  "ochan-1a-7:08-29:-:-15.5"  
  "ochan-1a-8:08-29:-:-15.5"  
  "ochan-1a-9:08-29:-:-15.5"  
  "ochan-1a-10:08-29:-:-15.5"  
  "ochan-1a-11:08-29:-:-15.5"  
  "ochan-1a-12:08-29:-:-15.5"  
  "ochan-1a-13:08-29:-:-15.5"  
  "ochan-1a-14:08-29:-:-15.5"  
  "ochan-1a-15:08-29:-:-15.5"  
  "ochan-1a-16:08-29:-:-15.5"  
  "ochan-1a-17:08-29:-:-15.5"  
  "ochan-1a-18:08-29:-:-15.5"  
  "ochan-1a-19:08-29:-:-15.5"  
  "ochan-1a-20:08-29:-:-15.5"  
  "ochan-1a-21:08-29:-:-15.5"  
  "ochan-1a-22:08-29:-:-15.5"  
  "ochan-1a-23:08-29:-:-15.5"  
  "ochan-1a-24:08-29:-:-15.5"  
  "ochan-1a-25:08-29:-:-15.5"  
  "ochan-1a-26:08-29:-:-15.5"  
  "ochan-1a-27:08-29:-:-15.5"  
  "ochan-1a-28:08-29:-:-15.5"  
  "ochan-1a-29:08-29:-:-15.5"  
  "ochan-1a-30:08-29:-:-15.5"  
  "ochan-1a-31:08-29:-:-15.5"  
  "ochan-1a-32:08-29:-:-15.5"
```

Screen continues on next page

Screen continued from previous page

"ochan-1b-1:08-29:-:-15.5"
"ochan-1b-2:08-29:-:-15.5"
"ochan-1b-3:08-29:-:-15.5"
"ochan-1b-4:08-29:-:-15.5"
"ochan-1b-5:08-29:-:-15.5"
"ochan-1b-6:08-29:-:-15.5"
"ochan-1b-7:08-29:-:-15.5"
"ochan-1b-8:08-29:-:-15.5"
"ochan-1b-9:08-29:-:-15.5"
"ochan-1b-10:08-29:-:-15.5"
"ochan-1b-11:08-29:-:-15.5"
"ochan-1b-12:08-29:-:-15.5"
"ochan-1b-13:08-29:-:-15.5"
"ochan-1b-14:08-29:-:-15.5"
"ochan-1b-15:08-29:-:-15.5"
"ochan-1b-16:08-29:-:-15.5"
"ochan-1b-17:08-29:-:-15.5"
"ochan-1b-18:08-29:-:-15.5"
"ochan-1b-19:08-29:-:-15.5"
"ochan-1b-20:08-29:-:-15.5"
"ochan-1b-21:08-29:-:-15.5"
"ochan-1b-22:08-29:-:-15.5"
"ochan-1b-23:08-29:-:-15.5"
"ochan-1b-24:08-29:-:-15.5"
"ochan-1b-25:08-29:-:-15.5"
"ochan-1b-26:08-29:-:-15.5"
"ochan-1b-27:08-29:-:-15.5"
"ochan-1b-28:08-29:-:-15.5"
"ochan-1b-29:08-29:-:-15.5"
"ochan-1b-30:08-29:-:-15.5"
"ochan-1b-31:08-29:-:-15.5"
"ochan-1b-32:08-29:-:-15.5"

;

The following example shows the results of a **RTRV-RELSPR** command using tone detection:

```
rtrv-relspr:LT-OLS:all:123456;
IP 123456
<
  LT-OLS 97-09-16 15:35:00
M 123456 COMPLD
  "ochan-1a-1:08-29:-:-"
  "ochan-1a-2:08-29:-:-"
  "ochan-1a-3:08-29:100:-"
  "ochan-1a-4:08-29:90:-"
  "ochan-1a-5:08-29:90:-"
  "ochan-1a-6:08-29:-:-"
  "ochan-1a-7:08-29:-:-"
  "ochan-1a-8:08-29:-:-"
  "ochan-1a-9:08-29:-:-"
  "ochan-1a-10:08-29:-:-"
  "ochan-1a-11:08-29:-:-"
  "ochan-1a-12:08-29:-:-"
  "ochan-1a-13:08-29:-:-"
  "ochan-1a-14:08-29:-:-"
  "ochan-1a-15:08-29:-:-"
  "ochan-1a-16:08-29:-:-"
  "ochan-1b-1:08-29:0:-"
  "ochan-1b-2:08-29:0:-"
  "ochan-1b-3:08-29:90:-"
  "ochan-1b-4:08-29:100:-"
  "ochan-1b-5:08-29:90:-"
  "ochan-1b-6:08-29:70:-"
  "ochan-1b-7:08-29:0:-"
  "ochan-1b-8:08-29:0:-"
  "ochan-1b-9:08-29:0:-"
  "ochan-1b-10:08-29:0:-"
  "ochan-1b-11:08-29:0:-"
  "ochan-1b-12:08-29:0:-"
  "ochan-1b-13:08-29:0:-"
  "ochan-1b-14:08-29:80:-"
  "ochan-1b-15:08-29:80:-"
  "ochan-1b-16:08-29:80:-"
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If a **RTRV-RELSPR** command is received with an invalid *aid* value, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-PM-OCHAN

RTRV-SECTRC

RTRV-SECTRC: Retrieve Section_Trace

The privilege level for this command is REPORTS.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 3.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-SECTRC:*tid:aid:ctag;*

DESCRIPTION

RTRV-SECTRC commands can be initiated to retrieve the provisioned transmit and receive section traces, the status of the OC-48/STS-16 section trace, and the actual receive OC-48/STS-16 section trace, if available.

This command retrieves section trace information pertaining to the addressed section terminating entity in a line-by-line format.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This is the address of the entity for which the report is requested.
Entity: Single Port (OTU)

Legal Values: (OTU)-(ALL), (OTU)-(1,2)-(ALL,1-32)-(1)

CenterLink CIT selection options: (OTU)-(ALL, 1, 2)-(ALL, 1-32)-(1)

Entity: Single Port (OT Port Module)

Legal Values: (OTPM)-(ALL), (OTPM)-(1,2)-(

ALL,1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31)-(ALL,1-4)-(1)

CenterLink CIT selection options: (OTPM)-(ALL, 1, 2)-(ALL, 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31)-(ALL, 1-4)-(1)

Entity: Port (2DM25)

Legal Values: (2DM25)-(ALL), (2DM25)-(1,2)-(ALL), (2DM25)-(1,2)-(1-32)-(HS)

CenterLink CIT selection options: (2DM25)-(ALL, 1, 2)-(ALL, 1-32)-(HS)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If there is section trace information to report, the following output message is returned:

```
sid date time
M ctag COMPLD
"aid:::status=x,ntfcncde=xx,INCSECTRC=\"xxxxxxxxxxxxxxxx\",
EXPSECTRC=\"xxxxxxxxxxxxxxxx\""
. . . . .
. . . . .
. . . . .
"aid:::status=x,ntfcncde=xx,INCSECTRC=\"xxxxxxxxxxxxxxxx\",
EXPSECTRC=\"xxxxxxxxxxxxxxxx\""
;
```

The output message line length is limited to 15 characters irrespective of the length of the section trace to be reported.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

aid

Access Identifier. This is the address of the signal for which the section trace is to be retrieved.

status

Section Trace Status. This is a status report of the incoming section trace. For **RTRV_SECTRC** messages status can take one of the following values:

GOOD

Good. This indicates that the *INCSECTRC* and the *EXPSECTRC* match.

MISMATCH

Mismatch. This indicates that the *INCSECTRC* and the *EXPSECTRC* do not match.

UNAVAILABLE

Unavailable. This indicates that there is no *INCSECTRC* because there has been a section interruption.

NOT_APPLICABLE

Not Applicable. This indicates that the *aid* chosen does not have a trace capability.

ntfcncde

Notification code. This parameter is the alarm level provisioned for failures of facilities serviced by the addressed port. The *ntfcncde* parameter is reported in NTFNCDE=xx format where xx has one of the following values:

CR

Critical (if provisioned for SONET)

MJ

Major (if provisioned for SONET)

MN

Minor (if provisioned for SONET)

NA

Not alarmed (if provisioned for SONET)

NR

Not reported (if provisioned for SONET) (No autonomous report will be generated.)

NO

Ignored (if provisioned for SONET) (No autonomous or on-demand report will be generated.)

Prompt

Prompt (if provisioned for SDH)

Deferred

Deferred (if provisioned for SDH)

No_Alarm

No Alarm (if provisioned for SDH)

No_Report

No Report (if provisioned for SDH) (No autonomous report will be generated.)

Not_Indicated

Not Indicated (if provisioned for SDH) (No autonomous or on-demand report will be generated.)

incsectrc

Incoming Section trace message. This indicates the incoming Section Trace (J0) content. The *INCSECTRC* is a string of 15 ASCII characters received in the Section trace bytes (J0) of the SONET signal.

If the *INCSECTRC* is **UNAVAILABLE**, 15 question marks ("?",) are reported for the *INCSECTRC*.

The section trace is unavailable when there has been a section interruption.

If the *INCSECTRC* is **NOT_APPLICABLE**, 15 dashes ("-") are reported for the *INCSECTRC*.

The section trace is **NOT_APPLICABLE** when the *aid* chosen does not have the section trace capability.

With the exception of the default section trace byte which is a sequence of 16 consecutive representations of binary one, if the *INCSECTRC* contains non-printable characters, the non-printable characters will be reported as question marks ("?",). The default section trace byte is represented as "RESET_SECTRC".

expsectrc

Expected incoming Section trace message. This indicates the expected Section Trace (J0) content. The *EXPSECTRC* is a string of the first 15 ASCII characters received in the Section trace bytes (J0) of the SONET/SDH signal.

ITU Recommendation G.707 (ITU) defines the J0 as follows:

- The section access point identifier may use either a single byte (containing the code 0-255)
- The access point identifier format as defined in section 3 of ITU-T Recommendation G.831 and ITU-T Recommendation G.707.

The received section trace is as follows:

The Network Element must have the capability to recognize both types of J0 section trace formats:

- In the receive end, when the network element receives any single constant byte string in the J0 byte position of the Section Overhead of the first STS-1 of an STS-N, the network element has the capability to recognize it as a valid string. The software has the capability to compare the value of this constant incoming string against the original parameter of *EXPSECTRC*.

When the user provisions the parameter *EXPSECTRC* as "RESET_SECTRC", the software causes the Network Element to expect a constant single byte in the J0 byte position of the Section Overhead of the first STS-1 of an STS-N, whose Hex representation value is 01 (1 is the LEAST Significant Bit). This constant string is the original value of *EXPSECTRC*.

- If the user enters any other string than "RESET_SECTRC" as the value for *EXPSECTRC*, the software causes the Network Element to expect to receive the J0 byte string in accordance with ITU recommendation G.831 (The first byte of 16 bytes is used for CRC7 calculation. The other 15 bytes are used to transmit the J0 byte information according to recommendation T.50 and ITU-T Recommendations G.831 and G.707).

If there are invalid characters *EXPSECTRC*, the status will be set to **MISMATCH**.

The ASCII characters allowed for the section trace are letters "A" through "Z" and "a" through "z", numbers "0" through "9", and special characters: "#" (pound), "\$" (dollar), "%" (percent), "&" (ampersand), "*" (asterisk), "(" (open parenthesis), ")" (close parenthesis), "+" (plus), "|" (pipe), "-" (hyphen), "[" (open square bracket), "]" (close square bracket), "{" (open bracket), "}" (close bracket), "'" (apostrophe), "`" (grave accent), "." (period), "/" (slash), "<" (less than), and ">" (greater than).

These are the valid characters.

Each one of the 15 characters of the J0 section trace byte has a unique 0x01 hex 7 bit representation as described by the T.50 standard. Any character whose 0x01 hex 7 bit representation does not correspond to one of the allowed characters in the trace messages will be mapped to question mark (" ?") in the output. Nulls and spaces will be displayed as space (" ").

If the section trace is **MISMATCH** (status=MISMATCH) and the OTU port state changes to **NMON**, the following changes must take place:

- The section trace status should change from status=**MISMATCH** to status=**UNAVAILABLE** and
- *INCSECTRC* must display INCSECTRC="????????????????".

EXAMPLE INPUT/OUTPUT

The following example shows a **RTRV-SECTRC** command with the system equipped with an OTU. This command can always be issued regardless whether the system is equipped with OTUs. The first shelf of the Optical Line System is equipped with OTUs. Only Slots 11 through 14 are equipped.

```
rtrv-sectrc:LT-PF-2000:otu-1-all-1:789012;
IP 789012
<
  LT-PF-2000 93-10-26 16:42:11
M 789012 COMPLD
"otu-1-1-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC=\"-----\",
EXPSECTRC=\"RESET_SECTRC\"
"otu-1-2-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC=\"-----\",
EXPSECTRC=\"RESET_SECTRC\"
"otu-1-3-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC=\"-----\",
EXPSECTRC=\"RESET_SECTRC\"
"otu-1-4-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC=\"-----\",
EXPSECTRC=\"RESET_SECTRC\"
"otu-1-5-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC=\"-----\",
EXPSECTRC=\"RESET_SECTRC\"
"otu-1-6-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC=\"-----\",
EXPSECTRC=\"RESET_SECTRC\"
"otu-1-7-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC=\"-----\",
EXPSECTRC=\"RESET_SECTRC\"
"otu-1-8-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC=\"-----\",
EXPSECTRC=\"RESET_SECTRC\"
"otu-1-9-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC=\"-----\",
EXPSECTRC=\"RESET_SECTRC\"
"otu-1-10-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC=\"-----\",
EXPSECTRC=\"RESET_SECTRC\"
"otu-1-11-1:::status=MATCH,ntfcncde=NA,
INCSECTRC=\"RESET_SECTRC\"
EXPSECTRC=\"RESET_SECTRC\"
"otu-1-12-1:::status=MISMATCH,ntfcncde=NA,
INCSECTRC=\"???xyzuv???????\",
EXPSECTRC=\"RESET_SECTRC\"
"otu-1-13-1:::status=MISMATCH,ntfcncde=NA,
INCSECTRC=\"AID1Expect#*%<(\",
EXPSECTRC=\"AID1xxxxxxxxxy\"
"otu-1-14-1:::status=NOT_AVAILABLE,ntfcncde=NA,
```

Screen continues on next page.

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```
INCSECTRC="\???????????????",
EXPSECTRC="\AID1xxxxxxxxxz\"
"otu-1-15-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC="\-----\",
EXPSECTRC="\RESET_SECTRC\"
"otu-1-16-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC="\-----\",
EXPSECTRC="\RESET_SECTRC\"
"otu-1-17-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC="\-----\",
EXPSECTRC="\RESET_SECTRC\"
"otu-1-18-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC="\-----\",
EXPSECTRC="\RESET_SECTRC\"
"otu-1-19-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC="\-----\",
EXPSECTRC="\RESET_SECTRC\"
"otu-1-20-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC="\-----\",
EXPSECTRC="\RESET_SECTRC\"
"otu-1-21-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC="\-----\",
EXPSECTRC="\RESET_SECTRC\"
"otu-1-22-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC="\-----\",
EXPSECTRC="\RESET_SECTRC\"
"otu-1-23-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC="\-----\",
EXPSECTRC="\RESET_SECTRC\"
"otu-1-24-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC="\-----\",
EXPSECTRC="\RESET_SECTRC\"
"otu-1-25-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC="\-----\",
EXPSECTRC="\RESET_SECTRC\"
"otu-1-26-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC="\-----\",
EXPSECTRC="\RESET_SECTRC\"
"otu-1-27-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC="\-----\",
EXPSECTRC="\RESET_SECTRC\"
"otu-1-28-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC="\-----\",
```

Screen continues on next page.

Screen continued from previous page.

```
EXPSECTRC=\"RESET_SECTRC\"
"otu-1-29-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC=\"-----\",
EXPSECTRC=\"RESET_SECTRC\"
"otu-1-30-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC=\"-----\",
EXPSECTRC=\"RESET_SECTRC\"
"otu-1-31-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC=\"-----\",
EXPSECTRC=\"RESET_SECTRC\"
"otu-1-32-1:::status=NOT_APPLICABLE,ntfcncde=NA,
INCSECTRC=\"-----\",
EXPSECTRC=\"RESET_SECTRC\"
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If a **RTRV-SECTRC** command is received with an invalid *aid* value, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier */
;
```

If the network element receives this command with an otherwise valid *aid* value but for which the command is directed to an unequipped slot (slot in AUTO state), or a slot equipped with circuit packs which do not support reading or writing the J0 Section Trace Byte, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, AID value inconsistent with current
equipage */
;
```

RELATED TL1 COMMANDS/MESSAGES

ENT-SECTRC

ENT-OCHAN

RTRV-STATE

RTRV-STATE

RTRV-STATE: Retrieve State

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 2.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-STATE: *tid*:[*aid*]:*ctag*;

DESCRIPTION

The **RTRV-STATE** command can be initiated by users to retrieve slot, port, and line/path protection switching state and also switch priority information for the network element.

The slot numbering for the OTU, QOTU, and OTPMs is consecutive. The OTU slots in use are reported in ascending order. If an OTU slot contains the first slot of a QOTU, the QOTU is reported, followed by each port module in ascending order from 1-4, followed by the extension (EXT) slot.

In the output of this command, only the channels in service and equipped OTPM slots are displayed. If the slot is equipped, the port state associated with the slot will appear. The OTPS slot aids are displayed in **RTRV-STATE**.

INPUT PARAMETERS

<i>tid</i>	Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set: [A-Z][a-z][0-9] . (period) + (plus) % (percentage) # (pound) { [((open parenthesis))] } (close parenthesis)

@ (at sign)
\$ (dollar sign)
& (ampersand)
* (star)
- (dash)
_ (underscore)
/ (slash)

aid Access identifier. This is the address of the slot, port, tributary, or line for which this command is intended. The *aid* value may also be all or unspecified. If an *aid* is not sent to the network element, the network element responds as if the *aid* was set to all.

Entity: All
Legal Values: (ALL)

Entity: CMS Port [End Terminals and Repeaters]
Legal Values: (CMS)-(ALL, 1A, 1B, 2A, 2B)

Entity: Optical Line
Legal Values: (OLINE)-(ALL, 1A, 1B, 2A, 2B)

Entity: Optical Channel
Legal Values: (OCHAN)-(ALL), (OCHAN)-(1A,1B,2A,2B)-(ALL,1-32)

CenterLink CIT selection options: (OCHAN)-(ALL, 1A, 1B, 2A, 2B)-(ALL, 1-32)

Entity: Supervisory Channel [End terminals and Repeaters]
Legal Values: (SUPR)-(ALL, 1A, 1B, 2A, 2B)

Entity: Port (OTU)
Legal Values: (OTU)-(ALL), (OTU)-(1,2)-(ALL), (OTU)-(1,2)-(1-32)-1
CenterLink CIT selection options: (OTU)-(ALL, 1, 2)-(ALL, 1-32)-1

Entity: Port (OTPM)
Legal Values: (OTPM)-(ALL), (OTPM)-(1,2)-(ALL), (OTPM)-(1,2)-(1,3,5...31)-(ALL), (OTPM)-(1,2)-(1,3,5...31)-(1-4)-1

Entity: Port (QOTU)
Legal Values: (OTU)-(ALL), (OTU)-(1,2)-(ALL), (OTU)-(1,2)-(1,3,5 ... 31)-1

Entity: Port(OUPSR)
Legal Values: (OUPSR)-(ALL), (OUPSR)-(1,2)-(ALL), (OUPSR)-(1,2)-(1-32)-(ALL), (OUPSR)-(1,2)-(1-32)-(CIN)

Entity: Port(2DM25)
Legal Values: (2DM25)-(ALL), (2DM25)-(1,2)-(ALL), (2DM25)-(1,2)-(1-32)-(ALL), (2DM25)-(1,2)-(1-32)-(HS,P1,P2)

ctag Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

```
sid date time
M ctag COMPLD
  "aid, [cptype]: [port_state_in], [port_state_out], [sw_state],
  [actswprty]"
  . . . . .
  . . . . .
  "aid, [cptype]: [port_state_in], [port_state_out], [sw_state],
  [actswprty]"
;
```

The output report is sorted as follows:

1. CMS port data
2. Optical line data
3. Supervisory channel data
4. Optical channel data
5. OTU slot data (The following circuit packs are sorted in ascending order by their positions in the OTU shelf: OTU, OTPM, QOTU, OUPSR and Mux OTUs)

Within each group, the entries are sorted by *aid* values. The output will only display circuit packs that are equipped and channels that are in use.

The valid OT *cptype* values are OTU, QOTU, EXT, OTPM, OUPSR and 2DM25.

For slots with *cptype* = EXT the following output parameters are reported with empty values:

- *port_state_in*
- *port_state_out*
- *sw_state*
- *actswprty*

In addition, *port_state_in* and *port_state_out* are reported with an empty values for *cptype* = OUPSR slots.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**. Additional parameters that specifically apply to this command response are defined as follows:

<i>aid</i>	Access identifier. This is the address of the slot, port, tributary, or line for which state information is given. If a user requests an OTU and the slot is empty, the CPTYPE field will be blank.				
<i>cptype</i>	Circuit Pack Type. This is the mnemonic name of the circuit pack. For example, ops is the mnemonic name of the optical protection switching circuit pack. 'RDNA' is a valid value, and indicates "Requested data not available". If the requested ' <i>cptype</i> ' data for the addressed entity is corrupted, this value is reported. A null value implies that the slot is not equipped or the parameter does not apply.				
<i>port_state_in</i>	Port State In. This is the port state in the "in" direction. Valid values are IS, OOS-MA-AS, or OOS corresponding to the "IS", "AUTO", or "NMON" states. 'RDNA' is a valid value, and indicates "Requested data not available". If the requested '<i>port_state_in</i>' data for the addressed entity is corrupted, this value is reported. This parameter is blank if it does not apply for a given <i>aid</i>. In a single OA configuration, optical channels <i>port_state_in</i> parameter at the demux end is reported as "RDNA". However, if the optical channel port is provisioned as "OOS", <i>port_state_in</i> parameter is reported as "OOS". The <i>port_state_in</i> parameter shall be blank when an E-1 TLM circuit pack is equipped and the AID is CMS. The supr-1b of an OLS end terminal transitions from AUTO to IS when the terminal is provisioned as "1A-TX-THRU" or "1A-RCV-THRU". The supr-1b of an OLS end terminal transitions from IS to AUTO when supervisory signal is removed and the terminal is no longer provisioned as "1A-TX-THRU" or "1A-RCV-THRU".				
<i>port_state_out</i>	Port State Out. This is the port state in the "out" direction. Valid values are IS, OOS-MA-AS, or OOS corresponding to the "IS", "AUTO", or "NMON" states. 'RDNA' is a valid value, and indicates "Requested data not available". If the requested '<i>port_state_out</i>' data for the addressed entity is corrupted, this value is reported. This parameter is blank if it does not apply for a given <i>aid</i>. The <i>port_state_out</i> parameter shall be blank when a TLM circuit pack is equipped.				
<i>sw_state</i>	Switch State. This is the switch state of the addressed switchable entity. If the <i>cptype</i> is OUPSR, this parameter will have one of the following values: <table> <tr> <td>Path A</td><td>Path A. The addressed entity is selecting its path A input.</td></tr> <tr> <td>Path B</td><td>Path B. The addressed entity is selecting its path B input.</td></tr> </table>	Path A	Path A. The addressed entity is selecting its path A input.	Path B	Path B. The addressed entity is selecting its path B input.
Path A	Path A. The addressed entity is selecting its path A input.				
Path B	Path B. The addressed entity is selecting its path B input.				

RDNA	Requested data not available. If the requested <i>sw_state</i> data for the addressed entity is corrupted, this value is reported.
<i>actswprty</i>	Active Switch Priority. This field is reported for addressed switchable entities in the case of a protection switch being in effect. It specifies the current active protection switching request. If non-null, the <i>actswprty</i> parameter has one of the following values (for clarity, the values applicable to a given entity are grouped together and listed in the order of priority of request):
INH	Inhibit. This specifies that an inhibit protection switching request is active.
FS	Forced. This specifies that a forced protection switching request is active.
SF	Signal Fail. This specifies that an automatic protection switching request is active due to signal fail.
SD	Signal Degrade. This specifies that an automatic protection switching request is active due to signal degrade.
NR	No request. There is no automatic switching request.
RDNA	Requested data not available. If the requested <i>actswprty</i> data for the addressed entity is corrupted, this value is reported.

The SF and SD conditions remains active until the Signal Fail or the Signal Degrade, which caused the Automatic Protection Switch, clears.

EXAMPLE INPUT/OUTPUT

The following example shows an **RTRV-STATE** command with the system configured as 1A-RCV with single OA application. On the End Terminal, only the optical lines 1a and 1b are equipped, and other optical lines are not equipped.

The first shelf of the Optical Translator is equipped and six channels on each side are in service.

```
RTRV-STATE:LT-PF-2000:ALL:123456;
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
  "cms-1a,:IS,,,"
  "oline-1a,:IS,,,"
  "oline-1b,:IS,,,"
  "supr-1a,:IS,,,"
  "supr-1b,:IS,,,"
  "ochan-1a-1,:RDNA,,,"
  "ochan-1a-2,:RDNA,,,"
  "ochan-1a-3,:RDNA,,,"
  "ochan-1a-4,:RDNA,,,"
  "ochan-1a-5,:RDNA,,,"
  "ochan-1a-6,:RDNA,,,"
  "ochan-1b-1,:IS,,,"
  "ochan-1b-2,:IS,,,"
  "ochan-1b-3,:IS,,,"
  "ochan-1b-4,:IS,,,"
  "ochan-1b-5,:IS,,,"
  "ochan-1b-6,:IS,,,"
  "otu-1-1-1,OTU:IS,,,"
  "otu-1-2-1,OTU:IS,,,"
  "otu-1-3-1,OTU:IS,,,"
  "otu-1-4-1,OTU:IS,,,"
  "otu-1-5-1,QOTU:,,,"
  "otpm-1-5-1-1,OTPM:IS,,,"
  "otpm-1-5-2-1,OTPM:OOS,,,"
  "otpm-1-5-3-1,OTPM:IS,,,"
  "otpm-1-5-4-1,OTPM:IS,,,"
  "otu-1-6-1,EXT:,,,"
  "otu-1-7-1,OTU:OOS,,,"
  "otu-1-9-1,OPS:,,SECONDARY,SF,"
  "otu-1-10-1,EXT:,,,"
  "otu-1-15-1,QOTU:,,,"
  "otu-1-16-1,EXT:,,,"
  "otu-1-17-1,OTU:IS,,,"
  "2dm25-1-21-HS,2DM25:IS,,,"
  "2dm25-1-21-p1,2DM25:IS,,,"
  "2dm25-1-21-p2,2DM25:OOS-MA-AS,,,"
  "otu-1-25-1,QOTU:,,,"
  "otpm-1-25-1-1,OTPM:IS,,,"
  "otpm-1-25-2-1,OTPM:IS,,,"
  "otu-1-26-1,EXT:,,,"
;
```

The following examples show an **RTRV-STATE** command with the system configured as Dual Facing Terminal with 2_OA application and only the optical

lines 1a, 1b, 2a, and 2b are equipped and other optical lines are not equipped with three channels in service on each side.

```
RTRV-STATE:LT-PF-2000:ALL:123456;
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
  "cms-1a,:IS,,,"
  "cms-2a,:IS,,,"
  "oline-1a,:IS,,,"
  "oline-1b,:IS,,,"
  "oline-2a,:IS,,,"
  "oline-2b,:IS,,,"
  "supr-1a,:IS,,,"
  "supr-1b,:IS,,,"
  "supr-2a,:IS,,,"
  "supr-2b,:IS,,,"
  "ochan-1a-1,:IS,,,"
  "ochan-1a-2,:IS,,,"
  "ochan-1a-3,:IS,,,"
  "ochan-1b-1,:IS,,,"
  "ochan-1b-2,:IS,,,"
  "ochan-1b-3,:IS,,,"
  "ochan-2a-1,:IS,,,"
  "ochan-2a-2,:IS,,,"
  "ochan-2a-3,:IS,,,"
  "ochan-2b-1,:IS,,,"
  "ochan-2b-2,:IS,,,"
  "ochan-2b-3,:IS,,,"
  "otu-1-1-1,OTU:IS,,,"
  "otu-1-2-1,OTU:IS,,,"
  "otu-1-3-1,OTU:IS,,,"
  "otu-1-4-1,OTU:IS,,,"
  "otu-1-5-1,QOTU:,,,"
  "otpm-1-5-1-1,OTPM:IS,,,"
  "otpm-1-5-2-1,OTPM:OOS,,,"
  "otpm-1-5-3-1,OTPM:IS,,,"
  "otpm-1-5-4-1,OTPM:IS,,,"
  "otu-1-6-1,EXT:,,,"
  "otu-1-7-1,OTU:OOS,,,"
  "oupsr-1-9-cin,OUPSR:,,PATHA,NR,"
  "oupsr-1-12-cin,OUPSR:,,PATHB,SF,"
  "otu-1-17-1,OTU:IS,,,"
  "2dm25-1-21-hs,2DM25:IS,,,"
  "2dm25-1-21-p1,2DM25:IS,,,"
  "2dm25-1-21-p2,2DM25:OOS-MA-AS,,,"
  "otu-1-25-1,QOTU:,,,"
  "otpm-1-25-1-1,OTPM:IS,,,"
  "otpm-1-25-2-1,OTPM:IS,,,"
  "otu-1-26-1,EXT:,,,"
;
```

The following example requests the state information for an OUPSR circuit pack in bay 1 slot 9 of a Network Element configured as a Dual Facing terminal.

```
RTRV-STATE:LT-PF-2000:OUPSR-1-9-ALL:123456;  
IP 123456  
<  
  LT-PF-2000 93-10-26 16:42:11  
M 123456 COMPLD  
  "oupsr-1-9-cin,OUPSR:IS,,PATHB,SF,"  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If an **RTRV-STATE** command is received with an invalid *aid* value, the following error response is returned:

```
sid date time  
M ctag DENY  
  IIAC  
  /* Input, Invalid Access Identifier */  
;
```

RELATED TL1 COMMANDS/MESSAGES

ENT-OTPS

OPR-PROTNSW-OUPSR

RLS-PROTNSW-OUPSR

SET-ATTR-xxx

RTRV-SUPR

RTRV-SUPR: Retrieve Supervisory

The privilege level for this command is REPORTS.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-SUPR:*tid:aid:ctag[:type];*

DESCRIPTION

RTRV-SUPR command messages can be initiated by a user to retrieve the current provisioned state and current state of the supervisory (SUPR) channel. This command retrieves all supervisory channel parameter settings that are provisionable via **ENT-SUPR** commands pertaining to the addressed OLS, reported one line per supervisory channel.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This is the address of the entity for which the report is requested.
Entity: Supervisory Channel [End terminals and Repeaters]

Legal Values: (SUPR)-(ALL, 1A, 1B, 2A, 2B)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

type

Type. A value for this parameter is neither expected nor allowed.

OUTPUT FORMAT

Because the network element supports pre-provisioning of parameters, lines are included for all applicable *aid* values in response to this command, whether or not the present equipage is capable of supporting the type of facility specified.

Line wrapping is not supported in the **OUTPUT FORMAT**. Output lines are broken here **only** for the convenience of the reader.

In response to a valid **RTRV-SUPR** command, the following output report is returned, sorted on SUPR channel data by the *supr_aid* value.

```
sid date time
M ctag COMPLD
  "supr_aid::ntfcncde,sdthr"
  "supr_aid::ntfcncde,sdthr"
  . . .
  . . .
  . . .
  "supr_aid::ntfcncde,sdthr"
;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

supr_aid

Supervisory channel access identifier. This is the supervisory channel address for which output is being reported.

sdthr

Signal degrade threshold. This parameter is the signal degrade Bit Error Rate (BER) threshold for the facility serviced by the addressed supervisory channel. The *sdthr* parameter is reported in SDTHR=xx format where xx has one of the following values:

- 9
This signifies that the signal degrade threshold is set at a BER of 10^{-9} .
- 8
This signifies that the signal degrade threshold is set at a BER of 10^{-8} .
- 7
This signifies that the signal degrade threshold is set at a BER of 10^{-7} .
- 6
This signifies that the signal degrade threshold is set at a BER of 10^{-6} .
- 5
This signifies that the signal degrade threshold is set at a BER of 10^{-5} .

EXAMPLE INPUT/OUTPUT

Line wrapping is not supported in the **OUTPUT FORMAT**. Output lines are broken here **only** for the convenience of the reader.

The following example shows the response to a query concerning all supervisory channels associated with all optical lines (supr-all) for an OLS End Terminal.

```
rtrv-supr:LT-OLS:supr-all:123456;
IP 123456
<
  LT-OLS 93-10-26 16:42:11
M 123456 COMPLD
  "supr-1a::NTFCNCDE=CR,SDTHR=-6"
  "supr-2a::NTFCNCDE=CR,SDTHR=-6"
  "supr-1b::NTFCNCDE=CR,SDTHR=-6"
  "supr-2b::NTFCNCDE=CR,SDTHR=-6"
;
```

The following example shows the response to a query concerning all supervisory channels associated with all optical lines (supr-all) for an OLS Repeater.

```
rtrv-supr:LT-OLS:supr-all:123456;
IP 123456
<
  LT-OLS 93-10-26 16:42:11
M 123456 COMPLD
  "supr-1a::NTFCNCDE=CR,SDTHR=-6"
  "supr-1b::NTFCNCDE=CR,SDTHR=-6"
  "supr-2a::NTFCNCDE=CR,SDTHR=-6"
  "supr-2b::NTFCNCDE=CR,SDTHR=-6"
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (.), or termination characters (;), the following error response is returned:

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

If the network element receives a **RTRV** command without an *aid* value or with an *aid* value that is invalid for this command, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier, AID missing or inconsistent
with modifier value */
;
```

If the network element receives this command with an invalid *type* value, the following error response is returned:

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

RELATED TL1 COMMANDS/MESSAGES

ENT-SUPR

RTRV-SYS

RTRV-SYS: Retrieve System

The privilege level for this command is REPORTS.

The OSI category for this command is SECURITY.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-SYS:*tid::ctag;*

DESCRIPTION

Execution of the **RTRV-SYS** command on a network element retrieves the attributes associated with that network element's system or X.25 or CIT port. The system level and X.25 port attributes are the information that is provisioned by the **ENT-SYS** CIT-PC command. The CIT port attributes are provisioned via the **ENT-CID-SECU** CIT-PC command.

Execution of this command on a network element retrieves the attributes associated with that network element's system or X.25 ports. The system level and X.25 port attributes are the information that is provisioned by the **ENT-SYS** CIT-PC command.

The **RTRV-SYS** command can be initiated by a user to retrieve network element attributes associated with that network element at the system level or with the X.25 or CIT port parameters that are currently in effect.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)

_ (underscore)
/ (slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If there is system information to report, the following output message is returned:

```
sid date time
M ctag COMPLD
"tid=system_name,dsne=x,ipgne=x,x25ps=x"
"pvc2_redirect=x,pass_thru=x"
"dirn=x,std=x,apsd=x"
"tx_otu_delay=x,ollos_sev,omonlos_sev"
"almgrp=x,agne=x,chan_det=x"
"side1_sys=x,side1_opr=x,side2_sys=x,side2_opr=x"
"eth_adrs=x"
;
```

OUTPUT PARAMETERS**tid**

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-%_#

The initial value for *tid* is LT-FT-2000.

dsne

The *dsne* indicates whether or not the network element identified by the *tid* is serving as the Directory Service-Network Element in a Self Healing Ring or subnetwork. It takes the values **yes** and **no**.

ipgne

The *ipgne* indicates whether or not the network element identified by the *tid* is serving as TCP/IP-OSI TL1 Gateway NE. It takes the values **yes** and **no**. The TCP/IP-OSI TL1 Gateway NE will accept and respond to TL1 messages using a TCP/IP connection over the IAOLAN port.

x25ps

X.25 Packet Size. *x25ps* may have a value of **256** or **128**. This parameter determines the TL1 packet size for the X.25 interface.

pvc2_redirect

The *pvc2_redirect* indicates whether or not the X.25 redirect feature is activated. It takes the values **yes** and **no**.

pass_thru

The *pass_thru* indicates whether or not the OTU pass-thru feature is activated. It takes the values **yes** and **no**.

chan_det

Channel Detection. This parameter reports the channel detection used. It will be **tone** or **omon**.

dirn

Direction. For single facing end terminals, this parameter has one of eight values: "**1A-TX**", "**1A-TX-THRU**", "**1A-TX-32**", "**1A-TX-THRU-32**", "**1A-RCV**", "**1A-RCV-THRU**", "**1A-RCV-32**" or "**1A-RCV-THRU-32**". For dual facing end terminals, this parameter must have the value "**DUAL**".

The *DIRN* values are NOT case-sensitive. When *DIRN* is modified at an end terminal, the TOHCTL reboots to reconfigure routing tables.

1A-TX indicates that the optical lines 1A & 2A are carrying traffic in the transmit direction (out of OLS) and optical lines 1B & 2B are carrying traffic in receive direction (that is, into OLS). This parameter is significant in OLS end terminals (but not in OLS repeaters). An OLS end terminal provisioned as **1A-TX** indicates that the output from TLM-1A pack is connected to the OA-1A circuit pack and the input is connected to OA-1B pack (that is, optical line 1A is carrying traffic in transmit direction). At the other end terminal the TLM-1A pack should have reverse orientation in the sense, that as it is receiving traffic on line 1A its input should be connected to OA-1A pack and its output should be connected to OA-1B pack. Hence, this particular end terminal should be provisioned as **1A-RCV**.

1A-TX-THRU also indicates that the optical lines 1A & 2A are carrying traffic in the transmit direction (out of OLS) and optical lines 1B & 2B are carrying traffic in receive direction (that is, into OLS). Also the output from the telemetry pack in slot TLM-1A is connected to the OA-1A circuit pack and the input is connected to OA-1B circuit pack. The only difference in **1A-TX-THRU** provisioned end terminal is that TLM-1B pack is equipped and its input/output are connected to output/input of another TLM-1B pack of adjacent OLS terminal provisioned as **1A-RCV-THRU**. The two adjacent OLS terminals are usually co-located in a central office. However, from transmission point of view they could be as far as 40 km.

1A-TX-32 and **1A-TX-THRU-32** are like **1A-TX** and **1A-TX-THRU** and in addition, allow equipping optical lines 1A and 1B for 32 channel operation. Shelves provisioned for 32 channel operation only support optical lines 1A and 1B. OMU/ODU slots for lines 2A and 2B are used for channels 17-32 of optical line 1A and 1B.

1A-RCV-THRU indicates that the optical lines 1B & 2B are carrying traffic in the transmit direction (out of OLS) and optical lines 1A & 2A are carrying traffic in receive direction (that is, into OLS). Also the output from the TLM-1A is connected to the OA-1B circuit pack and the input is connected to OA-1A circuit pack. **1A-**

RCV - THRU provisioned end terminal also has an equipped TLM-1B slot with its input/output connected to output/input of another TLM-1B pack of adjacent OLS terminal provisioned as **1A - TX - THRU**.

1A - RCV - 32 and **1A - RCV - THRU - 32** are like **1A - RCV** and **1A - RCV - THRU** and in addition, allow equipping optical lines 1A and 1B for 32 channel operation. Shelves provisioned for 32 channel operation only support optical lines 1A and 1B. OMU/ODU slots for lines 2A and 2B are used for channels 17-32 of optical line 1A and 1B.

DUAL indicates an end terminal that faces in both the east and west directions. In this configuration, optical line 1B is carrying traffic in the transmit direction (out of OLS) on side 1 (east). and that the optical line 2A is carrying traffic in transmit direction (out of OLS) on side 2 (west). Also, optical line 1A is carrying traffic in receive direction (that is, into OLS) on side 1(east) and optical line 2B is carrying traffic in receive directions (that is, into OLS) on side 2 (west). An OLS end terminal provisioned as **DUAL** indicates that the optical line 1 and TLM 1A are connected as in "**1A - RCV**" mode while optical line 2 and TLM 2A are connected as in "**1A - TX**" mode. An OLS end terminal provisioned as **DUAL** will support 16 channels on optical line 1A and 16 channels on optical line 2A. It does not support 32 channels on a single optical line.

For systems with LEA207 OA2, LEA209 LIRCV, or LEA211 LITX, the telemetry connections for 1_OA or 0_OA configurations are the same as the 2_OA connections. For single OA configurations when using a 606B or 606D ODU, a terminal in "**1A - TX**" mode has the telemetry output from TLM xA going to OA circuit pack in slot oa-xB. For non dual end terminal x=1-2, for dual end terminal x=2. Similarly, a terminal in "**1A - RCV**" mode has the telemetry output from TLM yA going to OA circuit pack in slot oa-ya. For non dual end terminal x=1-2, for dual end terminal x=1.

However, in a single OA the relative placement of OMU/ODU and OAs remains same as in a two OA configuration.

The *DIRN* values are NOT case-sensitive.

std

Standard. This parameter reports if the NE is configured for operation in SONET or SDH environment.

apsd

Automatic power shut down. This parameter reports if the APSD feature has been enabled or disabled. When enabled APSD feature brings down all power outputs of OLS to safe levels in case of fiber cuts, equipment failure or removed connectors.

tx_otu_delay

Transmit OTU turn-on/off delay. This parameter reports whether the transmit OTU turn-on/off delay has been enabled or disabled.

ollos_sev

Optical line LOS severity. This parameter reports the provisioned severity for optical line loss of signal, OA high input power, and DCM input loss of signal. The reported value may be **CR**, **MJ**, **MN**, **PROMPT** or **DEFERRED**. The default value for this parameter is **MN (DEFERRED)**.

omonlos_sev

Optical Monitor LOS severity. This parameter reports the provisioned severity for optical monitor loss of signal. The reported value may be **CR**, **MJ**, **MN**, **PROMPT** or **DEFERRED**. The default value for this parameter is **MJ (PROMPT)**.

almgrp

Alarm Group, [also known as Sonet Maintenance Sub-Branch or SMSB]. almgrp may have an integer value between **0** and **255**, inclusive. This parameter determines the set of remote NEs with which the local NE can exchange remote alarm information. **0** value indicates that no remote alarm information is exchanged.

agne

Alarm Gateway Network Element. *agne* may have a value of "**YES**" or "**NO**". This parameter determines whether the local network element serves its Alarm Group or SMSB as an AGNE or not. [For further details on an AGNE's role, refer to the PF-2000 Interworking Specification Document, Section 4.4.]

side1_sys

Side 1 System Type. This parameter reports the provisioned system configuration of side 1 of network element. Side 1 of a network element refers to optical line pairs 1-2 on a regular end terminal or repeater. It refers to optical line 1 if the terminal is provisioned as "**DUAL**". This parameter can have the following values: **A**, **B**, **C**, **1_OA**, **0_OA**. The value **A** sets all optical amplifiers in side 1 in their default mode. The value **B** sets side 1 of system to support mode "B" if all requirements to transition in operating mode B are satisfied. The value **C** sets side 1 of system to support mode "C" if all requirements to transition in operating mode C are satisfied. The value of **1_OA** sets side 1 to support single OA configuration if all requirements to transition in single OA mode are satisfied. The value of **0_OA** sets side 1 to support zero OA configuration if all requirements to transition in zero OA mode are satisfied.

side1_opr

Side 1 operating system type. This parameter reports the actual operating system configuration. The reported values are "**2_OA**", "**1_OA**", and "**0_OA**".

The operating mode is reported as "**2_OA**" if the shelf equipage is inconsistent with provisioned mode.

side2_sys

Side 2 System Type. This parameter reports the provisioned mode for side 2 of network element. Side 2 implies optical line pair 2 on a terminal provisioned as a dual facing terminal. This parameter can have the following values: **A**, **B**, **C**, **1_OA**, **0_OA**. The value **A** sets all optical amplifiers in side 1 in their default mode. The value **B** sets side 1 of system to support mode "B" if all requirements to transition in operating mode B are satisfied. The value **C** sets side 1 of system to support mode "C" if all requirements to transition in operating mode C are satisfied. The value of **1_OA** sets side 1 to support single OA configuration if all requirements to transition in single OA mode are satisfied. The value of **0_OA** sets side 1 to support zero OA configuration if all requirements to transition in zero OA mode are satisfied.

side2_opr

Side 2 operating system type. This parameter reports the actual operating system configuration. The reported values are "2_OA", "1_OA", and "0_OA".

The operating mode is reported as "2_OA" if the shelf equipage is inconsistent with provisioned mode.

eth_adrs

Ethernet Address. This entry in the report indicates the MAC address of the ethernet-based LAN. It is a six byte value, displayed in the hexadecimal format of FF-FF-FF-FF-FF-FF.

companion_tid

Companion System's Target Identifier. The companion tid is the name of the local network element's companion network element. In a ring or linear application, there are configurations in which back-to-back dual end terminal systems instead of single dual facing shelf system are used. The back-to-back dual end terminal systems consist of west facing end terminal and east facing end terminal. The west facing end terminal is the companion network element of the east facing end terminal, and vice versa. The back-to-back dual end terminal systems shall be connected either by Ethernet LAN or Telemetry Circuit Pack (TLM feed-through) for operations communications between the west facing end terminal and east facing end terminal, with the Ethernet LAN connection being a cost saving way. If the Ethernet LAN connection is used, a correct ring map is able to be discovered only the COMPANION_TID is entered. Note that only if TLM feed-through is used, then DIRN of the system shall be provisioned as one of the following: "1A-TX-THRU", "1A-TX-THRU-32", "1A-RCV-THRU" or "1A-RCV-THRU-32", otherwise, the system shall be provisioned as one of the following: "1A-TX", "1A-TX-32", "1A-RCV" or "1A-RCV-32". The default value of the COMPANION_TID is "NULL".

EXAMPLE INPUT/OUTPUT

```
RTRV-SYS:LT-PF-2000::123456;

IP 123456
<

LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
"tid=LT-PF-2000,dsne=no,ipgne=yes,x25ps=256"
"pvc2_redirect=no,pass_thru=yes"
"dirn=1A-TX,std=SDH,apsd=disable"
"tx_otu_delay=enable,ollos_sev=PROMPT,omonlos_sev=PROMPT"
"almgrp=10,agne=no,chan_det=tone"
"side1_sys=A,side1_opr=1_0A,side2_sys=,side2_opr="
"eth_adrs=FF-3D-60-67-89"
"companion_tid=OLS1"
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

RELATED TL1 COMMANDS/MESSAGES

ENT-SYS

INIT-SYS

ENT-TCPIP

RTRV-TCPIP

RTRV-TCPIP: Retrieve TCP/IP.

The privilege level for this command is REPORTS.

The OSI category for this command is SECURITY.

This command is available starting in OLS Release 8.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-TCPIP:*tid::ctag;*

DESCRIPTION

RTRV-TCPIP command can be initiated by a user to retrieve the provisioned parameters in the Transmission Control Protocol/Internet Protocol (TCP/IP). These parameters include the IP address, subnet mask, and default router address.

This command retrieves all parameter settings that are provisionable via **ENT-TCPIP** command.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)

- (dash)

_ (underscore)

/ (slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with this command, the following output message is returned:

```
sid date time
M ctag COMPLD
  "IP_AD=x"
  "IP_SNM=x"
  "IP_DRAD=x"
;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

IP_AD

IP Address. This is the 32-bit IPv4 address of the system. It is made up of four dot-separated decimal numbers ranging from **0** to **255**.

IP_SNM

IP Subnet Mask. This is the 32-bit IPv4 subnet mask of the system. It is made up of four dot-separated decimal numbers ranging from **0** to **255**.

IP_DRAD

IP Default Router Address. This is the 32-bit IPv4 default router address of the system. It is made up of four dot-separated decimal ranging from **0** to **255**.

EXAMPLE INPUT/OUTPUT

The following example shows the response to a query:

```
rtrv-tcpip:LT-PF-2000::789012;

IP 789012
<

LT-PF-2000 01-10-26 16:42:11
M 789012 COMPLD
  "IP_AD=198.78.46.8"
  "IP_SNM=255.255.255.128"
  "IP_DRAD=198.84.65.20"
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (.), or termination characters (;), the following error response is returned:

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

RELATED TL1 COMMANDS/MESSAGES

ENT-TCPIP

RTRV-TH-ALL

RTRV-TH-ALL: Retrieve Threshold All

The privilege level for this command is REPORTS.

The OSI category for this command is PERFORMANCE.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-TH-ALL:*tid:aid:ctag::[montype],[locn][,tmper];*

DESCRIPTION



WARNING:

Use of this command may have a detrimental effect on the OS/network element network bandwidth. Lucent Technologies does not recommend the use of this command. Upon receiving this command, the network element could be required to transmit over 1 Megabyte of data from its performance-monitoring bins to report for one network element Terminal. Furthermore, Bellcore ***strongly suggests*** to NMA users via SR-STIS-001665, Issue 2, that this command construct ***not*** be used due to the potential strain it may place on the OS/network element network bandwidth.

The **RTRV-TH-ALL** command instructs a network element to send the current threshold level and TCA autonomous reporting status of one or more monitored parameters for which violation will trigger an automatic message for all signal types (OLINE, OCHAN, SUPR, and OTPS types).

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+~#

The TID will support the special characters defined in the iso8859 character set, character values 161 through 255 decimal. Additionally, the TID will support the following characters:

Open Bracket [

Close Bracket]

Open Bracket {

Close Bracket }

Plus Sign +
At Symbol @
Pound Sign #
Dollar Sign \$
Asterisk *
Ampersand &
Period .
Slash /

aid

Access identifier. This identifies the facilities for which threshold levels are being retrieved. The only valid value for this parameter is ALL.

Entity: All

Legal Values: (ALL)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

Monitored parameter type. This is the PM parameter type for which a threshold is being retrieved.

This parameter, if specified, must have the value of "ALL".

ALL

This requests all monitored types for all retrieved thresholds.

If no value is provided for this parameter, the value of **ALL** is assumed.

locn

Location. This is the location where the threshold is being retrieved and refers to the facility identified by the *aid*. The only valid location for this parameter is: "NEND".

tmper

Time period. This requests performance monitoring data information for a specified time interval. This parameter, if specified, must have the value of "ALL".

ALL

This requests all PM data for the specified facilities.

If no value is provided for this parameter, **ALL** is assumed.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

```
sid date time
M ctag COMPLD
  "aid,aidtype:montype, locn,dirn,thlev,tmper,tcarpt"
  . . . .
  . . . .
  . . . .
  "aid,aidtype:montype, locn,dirn,thlev,tmper,tcarpt"
;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

aid

Access identifier. This identifies the facility for which threshold levels are being retrieved.

aidtype

The type of access identifier. Valid values for *aidtype* are as follows:

OCHAN

The optical channels for OLS.

OLINE

The optical line for OLS.

SUPR

The OC3 level supervisory channel for OLS.

OTPS

The optical translator port states encompass the AID types for OTU, QOTU, and OTPM packs.

montype

Monitored parameter for which threshold level is being retrieved. The threshold value of a *montype* will not be displayed in the output report unless it is user provisionable.

locn

Location. This is the location where the threshold is to be retrieved and refers to the facility identified by the AID. The valid values for *locn*, if specified, must have one of the following values: "NEND" or "FEND".

FEND

Far-end

NEND

Near-end

If no value is provided for *locn*, the default value of *NEND* is used. Location. This is the location where the threshold is to be retrieved and refers to the facility identified by the AID.

The valid location is:

NEND

Near-end

dirn

Direction. This specifies the direction in which the threshold value(s) are to be retrieved and is relative to the facility identified by the *aid*.

thlev

Current provisioned threshold level for the monitored parameter.

The *thlev* parameter value for coding violations is set using BER but reported as a COUNT by the associated **RTRV-TH** command.

tmper

Reporting time period for the PM information.

tcarpt

TCA report. This parameter indicates if threshold crossing alert (TCA) autonomous reporting has been enabled or disabled for the specified *montype* for the given *tmper*. A value of ENABLE means TCA autonomous reporting is enabled and a value of DISABLE indicates TCA autonomous reporting is disabled.

EXAMPLE INPUT/OUTPUT

The command to retrieve the cvl threshold parameter for all signal types is:

```
rtrv-th-all:LT-OLS:all:123456::all,nend,all;  
IP 123456  
<  
  LT-OLS 94-03-22 16:12:12  
M 123456 COMPLD  
  "supr-1a,SUPR:CVL,NEND,NA,140,1-DAY,DISABLE"  
;
```

The command to retrieve the cvs threshold parameter TCA autonomous reporting status for all signal types in shelf 1 is:

```
rtrv-th-all:LT-OLS:all:123456::all,nend,all;  
IP 123456  
<  
  LT-OLS 94-03-22 16:12:12  
M 123456 COMPLD  
  "otpm-1-1-3-1,OTPS:CVS,NEND,NA,-6,1-DAY,DISABLE"  
;
```

The following example illustrates the order of the output as specified in the developer's notes.

```
rtrv-th-all:telluride:all:123::,,,  
IP 123  
>  
  TELLURIDE 97-06-12 13:16:15  
M 123 COMPLD  
  "ls-1-1a-1,EC1:SEFS,NEND,NA,5,15-MIN,ENABLE"  
  "ls-1-1a-1,EC1:CVL,NEND,NA,47,15-MIN,ENABLE"  
  "ls-1-1a-1,EC1:ESL,NEND,NA,25,15-MIN,ENABLE"  
  "ls-1-1a-1,EC1:SESL,NEND,NA,10,15-MIN,ENABLE"  
  "ls-1-1a-1,EC1:UASL,NEND,NA,10,15-MIN,ENABLE"  
  "ls-1-1a-1,EC1:SEFS,NEND,NA,10,1-DAY,ENABLE"  
  "ls-1-1a-1,EC1:CVL,NEND,NA,4480,1-DAY,ENABLE"  
  "ls-1-1a-1,EC1:ESL,NEND,NA,250,1-DAY,ENABLE"  
  "ls-1-1a-1,EC1:SESL,NEND,NA,40,1-DAY,ENABLE"  
  "ls-1-1a-1,EC1:UASL,NEND,NA,10,1-DAY,ENABLE"  
  "ls-1-1a-2,EC1:SEFS,NEND,NA,5,15-MIN,ENABLE"  
  "ls-1-1a-2,EC1:CVL,NEND,NA,47,15-MIN,ENABLE"  
  "ls-1-1a-2,EC1:ESL,NEND,NA,25,15-MIN,ENABLE"  
  "ls-1-1a-2,EC1:SESL,NEND,NA,10,15-MIN,ENABLE"  
  "ls-1-1a-2,EC1:UASL,NEND,NA,10,15-MIN,ENABLE"  
  "ls-1-1a-2,EC1:SEFS,NEND,NA,10,1-DAY,ENABLE"  
  "ls-1-1a-2,EC1:CVL,NEND,NA,4480,1-DAY,ENABLE"  
  "ls-1-1a-2,EC1:ESL,NEND,NA,250,1-DAY,ENABLE"  
  "ls-1-1a-2,EC1:SESL,NEND,NA,40,1-DAY,ENABLE"
```

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```
>
TELLURIDE 97-06-12 13:16:15
M 123 COMPLD
"ls-1-1a-2,EC1:UASL,NEND,NA,10,1-DAY,ENABLE"
"ls-1-1a-3,EC1:SEFS,NEND,NA,5,15-MIN,ENABLE"
"ls-1-1a-3,EC1:CVL,NEND,NA,47,15-MIN,ENABLE"
"ls-1-1a-3,EC1:ESL,NEND,NA,25,15-MIN,ENABLE"
"ls-1-1a-3,EC1:SESL,NEND,NA,10,15-MIN,ENABLE"
"ls-1-1a-3,EC1:UASL,NEND,NA,10,15-MIN,ENABLE"
"ls-1-1a-3,EC1:SEFS,NEND,NA,10,1-DAY,ENABLE"
"ls-1-1a-3,EC1:CVL,NEND,NA,4480,1-DAY,ENABLE"
"ls-1-1a-3,EC1:ESL,NEND,NA,250,1-DAY,ENABLE"
"ls-1-1a-3,EC1:SESL,NEND,NA,40,1-DAY,ENABLE"
"ls-1-1a-3,EC1:UASL,NEND,NA,10,1-DAY,ENABLE"
"ls-1-1b-1,EC1:SEFS,NEND,NA,5,15-MIN,ENABLE"
"ls-1-1b-1,EC1:CVL,NEND,NA,47,15-MIN,ENABLE"
"ls-1-1b-1,EC1:ESL,NEND,NA,25,15-MIN,ENABLE"
"ls-1-1b-1,EC1:SESL,NEND,NA,10,15-MIN,ENABLE"
"ls-1-1b-1,EC1:UASL,NEND,NA,10,15-MIN,ENABLE"
"ls-1-1b-1,EC1:SEFS,NEND,NA,10,1-DAY,ENABLE"
"ls-1-1b-1,EC1:CVL,NEND,NA,4480,1-DAY,ENABLE"
"ls-1-1b-1,EC1:ESL,NEND,NA,250,1-DAY,ENABLE"
```

Screen continues on next page

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>

TELLURIDE 97-06-12 13:16:15

M 123 COMPLD

"ls-1-1b-1,EC1:SESL,NEND,NA,40,1-DAY,ENABLE"
"ls-1-1b-1,EC1:UASL,NEND,NA,10,1-DAY,ENABLE"
"ls-1-1b-2,EC1:SEFS,NEND,NA,5,15-MIN,ENABLE"
"ls-1-1b-2,EC1:CVL,NEND,NA,47,15-MIN,ENABLE"
"ls-1-1b-2,EC1:ESL,NEND,NA,25,15-MIN,ENABLE"
"ls-1-1b-2,EC1:SESL,NEND,NA,10,15-MIN,ENABLE"
"ls-1-1b-2,EC1:UASL,NEND,NA,10,15-MIN,ENABLE"
"ls-1-1b-2,EC1:SEFS,NEND,NA,10,1-DAY,ENABLE"
"ls-1-1b-2,EC1:CVL,NEND,NA,4480,1-DAY,ENABLE"
"ls-1-1b-2,EC1:ESL,NEND,NA,250,1-DAY,ENABLE"
"ls-1-1b-2,EC1:SESL,NEND,NA,40,1-DAY,ENABLE"
"ls-1-1b-2,EC1:UASL,NEND,NA,10,1-DAY,ENABLE"
"ls-1-1b-3,EC1:SEFS,NEND,NA,5,15-MIN,ENABLE"
"ls-1-1b-3,EC1:CVL,NEND,NA,47,15-MIN,ENABLE"
"ls-1-1b-3,EC1:ESL,NEND,NA,25,15-MIN,ENABLE"
"ls-1-1b-3,EC1:SESL,NEND,NA,10,15-MIN,ENABLE"
"ls-1-1b-3,EC1:UASL,NEND,NA,10,15-MIN,ENABLE"
"ls-1-1b-3,EC1:SEFS,NEND,NA,10,1-DAY,ENABLE"
"ls-1-1b-3,EC1:CVL,NEND,NA,4480,1-DAY,ENABLE"

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```
>
TELLURIDE 97-06-12 13:16:15
M 123 COMPLD
"ls-1-1b-3, EC1:ESL, NEND, NA, 250, 1-DAY, ENABLE"
"ls-1-1b-3, EC1:SESL, NEND, NA, 40, 1-DAY, ENABLE"
"ls-1-1b-3, EC1:UASL, NEND, NA, 10, 1-DAY, ENABLE"
. . . . .
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. . . . .
"ls-8-8a-1, EC1:SEFS, NEND, NA, 5, 15-MIN, ENABLE"
>
TELLURIDE 97-06-12 13:16:15
M 123 COMPLD
"ls-8-8a-1, EC1:CVL, NEND, NA, 47, 15-MIN, ENABLE"
```

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```
"ls-8-8a-1,EC1:ESL,NEND,NA,25,15-MIN,ENABLE"  
"ls-8-8a-1,EC1:SESL,NEND,NA,10,15-MIN,ENABLE"  
"ls-8-8a-1,EC1:UASL,NEND,NA,10,15-MIN,ENABLE"  
"ls-8-8a-1,EC1:SEFS,NEND,NA,10,1-DAY,ENABLE"  
"ls-8-8a-1,EC1:CVL,NEND,NA,4480,1-DAY,ENABLE"  
"ls-8-8a-1,EC1:ESL,NEND,NA,250,1-DAY,ENABLE"  
"ls-8-8a-1,EC1:SESL,NEND,NA,40,1-DAY,ENABLE"  
"ls-8-8a-1,EC1:UASL,NEND,NA,10,1-DAY,ENABLE"  
"ls-8-8a-2,EC1:SEFS,NEND,NA,5,15-MIN,ENABLE"  
"ls-8-8a-2,EC1:CVL,NEND,NA,47,15-MIN,ENABLE"  
"ls-8-8a-2,EC1:ESL,NEND,NA,25,15-MIN,ENABLE"  
"ls-8-8a-2,EC1:SESL,NEND,NA,10,15-MIN,ENABLE"  
"ls-8-8a-2,EC1:UASL,NEND,NA,10,15-MIN,ENABLE"  
"ls-8-8a-2,EC1:SEFS,NEND,NA,10,1-DAY,ENABLE"  
"ls-8-8a-2,EC1:CVL,NEND,NA,4480,1-DAY,ENABLE"  
"ls-8-8a-2,EC1:ESL,NEND,NA,250,1-DAY,ENABLE"  
"ls-8-8a-2,EC1:SESL,NEND,NA,40,1-DAY,ENABLE"  
"ls-8-8a-2,EC1:UASL,NEND,NA,10,1-DAY,ENABLE"  
>
```

TELLURIDE 97-06-12 13:16:15

M 123 COMPLD

```
"ls-8-8a-3,EC1:SEFS,NEND,NA,5,15-MIN,ENABLE"  
"ls-8-8a-3,EC1:CVL,NEND,NA,47,15-MIN,ENABLE"  
"ls-8-8a-3,EC1:ESL,NEND,NA,25,15-MIN,ENABLE"  
"ls-8-8a-3,EC1:SESL,NEND,NA,10,15-MIN,ENABLE"  
"ls-8-8a-3,EC1:UASL,NEND,NA,10,15-MIN,ENABLE"
```

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```
"ls-8-8a-3,EC1:SEFS,NEND,NA,10,1-DAY,ENABLE"  
"ls-8-8a-3,EC1:CVL,NEND,NA,4480,1-DAY,ENABLE"  
"ls-8-8a-3,EC1:ESL,NEND,NA,250,1-DAY,ENABLE"  
"ls-8-8a-3,EC1:SESL,NEND,NA,40,1-DAY,ENABLE"  
"ls-8-8a-3,EC1:UASL,NEND,NA,10,1-DAY,ENABLE"  
"ls-8-8b-1,EC1:SEFS,NEND,NA,5,15-MIN,ENABLE"  
"ls-8-8b-1,EC1:CVL,NEND,NA,47,15-MIN,ENABLE"  
"ls-8-8b-1,EC1:ESL,NEND,NA,25,15-MIN,ENABLE"  
"ls-8-8b-1,EC1:SESL,NEND,NA,10,15-MIN,ENABLE"  
"ls-8-8b-1,EC1:UASL,NEND,NA,10,15-MIN,ENABLE"  
"ls-8-8b-1,EC1:SEFS,NEND,NA,10,1-DAY,ENABLE"  
"ls-8-8b-1,EC1:CVL,NEND,NA,4480,1-DAY,ENABLE"  
"ls-8-8b-1,EC1:ESL,NEND,NA,250,1-DAY,ENABLE"  
"ls-8-8b-1,EC1:SESL,NEND,NA,40,1-DAY,ENABLE"  
>  
TELLURIDE 97-06-12 13:16:15  
M 123 COMPLD  
"ls-8-8b-1,EC1:UASL,NEND,NA,10,1-DAY,ENABLE"  
"ls-8-8b-2,EC1:SEFS,NEND,NA,5,15-MIN,ENABLE"  
"ls-8-8b-2,EC1:CVL,NEND,NA,47,15-MIN,ENABLE"  
"ls-8-8b-2,EC1:ESL,NEND,NA,25,15-MIN,ENABLE"  
"ls-8-8b-2,EC1:SESL,NEND,NA,10,15-MIN,ENABLE"  
"ls-8-8b-2,EC1:UASL,NEND,NA,10,15-MIN,ENABLE"  
"ls-8-8b-2,EC1:SEFS,NEND,NA,10,1-DAY,ENABLE"  
"ls-8-8b-2,EC1:CVL,NEND,NA,4480,1-DAY,ENABLE"
```

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```
"ls-8-8b-2,EC1:ESL,NEND,NA,250,1-DAY,ENABLE"  
"ls-8-8b-2,EC1:SESL,NEND,NA,40,1-DAY,ENABLE"  
"ls-8-8b-2,EC1:UASL,NEND,NA,10,1-DAY,ENABLE"  
"ls-8-8b-3,EC1:SEFS,NEND,NA,5,15-MIN,ENABLE"  
"ls-8-8b-3,EC1:CVL,NEND,NA,47,15-MIN,ENABLE"  
"ls-8-8b-3,EC1:ESL,NEND,NA,25,15-MIN,ENABLE"  
"ls-8-8b-3,EC1:SESL,NEND,NA,10,15-MIN,ENABLE"  
"ls-8-8b-3,EC1:UASL,NEND,NA,10,15-MIN,ENABLE"  
"ls-8-8b-3,EC1:SEFS,NEND,NA,10,1-DAY,ENABLE"  
"ls-8-8b-3,EC1:CVL,NEND,NA,4480,1-DAY,ENABLE"  
"ls-8-8b-3,EC1:ESL,NEND,NA,250,1-DAY,ENABLE"  
>  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

The network element returns the following error response if the *aid* value is missing or invalid.

```
sid date time  
M ctag DENY  
IIAC  
/* Input, Invalid Access Identifier, AID missing. */  
;
```

The network element returns the following error response if the *montype* value is not supported.

```
sid date time  
M ctag DENY  
IDNV  
/* Input, Data Not Valid, invalid MONTYPE */  
;
```

The network element returns the following error response if the *locn* value is invalid.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid LOCN */
;
```

The network element returns the following error response if the *timper* value is invalid.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid TMPER */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-PM-ALL

RTRV-TH-OCHAN

RTRV-TH-OCHAN: Set Threshold Optical_Channel

The privilege level for this command is GENERAL.

The OSI category for this command is PERFORMANCE.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-TH-OCHAN:*tid:aid:ctag::[montype],[locn] [,tmper];*

DESCRIPTION

The **RTRV-TH-OCHAN** command instructs a network element to send the current threshold level and TCA autonomous reporting status of one or more monitored parameters for which violation will trigger an automatic message for optical channel signal types.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This identifies the facility to which the threshold applies.

Entity: Optical Channel

Legal Values:(OCHAN)-(ALL), (OCHAN)-(1A,1B,2A,2B)-(ALL,1-32)

CenterLink CIT selection options: (OCHAN)-(ALL, 1A, 1B, 2A, 2B)-(ALL, 1-32)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

Monitored parameter type. This is the PM parameter type for which a threshold is being retrieved. This parameter must be specified for one of the following values:

SPR-C

(Optical Channel Signal Receive Power), or

ALL

(all applicable *montype* values).

Applicable output lines are ordered as follows:

1. By applicable PM parameters/*montypes* per *aid*.
The output order of *montypes* the same as in the **RTRV-PM** report.
2. By requested time intervals (*tmper*)s, starting with the current time interval. The output order of *tmper* is the same as in the **RTRV-PM** command.

If no value is provided for this parameter, the value of **ALL** is assumed.

locn

Location. This is the location where the threshold is being retrieved and refers to the facility identified by the *aid*. The only valid location for this parameter is: **"NEND"**.

tmper

Time period. This requests PM data information for a specified time interval. This parameter, if specified, must have one of the following values: **"15-MIN"**, **"1-DAY"**, or **"ALL"**.

15-MIN

This requests PM data in 15-minute intervals.

1-DAY

This requests daily PM data.

ALL

This requests all PM data for the selected facilities.

If no value is provided for *tmper*, **15-MIN** is assumed.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

```
sid date time
M ctag COMPLD
  "aid,aidtype:montype, locn,dirn,thlev,tmper,tcarpt"
    . . . .
    . . . .
    . . . .
  "aid,aidtype:montype, locn,dirn,thlev,tmper,tcarpt"
;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

aid

Access identifier. This identifies the facility for which threshold levels are being retrieved.

aidtype

The type of access identifier.

OCHAN The optical channels.

montype

Monitored parameter for which threshold level is being retrieved. The threshold value of a *montype* will not be displayed in the output report unless it is user provisioned.

locn

Location. This is the location where the threshold is to be retrieved and refers to the facility identified by the AID. The valid location is:

NEND Near-end

dirn

Direction. This specifies the direction in which the threshold value(s) are to be retrieved and is relative to the facility identified by the *aid*.

thlev

Threshold level. This is the threshold level to be set for the particular *montype*. Optical parameters are not accumulative in nature, as a result, the output *thlev* value for the *montype* must be the same for the 15-minute and 1-day bins.

Valid and original (that is, as set in the factory) threshold values for the applicable OCHAN *montype* are given as follows:

montype	Legal Range for 15-MIN and 1-DAY tmper	Original Value for 15-MIN and 1-DAY tmper
SPR-C	0 - 100 (by 10's)	60

The scale of SPR-C values is translatable into dB units of difference between the baselined dBm input to the OA, and the current input. The baselined value is automatically generated when an optical channel transitions from AUTO to IS state. The baselined value can be manually generated by issuing the **INIT-REG-OLINE** command. The translation is shown in the table below:

SPR-C Reading	dB variation from factory setting	dB variation from baseline setting
	Tone based Channel Detection	OMON based Channel Detection
100	over +3.5	+5
90	0.8 to 12	+3
80	+3 to -2.5	0
70	-0.8 to -6.5	-3
60	-3.5 to -10.5	-6
50	-6.5 to -14	-9
40	-9 to -19	-12
30	-13 to -24	-15
20	-18 to -30	-18
10	-23 to -35	-22
0	below -28	-26

tmper

Reporting time period for the PM information.

tcarpt

TCA report. This parameter indicates if threshold crossing alert (TCA) autonomous reporting has been enabled or disabled for the specified montype for the given tmper. A value of **ENABLE** means TCA autonomous reporting is enabled and a value of **DISABLE** indicates TCA autonomous reporting is disabled.

EXAMPLE INPUT/OUTPUT

The command to retrieve the optical channel's SPR-C threshold parameter for ochan-1a-1 is:

```
rtrv-th-ochan:LT-OLS:ochan-1a-1:123456::spr-c,,15-min;

IP 123456
<

LT-OLS 97-07-09 10:47:56
M 123456 COMPLD
"ochan-1a-1,OCHAN:SPR-C,NEND,NA,60,15-MIN,ENABLE"
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

The network element returns the following error response if the *aid* value is missing or invalid.

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier, AID missing or invalid */
;
```

The network element returns the following error response if the *montype* value is missing or not supported.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONTYPE */
;
```

The network element returns the following error response if the *locn* value is invalid.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid LOCN */
;
```

The network element returns the following error response if the *timper* value is invalid.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid TMPER */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-PM-OCHAN

SET-TH-OCHAN

RTRV-TH-OLINE

RTRV-TH-OLINE: Retrieve Threshold Optical_Line

The privilege level for this command is REPORTS.

The OSI category for this command is PERFORMANCE.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-TH-OLINE:*tid:aid:ctag::[montype],[locn][,tmper];*

DESCRIPTION

The **RTRV-TH-OLINE** command instructs a network element to send the current threshold level and TCA autonomous reporting status of one or more monitored parameters for which violation will trigger an automatic message for optical line signal types.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This identifies the facility for which threshold levels are being retrieved.

Entity: Optical Line

Legal Values: (OLINE)-(ALL, 1A, 1B, 2A, 2B)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

Monitored parameter type. This is the PM parameter type for which a threshold is being retrieved.

This parameter must be specified for one of the following values:

TOPR-OL

(Total Optical Power Received- Optical Line),

TOPT-OL

(Total Optical Power Transmitted - Optical Line),

ALL

(all applicable *montype* values).

If no value is provided for this parameter, the value of **ALL** is assumed.

locn

Location. This is the location where the threshold is being retrieved and refers to the facility identified by the *aid*. The only valid location for this parameter is: **"NEND"**.

tmper

Time period. This requests PM data information for a specified time interval. This parameter, if specified, must have one of the following values: **"15-MIN"**, **"1-DAY"**, or **"ALL"**.

15-MIN	This requests PM data in 15-minute intervals.
1-DAY	This requests daily PM data.
ALL	This requests all PM data for the selected facilities.

If no value is provided for *tmper*, **15-MIN** is assumed.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

```
sid date time
M ctag COMPLD
  "aid,aidtype:montype,locn,dirn,thlev,tmper,tcarpt"
  . . . .
  . . . .
  . . . .
  "aid,aidtype:montype,locn,dirn,thlev,tmper,tcarpt"
;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR** OUTPUT PARAMETERS section. The output parameters listed there for the normal completion response also apply to this command.

aid

Access identifier. This identifies the facility for which threshold levels are being retrieved.

aidtype

The type of access identifier.

OLINE

The optical line.

montype

Monitored parameter for which threshold level is being retrieved. The threshold value of a *montype* will not be displayed in the output report unless it is user provisioned.

The scale of TOPR-OL and TOPT-OL values is translatable into dB units of difference between the baselined dBm input to the OA, and the current input. The baselined value is automatically generated when an optical channel transitions from AUTO to IS state. The baselined value can be manually generated by issuing the **INIT-REG-OLINE** command. The translation is shown in the table below:

TOPR-OL or TOPT-OL Reading	dB variation from factory setting	
	LEA7, LEA7B, LEA104, LEA107B, LEA105 Optical Amplifiers and LEA209, LEA211 Line Interface Units	LEA207 or LEA307 Optical Amplifier
100	over +3.5	over +4.5
90	0.8 to 12	+4.5 to +1.5
80	+3 to -2.5	+1.5 to -2.0
70	-0.8 to -6.5	-2.0 to -5.0

TOPR-OL or TOPT-OL Reading	dB variation from factory setting	
	LEA7, LEA7B, LEA104, LEA107B, LEA105 Optical Amplifiers and LEA209, LEA211 Line Interface Units	LEA207 or LEA307 Optical Amplifier
60	-3.5 to -10.5	-5.0 to -8.0
50	-6.5 to -14	-8.0 to -12.0
40	-9 to -19	-12.0 to -16.0
30	-13 to -24	-16.0 to -20.0
20	-18 to -30	-20.0 to -24.0
10	-23 to -35	-24.0 to -28.0
0	below -28	below -28.0

Valid and original (that is, as set in the factory) threshold values for the applicable OCHAN *montype* are given as follows:

montype	Legal Range for 15-MIN and 1-DAY tmper	Original Value for 15-MIN and 1-DAY tmper
TOPR-OL	0 - 100 (by 10's)	60
TOPT-OL	0 - 100 (by 10's)	60

locn

Location. This is the location where the threshold is to be retrieved and refers to the facility identified by the AID. The valid location is:

NEND Near-end

dirn

Direction. This specifies the direction in which the threshold value(s) are to be retrieved and is relative to the facility identified by the *aid*.

thlev

Current provisioned threshold level for the monitored parameter.

The *thlev* parameter value for coding violations is set using BER but reported as a COUNT by the associated **RTRV-TH** command. Optical parameters are not accumulative in nature, as a result, the output *thlev* value for the *montype* must be the same for the 15-minute and 1-day bins.

tmper

Reporting time period for the PM information.

tcarpt

TCA report. This parameter indicates if threshold crossing alert (TCA) autonomous reporting has been enabled or disabled for the specified montype for the given *tmper*. A value of **ENABLE** means TCA autonomous reporting is enabled and a value of **DISABLE** indicates TCA autonomous reporting is disabled.

EXAMPLE INPUT/OUTPUT

The command to retrieve the optical oline's **TOPR-OL** threshold parameter for oline-1a is:

```
rtrv-th-oline:LT-OLS:oline-1a:123456::topr-ol,,1-day;
IP 123456

<

LT-OLS 97-07-09 11:42:10
M 123456 COMPLD
"oline-1a,OLINE:TOPR-OL,NEND,NA,60,1-DAY,ENABLE"
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR** ERROR RESPONSES section. The error responses listed there also apply to this command.

The network element returns the following error response if the *aid* value is missing or invalid.

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier, AID missing. */
;
```

The network element returns the following error response if the *montype* value is not supported.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONTYPE */
;
```

The network element returns the following error response if the *locn* value is invalid.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid LOCN */
;
```

The network element returns the following error response if the *tmper* value is invalid.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid TMPER */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-PM-OLINE

SET-TH-OLINE

RTRV-TH-OTPS

RTRV-TH-OTPS: Retrieve Threshold Optical_Translator_Port_Signal

The privilege level for this command is REPORTS.

The OSI category for this command is PERFORMANCE.

This command is available starting in OLS Release 3.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-TH-OTPS:*tid:aid:ctag::[montype],[locn][,tmper];*

DESCRIPTION

The **RTRV-TH-OTPS** command instructs a network element to retrieve the current threshold level and TCA autonomous reporting status of one or more monitored parameters of OTUs or OTPMs.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This identifies the facility for which threshold levels are being retrieved. The aid all is allowed. When used, it will retrieve the OTU and OTPM port information.

Entity: All

Legal Values: (ALL)

Entity: Port (OTU)

Legal Values: (OTU)-(ALL), (OTU)-(1,2)-(ALL,1-32)-(1)

CenterLink CIT selection options: (OTU)-(ALL, 1, 2)-(ALL, 1-32)-(1)

Entity: Port (OT Port Module)

Legal Values: (OTPM)-(ALL),

(OTPM)-(1,2)-(ALL,1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31)-(ALL,1-4)-(1)

CenterLink CIT selection options: (OTPM)-(ALL, 1, 2)-(ALL, 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31)-(ALL, 1-4)-(1)

Entity: Port (2DM25)

Legal Values: (2DM25)-(ALL), (2DM25)-(1,2)-(ALL,1-32)-(HS, P1, P2)

CenterLink CIT selection options: (2DM25)-(ALL, 1, 2)-(ALL, 1-32)-(ALL, HS, P1, P2)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

Monitored parameter type. This is the PM parameter type for which a threshold is being retrieved. This parameter must be specified for one of the following values:

CVS

Coding violation count - Section Near End. This parameter refers to 8B10B Coding violations for 8B10B encoded data signals,

ESS

Errored second count - Section Near End,

SESS

Severe errored second count - Section Near End,

SEFS

Severe errored framing seconds count - Section Near End OOF,

CVP

Digital Coding Violation - Path: Applies to the High Speed (HS) port of Muxing OTU

ESP

Digital Errored Second - Path: Applies to the High Speed (HS) port of Muxing OTU

SESP

Digital Severely Errored Second - Path: Applies to the High Speed (HS) port of Muxing OTU

SEFSP

Digital Severly Errored Frame Second - Path: Applies to the High Speed (HS) port of Muxing OTU

FEC-EC

FEC Error Count - OC-192/STM-64 only,

FEC-UBC

FEC Uncorrectable Block Count - OC-192/STM-64 only, or

ALL

All applicable *montype* values.

Section **CVS** counts report the number of bit errors detected in the B1 Byte of an incoming signal. There are 8000 B1 bytes that arrive in any signal per second. Each B1 byte can report 8 bit errors in the frame. CVS errors are at different times reported in raw numbers, and as a ratio: (bit errors detected) / (bits received).

8B10B counts are applicable to incoming data signals on the UBB CP. Every 10 bits of information can generate 1 8B10B coding violation. The data rates arriving on the UBB CP range from 16Mb/s to 2.5Gb/s. This means anywhere from 1.6M to 250M 8B10B errors can be detected per second.

Path **CVP** counts report the number of bit errors detected in the B3 Byte of an incoming signal. There are 8000 B3 bytes that arrive in any signal per second. Each B3 byte can report 8 bit errors in the frame. CVP errors are at reported in raw numbers, and entered as a ratio: (bit errors detected) / (bits received).

If no value is provided for this parameter, the value of **ALL** is assumed.

locn

Location. This is the location where the threshold is to be retrieved and refers to the facility identified by the AID. The valid values for *locn*, if specified, must have one of the following values: "**NEND**".

NEND

Near-end

If no value is provided for *locn*, the default value of **NEND** is used.

tper

Time period. This requests PM data information for a specified time interval. This parameter, if specified, must have one of the following values: "**15-MIN**", "**1-DAY**", or "**ALL**".

15-MIN

This requests PM data in 15-minute intervals.

1-DAY

This requests daily PM data.

ALL

This requests all PM data for the selected facilities.

If no value is provided for *tper*, **15-MIN** is assumed.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

```
sid date time
M ctag COMPLD
  "aid,aidtype:montype,locn,dirn,thlev,tmper,tcarpt"
  . . . .
  . . . .
  . . . .
  "aid,aidtype:montype,locn,dirn,thlev,tmper,tcarpt"
;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

aid

Access identifier. This identifies the facility for which threshold levels are being retrieved.

aidtype

Access identifier type.

OTPS

The optical translator port states encompass the AID types for OTU, QOTU, and OTPM packs.

The type of access identifier. This parameter reports the signal type for the CVS value, which is one of the following values:

OC3

An OC3 signal.

OC12

An OC12 signal.

OC48

An OC48 signal.

OC192

An OC92 signal.

STM1

An STM1 signal.

STM4

An STM4 signal.

STM16

An STM16 signal.

STM64

An STM64 signal.

ESCON

200Mb/s 8B10B Data Signal

FICON

1.062Gb/s 8B10B Data Signal

GbE

1.25Gb/s 8B10B Data Signal

FC

Fibre Channel Data Signal (12, 25, 50, or 100 Mb/s)

ISC_CF

Inter-System Channel or Coupling Facility. These are IBM Mainframe protocol with a data rate of 1.062 Gb/s.

montype

Monitored parameter for which threshold level is being retrieved. The threshold value of a *montype* will not be displayed in the output report unless it is user provisionable.

The *montype* FEC-UBC and FEC-EC only applies to the 10G OTU, and should be ignored for any other circuit pack types.

locn

Location. This is the location where the threshold is to be retrieved and refers to the facility identified by the AID. The valid location is:

NEND

Near-end

dirn

Direction. This specifies the direction in which the threshold value(s) are to be retrieved and is relative to the facility identified by the *aid*.

thlev

Current provisioned threshold level for the monitored parameter.

The *thlev* parameter value for coding violations is set using BER but reported as a COUNT by the associated **RTRV-TH** command.

For slots that are un-equipped, the default *thlev* for OTU is OC-3; for OTPM is OC-3; for 2DM25 low speed ports is 1 GbE; for 2DM25 high-speed port is OC-48, and for the UBB is 1 GbE.

tmper

Reporting time period for the PM information.

tcarpt

TCA report. This parameter indicates if threshold crossing alert (TCA) autonomous reporting has been enabled or disabled for the specified *montype* for the given *tmper*. A value of **ENABLE** means TCA autonomous reporting is enabled and a value of **DISABLE** indicates TCA autonomous reporting is disabled.

EXAMPLE INPUT/OUTPUT

The command to retrieve the SEFS threshold parameter TCA autonomous reporting status for slot 1, port 3 in shelf 1 is:

```
rtrv-th-otps:LT-FT-2000:otpm-1-1-3-1:123456::sefs,nend,1-day;  
IP 123456  
<  
LT-FT-2000 94-03-22 16:12:12  
M 123456 COMPLD  
"otpm-1-1-3-1,OTPS:SEFS,NEND,NA,1344,1-DAY,DISABLE"  
;
```

The command to retrieve the SESP threshold parameter TCA autonomous reporting status for slot 3, the HS port in shelf 1 is:

```
rtrv-th-otps:EON:2dm25-1-3-hs:123456::sesp,nend,1-day;  
IP 123456  
<  
LT-FT-2000 94-03-22 16:12:12  
M 123456 COMPLD  
"2dm25-1-3-hs,OTPS:SESP,NEND,NA,1344,1-DAY,DISABLE"  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

The network element returns the following error response if the *aid* value is missing or invalid.

```
sid date time  
M ctag DENY  
IIAC  
/* Input, Invalid Access Identifier, AID missing. */  
;
```

The network element returns the following error response if the *montype* value is not supported.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONTYPE */
;
```

The network element returns the following error response if the *locn* value is invalid.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid LOCN */
;
```

The network element returns the following error response if the *timper* value is invalid.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid TMPER */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-PM-OTPS

SET-TH-OTPS

RTRV-TH-SUPR

RTRV-TH-SUPR: Retrieve Threshold Supervisory

The privilege level for this command is REPORTS.

The OSI category for this command is PERFORMANCE.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-TH-SUPR:*tid:aid:ctag::[montype],[locn][,tmper];*

DESCRIPTION

The **RTRV-TH-SUPR** command instructs a network element to send the current threshold level and TCA autonomous reporting status of one or more monitored parameters for which violation will trigger an automatic message for either the optical carrier signal level 3 (OC-3) or (E1) supervisory channel signals, as provided.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This identifies the facility for which threshold levels are being retrieved.

Entity: Supervisory Channel [End terminals and Repeaters]

Legal Values: (SUPR)-(ALL, 1A, 1B, 2A, 2B)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

Monitored parameter type. This is the PM parameter type for which a threshold is being retrieved.

For the E1 supervisory signal, this parameter must be specified for one of the following values:

CVL

(Coding violations - Line Near End),

ESL

(Errored seconds - Line Near End),

SESL

(Severely errored seconds - Line Near End),

UASL

(Unavailable seconds - Line Near End),

SPR-SU

(Signal Power - OC-3 Supervisory Signal only)

LBC-SU

(Laser Bias Current - OC-3 supervisory Signal only)

ALL

(all applicable *montypes* values).

If no value is provided for this parameter, the value of **ALL** is assumed.

Applicable output lines are ordered as follows:

1. By applicable PM parameters/*montypes* per *aid*.

The output order of *montypes* the same as in the **RTRV-PM** report.

2. By requested time intervals (*timper*)s, starting with the current time interval. The output order of *timper* is the same as in the **RTRV-PM** command. Note: See R-RTRVPM-400, Table 6, for Output Data Relating to MONDAT, TMPER, and MONTM Input Parameters.

locn

Location. This is the location where the threshold is being retrieved and refers to the facility identified by the *aid*. The only valid location for this parameter is: "**NEND**".

tmper

Time period. This requests PM data information for a specified time interval. This parameter, if specified, must have one of the following values: "**15-MIN**", "**1-DAY**", or "**ALL**".

15-MIN

This requests PM data in 15-minute intervals.

1-DAY

This requests daily PM data.

ALL

This requests all PM data for the selected facilities.

If no value is provided for *tmper*, **15-MIN** is assumed.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

```
sid date time
M ctag COMPLD
"aid,aidtype:montype,locn,dirn,thlev,tmper,tcarpt"
. . .
. . .
. . .
"aid,aidtype:montype,locn,dirn,thlev,tmper,tcarpt"
;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

aid

Access identifier. This identifies the facility for which threshold levels are being retrieved.

aidtype

The type of access identifier. Valid values for *aidtype* are as follows:

SUPR

The OC3 supervisory channel for OLS. This *AIDTYPE* applies to all *MONTYPES*.

OC3

This *AIDTYPE* applies to *MONTYPE CVL* only.

E1

This *AIDTYPE* applies to *MONTYPE CVL* only.

montype

Monitored parameter for which threshold level is being retrieved. The threshold value of a *montype* will not be displayed in the output report unless it is user provisionable.

locn

Location. This is the location where the threshold is to be retrieved and refers to the facility identified by the AID. The valid location is:

NEND

Near-end

dirn

Direction. This specifies the direction in which the threshold value(s) are to be retrieved and is relative to the facility identified by the *aid*.

thlev

Current provisioned threshold level for the monitored parameter.

The thlev parameter value for coding violations is set using BER but reported as a COUNT by the associated **RTRV-TH** command.

tmper

Reporting time period for the PM information.

tcarpt

TCA report. This parameter indicates if threshold crossing alert (TCA) autonomous reporting has been enabled or disabled for the specified *montype* for the given *tmper*. A value of **ENABLE** means TCA autonomous reporting is enabled and a value of **DISABLE** indicates TCA autonomous reporting is disabled.

EXAMPLE INPUT/OUTPUT

```
rtrv-th-supr:LT-FT-2000:supr-1a:123456::cvl,nend,1-day;
IP 123456
<
  LT-FT-2000 94-03-22 16:12:12
M 123456 COMPLD
  "supr-1a,SUPR:CVL,NEND,NA,140,1-DAY,DISABLE"
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

The network element returns the following error response if the *aid* value is missing or invalid.

```
sid date time
M ctag DENY
  IIAC
/* Input, Invalid Access Identifier, AID missing. */
;
```

The network element returns the following error response if the *montype* value is not supported.

```
sid date time
M ctag DENY
  IDNV
/* Input, Data Not Valid, invalid MONTYPE */
;
```

The network element returns the following error response if the *locn* value is invalid.

```
sid date time
M ctag DENY
  IDNV
/* Input, Data Not Valid, invalid LOCN */
;
```

The network element returns the following error response if the *tmper* value is invalid.

```
sid date time
M ctag DENY
  IDNV
/* Input, Data Not Valid, invalid TMPER */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-PM-SUPR

SET-TH-SUPR

RTRV-USER-SECU

RTRV-USER-SECU: Retrieve User Security

The privilege level for this command is REPORTS.

The OSI category for this command is SECURITY.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

RTRV-USER-SECU:*tid:[uid]:ctag;*

DESCRIPTION

The **RTRV-USER-SECU** command is used by an appropriate administrator to retrieve the security parameters associated with a user, except for the user's password, which cannot be retrieved.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

uid

This is the User Identifier of a user. If specified, the valid value is a single *uid*. If omitted, this command retrieves user security parameters for all the existing user identification.

The word "all" could be used as a *uid*.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

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

```
sid date time
M ctag COMPLD
"uid:,uap,vst,lastlog,expdat"
;
```

When multiple users' security parameters are displayed, the entries are sorted by "*uid*" values in alphabetical (ASCII) order.

If the network element receives a **RTRV-USER-SECU** command with a non-existing *uid*, the following normal completion response is returned:

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

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

uid

User Identifier. This is included in the command by the OS and enables the OS to retrieve user authorization information that exists on the NE. Valid values are a case sensitive alphanumeric string of 1 to 10 characters. If the network element receives a **RTRV-USER-SECU** with a null value for *uid*, it returns all the user accounts with privileged users first, followed by general users, then reports-only users.

uap

User Access Privilege. It is displayed in the format of Cw&Fx&PMy&Sz. where: C, F, PM, S are function categories, and where: w, x, y, z are value 1 to 5 for user authorization level.

See the **OUTPUT FORMAT** section for **ACT-USER** for more information.

vst

Visitor. This indicates that this User Identifier is assigned for temporary access to the network element. If there is a visitor user identifier, indicate yes and, if not, indicate no.

last log

Last logged in. This is the date and time of the last session established by this *uid*. It is output in the format "MM-DD HH-MM-SS" with the date and time separated by one space. If no information is available regarding the last login session for this uid (for example, this is the first login session), this output field is not populated.

expdat

Expiration Date. This is the **EXPDAT** that is associated with a visitor's login in the following format: YY-MM-DD, where YY is the last two digits of the year ranging from 00 to 99; MM is the month of the year ranging from 01 to 12; and DD is the day of the month ranging from 01 to 31.

If there is no visitor, the expiration date is not populated. Expiration Date. This is the **EXPDAT** that is associated with a visitor's login in the following format: YYYY-MM-DD, where YY is the year ranging from 1900 to 2099; MM is the month of the year ranging from 01 to 12; and DD is the day of the month ranging from 01 to 31. The four digit year format shall be utilized when the NE has been provisioned for four-digit years.

If there is no visitor, the expiration date is not populated.

EXAMPLE INPUT/OUTPUT

```
RTRV-USER-SECU:LT-PF-2000:kj lee:123456;  
IP 123456  
<  
  LT-PF-2000 93-10-26 16:42:11  
M 123456 COMPLD  
  "kj lee:,C4&F3&PM1&S2,yes,12-23 18-31-17,96-12-27"  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives a **RTRV-USER-SECU** command with an invalid *uid*, the following error response is returned:

```
sid date time  
M ctag DENY  
PIUI  
/* Privilege, Illegal User Identity, invalid UID */  
;
```

RTRV-USER-SECU
Metropolis® EON

RTRV-USER-SECU
TL1 Message Details

RELATED TL1 COMMANDS/MESSAGES

ENT-USER-SECU

ED-USER-SECU

DLT-USER-SECU

SET-ATTR-ALM

SET-ATTR-ALM: Set Attribute Alarm

The privilege level for this command is PRIVILEGED.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

SET-ATTR-ALM :*tid*::*ctag*[::*spec_block*];

DESCRIPTION

The **SET-ATTR-ALM** command can be executed to provision the incoming signal alarm delay and the alarm clear delay intervals. It can also be used to set the alarm severity (aka *ntfcncde*) for several specific alarms.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters

comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific block. Parameters included within the specific block are positionally independent and are specified using a name-defined construct of: **PARAMETER=***value*. The specific block may have one, more than one or none of the following parameters specified within it in a comma-separated list. Furthermore, each parameter listed below can appear at most once within the specific block for a single **SET-ATTR-ALM** command.

The **almdel** and **clrdel** are listed first; The Alarm Ids (**almid**) for setting the alarm severities (**ntfncnde**) are listed next.

almdel

Alarm delay. This is the incoming signal alarm delay parameter. Legal values are 0-120 (seconds) or it may be omitted, in which case the value of the parameter is left unchanged.

clrdel

Alarm clear delay. This is the alarm clear delay parameter. Legal values are 0-120 (seconds) or it may be omitted, in which case the value of the parameter is left unchanged.

agnecomf

AGNE Communication Failure Alarm Severity. This is the alarm severity (**ntfncnde**) for an AGNE Communication alarm.

The legal values and the original **ntfncnde** (*that is, as set in the software*) value for this parameter are listed below.

dccfoc3

DCC Failure OC3. This is the alarm severity (**ntfncnde**) for an incoming DCC Supervisory Channel alarm.

The legal values and the original **ntfncnde** (*that is, as set in the software*) value for this parameter are listed below.

dsnerr

DSNE Not Reachable. This is the alarm severity (**ntfncnde**) for an incoming DSNE Not Reachable alarm.

The legal values and the original **ntfncnde** (*that is, as set in the software*) value for this parameter are listed below.

ochanlos

Optical Channel Loss of Signal. This is the alarm severity (**ntfncnde**) for an incoming Optical Channel Loss Of Signal (LOS) alarm.

The legal values and the original **ntfncnde** (*that is, as set in the software*) value for this parameter are listed below.

rnginc

System Incomplete. This is the alarm severity (**ntfncnde**) for an incoming System Incomplete (aka Ring Incomplete) alarm.

The legal values and the original **ntfncnde** (*that is, as set in the software* value for this parameter are listed below.

otuotpmdup

Duplicate otu or otpm wavelength. This is the alarm severity (**ntfncnde**) for otu or otpm duplicate alarm..

The legal values and the original **ntfncnde** (*that is, as set in the software* value for this parameter are listed below.

Alarm Identification & Notification Code Values. These are the alarm Identifiers (**almid**) for which an alarm severity (**ntfncnde**) may be set. Legal values for **ntfncnde**, and the original **ntfncnde** (*that is, as set in the software*) value for each Alarm Id are listed below:

almid	SONET Dflt	SDH Dflt	ntfncnde Legal Values*
agnecomf	MJ	Prompt	CR, MJ, MN, NA, NR, NO, CR_Prompt, MJ_Prompt, MN_Deferred, NA_No_Alarm, NR_No_Report, No_Not_Indicated
dccfoc3	MN	Deferred	CR, MJ, MN, NA, NR, NO, CR_Prompt, MJ_Prompt, MN_Deferred, NA_No_Alarm, NR_No_Report, No_Not_Indicated
dsnenr	NA	NA	CR, MJ, MN, NA, NR, NO, CR_Prompt, MJ_Prompt, MN_Deferred, NA_No_Alarm, NR_No_Report, No_Not_Indicated
ochanlos	CR	Prompt	CR, MJ, MN, NA, NR, NO, CR_Prompt, MJ_Prompt, MN_Deferred, NA_No_Alarm, NR_No_Report, No_Not_Indicated
rnginc	MJ	Prompt	CR, MJ, MN, NA, NR, NO, CR_Prompt, MJ_Prompt, MN_Deferred, NA_No_Alarm, NR_No_Report, No_Not_Indicated
otuotpmdup	MJ	Prompt	CR, MJ, MN, NA, NR, NO, CR_Prompt, MJ_Prompt, MN_Deferred, NA_No_Alarm, NR_No_Report, No_Not_Indicated

* CR_Prompt, MJ_Prompt, MN_Deferred, NA_No_Alarm, NR_No_Report and No_Not_Indicated are only legal when the System STM Value is set to SDH.

CR, MJ, MN, NA, NR & NO are only legal values when the System STM Value is set to SONET.

OUTPUT FORMAT

If the network element fully complies with the **SET-ATTR-ALM** request, the following normal completion response is returned.

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

If the **SET-ATTR-ALM** command does not alter the existing attributes, the network element will not deny the command. Instead the system will respond with the completion message (shown in the previous screen display).

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows a **SET-ATTR-ALM** command that provisions the incoming signal delay to 10 seconds and provision the alarm clear delay to 30 seconds.

```
SET-ATTR-ALM:LT-PF-2000::123456:::almdel=10,clrdel=30;
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```

The following example shows a **SET-ATTR-ALM** command that provisions the alarm clear delay to 14 seconds.

```
SET-ATTR-ALM:LT-PF-2000::123456:::clrdel=14;
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```

The following example shows a **SET-ATTR-ALM** command that provisions a number of Alarm Ids to various Alarm Severities:

```
SET-ATTR-ALM:LT-PF-2000::123456:::agnecomf=MN,dccfoc3=NR,dsnenr=NA,ochan-
los=CR,ringinc=CR;
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If a **SET-ATTR-ALM** command is received with an invalid **almdel** parameter, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid almdel parameter */
;
```

If a **SET-ATTR-ALM** command is received with an invalid **clrdel** parameter, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid clrdel parameter */
;
```

If a **SET-ATTR-ALM** command is received with an invalid **ntfcncde** value for the **agnecomf**, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid value of ntfcncde for agnecomf */
;
```

If a **SET-ATTR-ALM** command is received with an invalid **ntfcncde** value for the **dccfoc3**, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid value of ntfcncde for dccfoc3 */
;
```

If a **SET-ATTR-ALM** command is received with an invalid **ntfcncde** value for the **dsnenr**, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid value of ntfcncde for dsnenr */
;
```

If a **SET-ATTR-ALM** command is received with an invalid **ntfcncde** value for the **ochanlos**, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid value of ntfcncde for ochanlos */
;
```

If a **SET-ATTR-ALM** command is received with an invalid **ntfcncde** value for the **rnginc**, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid value of ntfcncde for rnginc */
;
```

If a **SET-ATTR-ALM** command is received with an incompatible SONET/SDH Value, as provisioned by the System STD value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid value of ntfcncde for current system STD */
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SR0F
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-ATTR-ALM

SET-ATTR-CONT

SET-ATTR-CONT: Set Attribute Control

The privilege level for this command is PRIVILEGED.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

SET-ATTR-CONT:*tid:aid:ctag::conttype;*

DESCRIPTION

The **SET-ATTR-CONT** command can be executed to provision (define) the description associated with an external control.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. The *aid* identifies the external miscellaneous discrete control for which attributes are being set. An *aid* value must be provided.

Entity: Single Point (Control)

Legal Values: (CONT)-(1-36)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

conttype

Control Type. The *conttype* is the text string associated with the selected miscellaneous discrete control. It is an alphanumeric string, upper and lower case, spaces and periods allowed, up to 26 characters long. It must begin with an alphanumeric character and contain no more than one consecutive space. *conttype* is case sensitive and is enclosed using delimiters. The delimiter to be used is \" [that is, backslash followed by double quotes]. A *conttype* entry is required.

OUTPUT FORMAT

If the network element fully complies with the **SET-ATTR-CONT** request, the following normal completion response is returned.

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

If the **SET-ATTR-CONT** command does not alter the already provisioned description, the network element will not deny the command. Instead the system will respond with the completion message (shown in the previous screen display).

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows a **SET-ATTR-CONT** command that provisions the text string for miscellaneous discrete control 3 to \fan3\ for a PF-2000 system:

```
SET-ATTR-CONT:LT-PF-2000:CONT-3:123456::\"fan3\";
IP 123456
<
LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```


ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If a **SET-ATTR-CONT** command is received with an invalid access identifier, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier */
;
```

If a **SET-ATTR-CONT** command is entered with an unimplemented parameter, the following (representative) error response is returned:

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

If a **SET-ATTR-CONT** command is entered with an invalid *conttype* parameter the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid CONTTYPE */
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-ATTR-CONT

SET-ATTR-ENV

SET-ATTR-ENV: Set Attribute Environment

The privilege level for this command is PRIVILEGED.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

SET-ATTR-ENV:*tid:aid:ctag::[ntfcncde],,almmsg;*

DESCRIPTION

SET-ATTR-ENV commands can be initiated to request the network element to set the notification code (alarm level) and alarm message (condition description) associated with environmental alarm/status points.

Environmental alarm conditions are reported by TL1 autonomous REPT ALM ENV messages. Environmental status conditions are reported by TL1 autonomous REPT EVT COM messages and periodically via REPT COND. The provisioned notification code, alarm type, and alarm message are included in the TL1 messages reporting the occurrence of an environmental condition.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This is the address of the environmental points to be provisioned.

Entity: Single Point (Environmental)

Legal Values: (ENV)-(1-144)

A null value is not permitted with this parameter.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

ntfncde

Notification code. This is the alarm level to be associated with the addressed environmental point and may have one of the following values: "**CR**", "**MJ**", "**MN**", "**NA**", "**NR**", "**NO**", "**CR_Prompt**", "**MJ_Prompt**", "**MN_Deferred**", "**NA_No_Alarm**", "**NR_No_Report**", or "**NO_Not_Indicated**".

CR

Critical. If provisioned as **CR**, the alarm level associated with the environmental point shall be CR.

MJ

Major. If provisioned as **MJ**, the alarm level associated with the environmental point shall be MJ.

MN

Minor. If provisioned as **MN**, the alarm level associated with the environmental point shall be MN.

NA

Not alarmed. If provisioned as **NA**, a status condition will be reported when the environmental point becomes active.

NR

Not reported. If provisioned as **NR**, no condition/alarm is reported when the addressed environmental point becomes active.

NO

Not Indicated. The active environmental point will result in no failure indication being generated whatsoever for the underlying failure condition. No report, autonomous or otherwise will be generated and sent to the user.

CR_Prompt

Critical/Prompt. If provisioned as **CR_Prompt**, the alarm level associated with the environmental point shall be Prompt (for SDH) or CR (for SONET).

MJ_Prompt

Major/Prompt. If provisioned as **MJ_Prompt**, the alarm level associated with the environmental point shall be Prompt (for SDH) or MJ (for SONET).

MN_Deferred

Minor/Deferred. If provisioned as **MN_Deferred**, the alarm level associated with the environmental point shall be Deferred (for SDH) or MN (for SONET).

NA_No_Alarm

Not Alarmed (for SONET)/No Alarm (for SDH). If provisioned as **NA_No_Alarm**, a status condition will be reported when the environmental point becomes active.

NR_No_Report

Not Reported (for SONET)/No Report (for SDH). If provisioned as **NR_No_Report**, no condition/alarm is reported when the addressed environmental point becomes active.

NO_Not_Indicated

Not Indicated (for SONET and SDH) The active environmental point will result in no failure indication being generated whatsoever for the underlying failure condition. No report, autonomous or otherwise will be generated and sent to the user.

alarmmsg

Alarm message. This is the condition description to be associated with the addressed environmental point. The description may be a string of up to 26 characters consisting of case-sensitive (upper-case and lower-case) alphanumerics, spaces, and "." (periods). The description must be enclosed using delimiters. The description must begin with an alphanumeric character and contain no more than one consecutive space. The delimiter to be used is \" [that is, backslash followed by double-quotes].

This parameter is an exception to the general rule of TL1 input parameters being case-insensitive.

OUTPUT FORMAT

If the network element fully complies with the set attribute environment request, the following normal completion response is returned:

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

If the network element receives a valid **SET-ATTR-ENV** command, but the command does not alter the existing alarm attributes, the network element provides a normal completion response.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

```
SET-ATTR-ENV:LT-FT-2000:env-10:123456::MJ,,\"environment 10\";  
IP 123456  
<  
  LT-FT-2000 93-10-26 16:42:11  
M 123456 COMPLD  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **SET-ATTR-ENV** command.

If the network element receives a **SET-ATTR-ENV** command with an invalid or missing *aid* value, the following error response is returned:

```
sid date time  
M ctag DENY  
IIAC  
/* Input, Invalid Access Identifier */  
;
```

If the network element receives a **SET-ATTR-ENV** command with an invalid *ntfcncde* value, the following error response is returned:

```
sid date time  
M ctag DENY  
IDNV  
/* Input, Data Not Valid, invalid NTFCNCDE */  
;
```

If the network element is provisioned as SDH and receives this command with a SONET *NTFCNCDE* value, the following error response is returned:

```
sid date time  
M ctag DENY  
IDNV  
/* Input, Data Not Valid, invalid NTFCNCDE */  
;
```

If the network element receives a **SET-ATTR-ENV** command with an invalid *almmsg* value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid ALMMMSG */
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-ATTR-ENV

SET-PM-STIME

SET-PM-STIME: Set Performance_Monitoring Start_Time

The privilege level for this command is GENERAL.

The OSI category for this command is PERFORMANCE.

This command is available starting in OLS Release 2.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

SET-PM-STIME:*tid::ctag::start_hour;*

DESCRIPTION

The **SET-PM-STIME** command specifies the start time for the measurement of all twenty-four hour performance monitoring parameters.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters

comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

start_hour

Start Hour. The *start_hour* is a position defined parameter which specifies the start hour for day bin measurements. It can take the value of an integer between 0 and 23.

OUTPUT FORMAT

If the network element fully complies with the **SET-PM-STIME** request, the following normal completion response is returned:

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

If the **SET-PM-STIME** command does not alter the existing attributes, the network element will not deny the command. Instead the system will respond with the completion message (shown in the previous screen display).

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows a command **SET-PM-STIME** for the network element.

```
set-pm-stime:LT-PF-2000::CTAG::22;
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M CTAG COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If a **SET-PM-STIME** command is received with an invalid *start_hour* value, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, Invalid START_HOUR */
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-PM-STIME

SET-SID

SET-SID: Set Source_Identification

The privilege level for this command is PRIVILEGED.

The OSI category for this command is SECURITY.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

SET-SID:*tid::ctag::sid;*

DESCRIPTION



CAUTION:

Network element access is affected by this command.

The **SET-SID** command can be initiated by a user to change the target/source identification of the network element.

When the network element receives a **SET-SID** command, the network element will update its target/source identifier as requested.

The target/source identifier remains active until changed (for example, by the TL1 command **ENT-SYS** command or by the appropriate network element Craft Interface Terminal (CIT) command.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)

- (dash)
- _ (underscore)
- / (slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

sid

Target identifier. This is the new name of the network element to which the command is addressed.



NOTE:

For proper operation of the TL1 interfaces, the *sid* must be unique for each network element within a subnetwork.

OUTPUT FORMAT

Refer to the **RTRV-HDR OUTPUT FORMAT** section. The requirements listed there also apply to the **SET-SID** command.

If the requested **SET-SID** command does not alter the existing condition, the network element shall not DENY the command. Instead the network element shall respond with a COMPLD message.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example requests a change of the target identifier to LT-FT-2000 from LT-PF-2000:

```
set-sid:LT-PF-2000::123456::LT-FT-2000;  
IP 123456  
<  
  LT-PF-2000 93-10-26 16:42:11  
M 123456 COMPLD  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The requirements listed there also apply to the **SET-SID** command.

If the network element receives a **SET-SID** with an otherwise valid set of input parameter values but the *sid* specified in the command is syntactically incorrect, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid SID */
;
```

If the network element receives a **SET-SID** without the *sid* parameter, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, missing SID */
;
```

If the network element receives a **SET-SID** with an otherwise valid set of input parameter values but the command could not be completed by the network element, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

ENT-SYS

RTRV-SYS

SET-TH-OCHAN

SET-TH-OCHAN: Set Threshold Optical_Channel

The privilege level for this command is GENERAL.

The OSI category for this command is PERFORMANCE.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

SET-TH-OCHAN:*tid:aid:ctag::montype,[thlev],[locn],[dirn],[tmper][,tcarpt];*



NOTE:

The above single-line command is presented as two lines for ease of reading.

DESCRIPTION

The **SET-TH-OCHAN** command instructs a network element to set the threshold level for optical channel monitored parameters.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)

- (dash)

_ (underscore)

/ (slash)

aid

Access identifier. This identifies the facility to which the threshold applies.

Entity: Optical Channel

Legal Values:(OCHAN)-(ALL), (OCHAN)-(1A,1B,2A,2B)-(ALL,1-32)

CenterLink CIT selection options: (OCHAN)-(ALL, 1A, 1B, 2A, 2B)-(ALL, 1-32)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

Monitored parameter type. This is the PM parameter type for which a threshold is being set. This parameter must be specified for the following value:

SPR-C

(Optical Channel Signal Power - Receive).

thlev

Threshold level. This is the threshold level to be set for the particular *montype*.

Valid and original (that is, as set in the factory) threshold values for the applicable OCHAN *montype* are given as follows:

montype	Legal Range for 15-MIN and 1-DAY tmper	Original Value for 15-MIN and 1-DAY tmper
SPR-C	0 - 100 (by 10's)	60

The scale of **SPR-C** values is translatable into dB units of difference between the baselined dBm input to the OA, and the current input. The baselined value is automatically generated when an optical channel transitions from AUTO to IS state. The baselined value can be manually generated by issuing the **INIT-REG-OLINE** command. The translation is shown in the table below:

SPR-C Reading	dB variation from factory setting	dB variation from baseline setting
	Tone based Channel Detection	OMON based Channel Detection
100	over +3.5	+5
90	0.8 to 12	+3
80	+3 to -2.5	0
70	-0.8 to -6.5	-3
60	-3.5 to -10.5	-6

SPR-C Reading	dB variation from factory setting	dB variation from baseline setting
	Tone based Channel Detection	OMON based Channel Detection
50	-6.5 to -14	-9
40	-9 to -19	-12
30	-13 to -24	-15
20	-18 to -30	-18
10	-23 to -35	-22
0	below -28	-26

locn

Location. This is the location where the threshold is to be set and refers to the facility identified by the AID. The valid location is: "**NEND**" (that is, Near-end)
If null, the default value is **NEND**.

dirn

Direction. This specifies the direction in which the threshold is to be set and is relative to the facility identified by the access identifier. The value of direction, if specified, must be the following value: "**NA**". If no value is provided for *dirn*, **NA** is assumed.

tper

Time period for which PM threshold information is to be stored in the data base. This parameter, if specified, must have one of the following values: "**15-MIN**" or "**1-DAY**".

15-MIN Threshold data to be set for 15-minute intervals.

1-DAY Threshold data to be set for 1-day intervals.

If no value is entered for *tper*, **15-MIN** is assumed by the network element. The threshold setting of optical parameters in OLS is independent of bins. As a result, any change in threshold value for optical parameters shall affect both 15-MIN and 1-DAY PM bin reporting.

tcarrpt

TCA report. This parameter is used to enable/disable threshold crossing alert (TCA) autonomous reporting of the specified *montype* for the specified *tper*. This parameter, if specified, must have one of the following values: "**ENABLE**" or "**DISABLE**" where **ENABLE** enables TCA autonomous reporting and **DISABLE** disables TCA autonomous reporting. If no value is provided for *tcarrpt*, it means "no changes" to this parameter value.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

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

If the requested command does not alter the existing condition, the network element shall respond with a COMPLD message.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

This message will set the quarter-hour bin threshold for SPR-C for optical channel 2 in optical line 2A of the network element.

```
set-th-ochan:LT-OLS:ochan-2a-2:123456::spr-c,,,,;
IP 123456
<
  LT-OLS 97-07-09 01:16:46
M 123456 COMPLD
;
```

The optical PM parameters are not accumulated based on time periods.

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

The network element returns the following error response if the *aid* value is missing or invalid.

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier, AID missing or invalid */
;
```

The network element returns the following error response if the *montype* value is missing or not supported.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONTYPE */
;
```

The network element returns the following error response if the *thlev* value is out of range.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid THLEV */
;
```

The network element returns the following error response if the *locn* value is invalid or inconsistent with *montype*.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid LOCN */
;
```

The network element returns the following error response if the *tcarpt* value is invalid.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid TCARPT */
;
```

The network element returns the following error response if the *dirn* value is invalid.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid DIRN */
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SR0F
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-PM-OCHAN

RTRV-TH-OCHAN

SET-TH-OLINE

SET-TH-OLINE: Set Threshold Optical_Line

The privilege level for this command is GENERAL.

The OSI category for this command is PERFORMANCE.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

SET-TH-OLINE:*tid:aid:ctag::montype,[thlev],[locn],[dirn],
[tmper][,tcarpt];*



NOTE:

The above single-line command is presented as two lines for ease of reading.

DESCRIPTION

The **SET-TH-OLINE** command instructs a network element to set the threshold level for optical line monitored parameters.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This identifies the facility to which the threshold applies.

Entity: Optical Line

Legal Values: (OLINE)-(ALL, 1A, 1B, 2A, 2B)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

Monitored parameter type. This is the PM parameter type for which a threshold is being set.

This parameter must be specified for one of the following values:

TOPR-OL

(Total Optical Power Received- Optical Line), or

TOPT-OL

(Total Optical Power Transmitted - Optical Line), or

TCA_RPT

(TCA Report Enabled/Disabled).



NOTE:

The **TOPT-OL** parameter is only reported if a LEA207 Optical Amplifier is equipped.

thlev

Threshold level. This is the threshold level to be set for the particular *montype*.

Valid and original (that is, as set in the factory) threshold values for the applicable OLINE *montype* are given as follows:

montype	Legal Range for 15-MIN and 1-DAY tmper	Original Value for 15-MIN and 1-DAY tmper
TOPR-OL or TOPT-OL	0 - 100 (by 10's)	60

The scale of TOPR-OL and TOPT-OL values is translatable into dB units of difference between the baselined dBm input to the OA, and the current input. The baselined value is automatically generated when an optical channel transitions from AUTO to IS

state. The baselined value can be manually generated by issuing the **INIT-REG-OLINE** command. The translation is shown in the table below:

TOPR-OL or TOPT-OL Reading	dB variation from factory setting	
	LEA7, LEA7B, LEA104, LEA107B, LEA105 Optical Amplifiers and LEA209, LEA211 Line Interface Units	LEA207 or LEA307 Optical Amplifier
100	over +3.5	over +4.5
90	0.8 to 12	+4.5 to +1.5
80	+3 to -2.5	+1.5 to -2.0
70	-0.8 to -6.5	-2.0 to -5.0
60	-3.5 to -10.5	-5.0 to -8.0
50	-6.5 to -14	-8.0 to -12.0
40	-9 to -19	-12.0 to -16.0
30	-13 to -24	-16.0 to -20.0
20	-18 to -30	-20.0 to -24.0
10	-23 to -35	-24.0 to -28.0
0	below -28	below -28.0

locn

Location. This is the location where the threshold is to be set and refers to the facility identified by the AID. The valid location is: "**NEND**" (that is, Near-end)

If null, the default value is **NEND**.

dirn

Direction. This specifies the direction in which the threshold is to be set and is relative to the facility identified by the access identifier. The value of direction, if specified, must be the following value: "**NA**". If no value is provided for *dirn*, **NA** is assumed.

tper

Time period for which PM threshold information is to be stored in the data base. This parameter, if specified, must have one of the following values: "**15-MIN**" or "**1-DAY**".

15-MIN

Threshold data to be set for 15-minute intervals.

1-DAY

Threshold data to be set for 1-day intervals.

If no value is entered for *tper*, **15-MIN** is assumed by the network element. The threshold setting of optical parameters in OLS is independent of bins. As a result, any change in threshold value for optical parameters shall affect both 15-MIN and 1-DAY PM bin reporting.

tcarpt

TCA report. This parameter is used to enable/disable threshold crossing alert (TCA) autonomous reporting of the specified *montype* for the specified *timper*. This parameter, if specified, must have one of the following values: "**ENABLE**" or "**DISABLE**", where **ENABLE** enables TCA autonomous reporting and **DISABLE** disables TCA autonomous reporting. If no value is provided for *tcarpt*, it means "no changes" to this parameter value.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

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

If the requested command does not alter the existing condition, the network element shall respond with a COMPLD message.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The optical PM parameters are not accumulated based on time periods.

Set the quarter hour bin threshold for TOPR-OL for the optical line 1 and enable TCA autonomous reporting.

```
set-th-oline:LT-OLS:oline-1a:123456::topr-ol,60,nend,,15-min,disable;

IP 123456
<
  LT-OLS 94-03-22 16:12:11
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

The network element returns the following error response if the *aid* value is missing or invalid.

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier, AID missing or invalid */
;
```

The network element returns the following error response if the *montype* value is missing or not supported.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONTYPE */
;
```

The network element returns the following error response if the *thlev* value is out of range.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid THLEV */
;
```

The network element returns the following error response if the *locn* value is invalid or inconsistent with *montype*.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid LOCN */
;
```

The network element returns the following error response if the *tcarpt* value is invalid.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid TCARPT */
;
```

The network element returns the following error response if the *dirn* value is invalid.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid DIRN */
;
```

The network element returns the following error response if the *tper* value is invalid.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid TPER */
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-PM-OLINE

RTRV-TH-OLINE

SET-TH-OTPS

SET-TH-OTPS: Set Threshold Optical_Translator_Port_Signal

The privilege level for this command is GENERAL.

The OSI category for this command is PERFORMANCE.

This command is available starting in OLS Release 3.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

SET-TH-OTPS:*tid:aid:ctag::montype,[thlev],[locn],[dirn],
[tmper][,tcarpt];*



NOTE:

The above single-line command is presented as two lines for ease of reading.

DESCRIPTION

The **SET-TH-OTPS** command instructs a network element to set the threshold level for optical translator unit (OTU) and optical translator port module (OTPM) monitored parameters.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This identifies the facility to which the threshold applies.

Entity: Port (OTU)

Legal Values: (OTU)-(ALL), (OTU)-(1,2)-(ALL,1-32)-(1)

CenterLink CIT selection options: (OTU)-(ALL, 1, 2)-(ALL, 1-32)-(1)

Entity: Port (OT Port Module)

Legal Values: (OTPM)-(ALL),
(OTPM)-(1,2)-(ALL,1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31)-(ALL,1-4)-(1)

CenterLink CIT selection options: (OTPM)-(ALL, 1, 2)-(ALL, 1, 3, 5, 7, 9, 11, 13, 15,
17, 19, 21, 23, 25, 27, 29, 31)-(ALL, 1-4)-(1)

Entity: Port (2DM25)

Legal Values: (2DM25)-(ALL), (2DM25)-(1,2)-(ALL,1-32)-(HS, P1, P2)

CenterLink CIT selection options: (2DM25)-(ALL, 1, 2)-(ALL, 1-32)-(ALL, HS, P1,
P2)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

Monitored parameter type. This is the PM parameter type for which a threshold is being set.

CVS

Digital Coding Violation - Section: Applies to OC-3/STM1 OTPM, OC-12/STM4 OTPM, OC-48/STM-16 OTPM, OC-48/STM-16 OTU, OC-192/STM-64 OTU or 2DM25 OTU (all ports).

ESS

Digital Errored Second - Section: Applies to OC-3/STM1 OTPM, OC-12/STM4 OTPM, OC-48/STM-16 OTPM, OC-48/STM-16 OTU, OC-192/STM-64 OTU or the High Speed (HS) port of the 2DM25 OTU.

SESS

Digital Severely Errored Second - Section: Applies to OC-3/STM1 OTPM, OC-12/STM4 OTPM, OC-48/STM-16 OTPM, OC-48/STM-16 OTU, 1.0 Gb/s Ethernet (GbE-1) OTU, OC-192/STM-64 OTU or the High Speed (HS) port of the 2DM25 OTU.

SEFSS

Digital Errored Frame Second - Section: Applies to OC-3/STM1 OTPM, OC-12/STM4 OTPM, OC-48/STM-16 OTPM, OC-48/STM-16 OTU, OC-192/STM-64 OTU or the High Speed (HS) port of the 2DM25 OTU

CVP

Digital Coding Violation - Path: Applies to the High Speed (HS) port of Muxing OTU

ESP

Digital Errored Second - Path: Applies to the High Speed (HS) port of Muxing OTU

SESP

Digital Severely Errored Second - Path: Applies to the High Speed (HS) port of Muxing OTU

SEFSP

Digital Errored Frame Second - Path: Applies to the High Speed (HS) port of Muxing OTU

FEC-EC

Digital FEC Error Count: Applies to only OC-192/STM-64 OTU

FEC-UBC

Digital FEC Uncorrectable Block Count: Applies to only OC-192/STM-64 OTU

For the 1.0 Gb/s Ethernet signal (GbE-1) OTU, this parameter must be specified for only the following value (in this case, SESS is only an LOS elapsed time and not a CV count).

"SESS" (Severe errored second count - Section Near End)

For UBB addressed slots, this parameter must be specified for only the following value (in this case 8B10B errors are counted, and other derived parameters are not-applicable).

"CVS" (Coding Violations - Section Near End)

For the 2DM25 addressed slots, this parameter must be specified according to the input AID. If the input AID is "2DM25-(1,2)-(1-32)-(HS)", then the following values are applicable:

CVS, ESS, SESS, SEFS -- Derived from the B1 byte

CVP, ESP, SESP, SEFP -- Derived from the B3 byte

If the input AID is "2DM25-(1,2)-(1-32)-(P1,P2)", then only the following value is applicable:

CVS, ESS, SESS, SEFS -- Derived from 8B10B error count

All other parameters are not-applicable.

thlev

Threshold level. This is the threshold level to be set for the particular montype. The value of *thlev* for coding violations is set using BER but reported, by the associated **RTRV-TH** command, as COUNT.

The following table lists default threshold values for SONET and OCh10G signals.

montype	Legal Range for 15 MIN tmper	Original Value for 15 MIN tmper	Legal Range for 1 DAY tmper	Original Value for 1 DAY tmper
CVS (count) ^a	OC-3: 1-13997 OC-12: 1-55987 OC-48: 1 - 223949 OC-192: 1-895795	140 560 2240 8960	OC-3: 1-1343693 OC-12: 1-5374771 OC-48: 1 - 21499085 OC-192: 1-85996339	1344 5375 21500 86000
CVS (BER) ^{a, b,}	-11 - -7	-9	-12 - -7	-10
ESS	1 - 900	25	1 - 65535	250
SESS	1 - 900	10	1 - 65535	40
SEFS	1 - 900	5	1 - 65535	10
FEC-EC ^c	0 - 5 x 10 ¹⁰	1 x 10 ⁹	0 - 5 x 10 ¹²	1 x 10 ¹¹
FEC-UBC ^c	0 - 5 x 10 ⁸	10	0 - 5 x 10 ¹⁰	100

- Both BER and count threshold values are listed for CVs, however, OLS40G only enters CVs by BER format and reports by CV count. Future enhancement may support both CV formats for input and output.
- The CVS -11 to -7 range for the 15 minute time period is acceptable for OC-3 as well. If the user provisions -11 for OC-3, the request will not be rejected. However, a TCA would not be generated since an OC-3 signal cannot generate that many errors in 15-MIN.
- The threshold values for FEC-EC and FEC-UBC shall be in the format "mEe", where "m" represents the mantissa, and is a non-negative floating point value of 1 to 4 digits within the range 0.0 to 4095.0, "E" is a literal byte, and "e" represents the exponent, and is a non-negative interger of 1 to 2 digits within the range of 0 to 12. For example, in order to represent a number such as "2E10", a number format of "2.0E10" should be entered to keep the mantissa an floating point value.

The following table lists the default threshold values that are only applicable to the high speed port (HS) of the 2DM25 OTU:

montype	Legal Range for 15 MIN tmper	Original Value for 15 MIN tmper	Legal Range for 1 DAY tmper	Original Value for 1 DAY tmper
CVP (count)	OC-48: 1 - 223949	2240	OC-48: 1 - 21499085	21500
CVP (BER)	-11 - -7	-9	-12 - -7	-10
ESP	1 - 900	25	1 - 65535	250
SESP	1 - 900	10	1 - 65535	40
SEFP	1 - 900	5	1 - 65535	10

The following table lists the default threshold values that are only applicable to the 8B10B coding violations:

montype	Legal Range for 15 MIN tmper	Original Value for 15 MIN tmper	Legal Range for 1 DAY tmper	Original Value for 1 DAY tmper
CVS (8B10B count)	ESCON: 1-18000 FICON: 1-95580 GbE: 1-112500 FC-12: 1-11970 FC-25: 1-23940 FC-50: 1-47790 FC-100: 1-95580 DEFAULT: 1-5e4 ^b	180 955 1125 120 240 478 955 500	ESCON: 1-1728000 FICON: 1-9175680 GbE: 1-1-10800000 FC-12: 1-1149120 FC-25: 1-2298240 FC-50: 1-4587840 FC-100: 1-9175680 DEFAULT: 1-5e6	1728 9175 10800 1149 2300 4588 9175 5000
CVS (BER) ^a	-11 - -7	-9	-12 - -7	-10
ESS	1 - 900	25	1 - 65535	250
SESS	1 - 900	10	1 - 65535	40
SEFS	1 - 900	5	1 - 65535	10

- It is possible to set the CVS thresholds for 8B10B encoded signals that can never be crossed.
- For design simplification, all 8B10B PM parameters can be set to the default value, which is the same value regardless of the data type.

locn

Location. This is the location where the threshold is to be set and refers to the facility identified by the AID. The valid location is: "**NEND**" (that is, Near-end)

If null, the default value is **NEND**.

dirn

Direction. This specifies the direction in which the threshold is to be set and is relative to the facility identified by the access identifier. The value of direction, if specified, must be the following value: "**NA**". If no value is provided for *dirn*, **NA** is assumed.

tmper

Time period for which PM threshold information is to be stored in the data base. This parameter, if specified, must have one of the following values: "**15-MIN**" or "**1-DAY**".

15-MIN

Threshold data to be set for 15-minute intervals.

1-DAY

Threshold data to be set for 1-day intervals.

If no value is entered for *tmper*, **15-MIN** is assumed by the network element.

tcarpt

TCA report. This parameter is used to enable/disable threshold crossing alert (TCA) autonomous reporting of the specified montype for the specified tmper. This parameter, if specified, must have one of the following values: "**ENABLE**" or "**DISABLE**" where **ENABLE** enables TCA autonomous reporting and **DISABLE** disables TCA autonomous reporting. If no value is provided for *tcarpt*, it means "no changes" to this parameter value.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

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

If the requested command does not alter the existing condition, the network element shall respond with a COMPLD message.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

Set the threshold to -8 for the day bin for CVS Errors, for the port for otpm 1 in otu-2-1 when equipped with an OTPM module:

```
set-th-otps:LT-FT-2000:otpm-2-1-1-1:123456::cvs,-8,nend,,1-day;

IP 123456
<
  LT-FT-2000 94-03-22 16:12:11
M 123456 COMPLD
;
```

Set the threshold to 2.5E9 for the 1-day bin for FEC-EC, for OTU-2-1-1 when equipped with an OTU pack:

```
set-th-otps:Metro_EON:otu-2-1-1:123456::fec-ec,2.5E9,nend,,1-day;

IP 123456
<
  LT-FT-2000 94-03-22 16:12:11
M 123456 COMPLD
;
```

Set the threshold to 500 for the 15-min bin for SEFP, for 2DM25-1-10-HS when equipped with a 2:1 Data Muxing (2DM25) pack:

```
set-th-otps:Metro_EON:2dm25-1-10-hs:123456::SEFP,500,nend,,15-min;

IP 123456
<
  LT-FT-2000 94-03-22 16:12:11
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The error responses listed there also apply to this command.

The network element returns the following error response if the *aid* value is missing or invalid.

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier, AID missing or invalid */
;
```

The network element returns the following error response if the *montype* value is missing or not supported.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONTYPE */
;
```

The network element returns the following error response if the *thlev* value is out of range or invalid.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid THLEV */
;
```

The network element returns the following error response if the *locn* value is invalid or inconsistent with *montype*.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid LOCN */
;
```

The network element returns the following error response if the *tcarpt* value is invalid.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid TCARPT */
;
```

The network element returns the following error response if the *dirn* value is invalid.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid DIRN */
;
```

The network element returns the following error response if the *timper* value is invalid.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid TMPER */
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SR0F
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-PM-OTPS

RTRV-TH-OTPS

SET-TH-SUPR

SET-TH-SUPR: Set Threshold Supervisory

The privilege level for this command is GENERAL.

The OSI category for this command is PERFORMANCE.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

SET-TH-SUPR:*tid:aid:ctag::montype,[thlev],[locn],[dirn],
[tmper][,tcarpt];*



NOTE:

The above single-line command is presented as two lines for ease of reading.

DESCRIPTION

The **SET-TH-SUPR** command instructs a network element to set the threshold level for supervisory channel monitored parameters.

The supervisory channel parameters also assess the customer maintenance signal (CMS) when present, via PM monitoring of the CMS being received at the telemetry pack.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)

- (dash)

_ (underscore)

/ (slash)

aid

Access identifier. This identifies the facility to which the threshold applies.

The supervisory channel is provisionable in both the 1A and 1B directions at the OLS End Terminals, though the supervisory signal is applicable to only one direction (1A or 1B) at the OLS End Terminals. In addition, there is only one telemetry pack in slot 1A.

Entity: Supervisory Channel [End terminals and Repeaters]

Legal Values: (SUPR)-(ALL, 1A, 1B, 2A, 2B)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

Monitored parameter type. This is the PM parameter type for which a threshold is being set.

This parameter must be specified for one of the following values:

CVL

(Coding violation count - Line Near End),

ESL

(Errored second count - Line Near End),

SESL

(Severely errored second count - Line Near End),

UASL

(Unavailable second count - Line Near End).

LBC-SU

(Laser Bias Current - OC-3 Supervisory Signal only)

SPR-SU

(Signal Power - OC-3 Supervisory Signal only)

thlev

NOTE: Threshold levels for **LBC-SU** and **SPR-SU** cannot be set. **LBC-SU** and **SPR-SU** are only valid *montypes* in this command for *tcarpt* (TCA report) for enable/disable of TCA autonomous reporting. Threshold level. This is the threshold level to be set for the particular *montype*.

The value of *thlev* for coding violations is set using BER but reported, by the associated **RTRV-TH** command, as COUNT.

NOTE: This requirement does not apply to 1.0 Gb/s.

For the OC-3 supervisory signal (for the E1 signal, see below), valid and original (that is, as set in the factory) threshold values for each applicable SUPR *montype* are given as follows:

montype	Legal Range	Original Value	Legal Range	Original Value
	for 15-MIN	for 15-MIN	for 1-DAY	for 1-DAY
	tmper	tmper	tmper	tmper
CVL (count)	14 - 13997	140	1 - 1343693	1344
CVL (BER)	-10 - -7	-9	-12 - -7	-10
ESL	1 - 900	25	1 - 65535	250
SESL	1 - 63	10	1 - 4095	40
UASL	1 - 63	10	1 - 4095	10

Note: Both BER and count threshold values are listed for CVs. However, CVs are entered only in BER format and are reported only in CV count format.

For the E1 supervisory signal, valid and original (that is, as set in the factory) threshold values for each applicable SUPR *montype* are given as follows:

montype	Legal Range	Original Value	Legal Range	Original Value
	for 15-MIN	for 15-MIN	for 1-DAY	for 1-DAY
	tmper	tmper	tmper	tmper
CVL * (count)	1 - 184	2	1 - 17695	18
CVL (BER)	-10 - -7	-9	-12 - -7	-10
ESL	1 - 900	25	1 - 65535	250
SESL	1 - 63	10	1 - 4095	40
UASL	1 - 63	10	1 - 4095	10

* For the E1 supervisory signal the actual acronym is CRC (Cyclic Redundancy Check). CVL is used here to maintain the same terminology used for the OC-3 signal.

locn

Location. This is the location where the threshold is to be set and refers to the facility identified by the AID. The valid location is: "**NEND**" (that is, Near-end)

If null, the default value is **NEND**.

dirn

Direction. This specifies the direction in which the threshold is to be set and is relative to the facility identified by the access identifier. The value of direction, if specified, must be the following value: "NA". If no value is provided for *dirn*, NA is assumed.

tmper

Time period for which PM threshold information is to be stored in the data base. This parameter, if specified, must have one of the following values: "15-MIN" or "1-DAY".

15-MIN

Threshold data to be set for 15-minute intervals.

1-DAY

Threshold data to be set for 1-day intervals.

If no value is entered for *tmper*, **15-MIN** is assumed by the network element.

The threshold setting of optical parameters in OLS is independent of bins. As a result, any change in threshold value for optical parameters shall affect both 15-MIN and 1-DAY PM bin reporting.

tcarpt

TCA report. This parameter is used to enable/disable threshold crossing alert (TCA) autonomous reporting of the specified *montype* for the specified *tmper*. This parameter, if specified, must have one of the following values: "ENABLE" or "DISABLE" where **ENABLE** enables TCA autonomous reporting and **DISABLE** disables TCA autonomous reporting. If no value is provided for *tcarpt*, it means "no changes" to this parameter value.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

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

If the requested command does not alter the existing condition, the network element shall respond with a COMPLD message.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

In the *tmper* input parameter of this command, the digital PM parameters of SUPR channel are accumulated on a per-bin basis for each SUPR channel, whereas the optical PM parameters are not collected based on time periods. Set the quarter-hour bin threshold for CVL for the supervisory channel-2a to -9.

```
set-th-supr:LT-OLS:supr-2a:123456::cvl,-9,nend,,15-min,enable;
IP 123456
<
  LT-OLS 97-07-09 17:26:14
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

The network element returns the following error response if the *aid* value is missing or invalid.

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier, AID missing or invalid */
;
```

The network element returns the following error response if the *montype* value is missing or not supported.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MONTYPE */
;
```

The network element returns the following error response if the *thlev* value is out of range.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid THLEV */
;
```

The network element returns the following error response if the *locn* value is invalid or inconsistent with *montype*.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid LOCN */
;
```

The network element returns the following error response if the *tcarpt* value is invalid.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid TCARPT */
;
```

The network element returns the following error response if the *dirn* value is invalid.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid DIRN */
;
```

The network element returns the following error response if the *timper* value is invalid.

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid TMPER */
;
```

If an otherwise valid instance of this command is received, but it cannot be completed because the Managed Information Base (MIB) is locked, the following error response is returned:

```
sid date time
M ctag DENY
SROF
/* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-PM-SUPR

RTRV-TH-SUPR

TEST-ALM

TEST-ALM: Test Alarm

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 2.1.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

TEST-ALM:*tid::ctag::[mode][, repeat];*

DESCRIPTION

The **TEST-ALM** command provides for specific and general tests of the audible and visible office alarms. The corresponding User Panel LEDs shall be illuminated simultaneously with each office alarm.

When the **TEST-ALM** command is entered, the system will exercise the audible and visible office alarms.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

mode

Mode. This is the mode of the alarm test. This parameter can have one of the following values: "ALL", "CR", "MJ", or "MN". If no value is provided for this parameter, then **ALL** is assumed.

repeat

Repeat. This indicates the number of times the test will be repeated. This parameter must be an integer between (1-10). If no value is provided for this parameter, 1 is assumed.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

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

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

```
TEST-ALM:LT-PF-2000::123456::MODE=CR,1;
IP 123456
<
LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives a **TEST-ALM** command with an invalid *mode*, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid MODE */
;
```

If the network element receives this command with an invalid *repeat*, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid REPEAT */
;
```

RELATED TL1 COMMANDS/MESSAGES

None

TEST-AUTO-LOCAL

TEST-AUTO-LOCAL: Test Auto Local

The privilege level for this command is PRIVILEGED.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 2.1.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

TEST-AUTO-LOCAL:*tid:aid:ctag;*

DESCRIPTION

The **TEST-AUTO-LOCAL** command is used for turnup testing of the network element in an automated manner. This checks the internal node transmission paths that require cabling between packs. This test verifies transmission through the telemetry channel via the optical amplifiers and telemetry pack and also verifies transmission through the Customer Maintenance Signal (CMS) channel via the telemetry pack.

The output of this command is an indication of whether the test passed or failed.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)

- (dash)

_ (underscore)

/ (slash)

aid

Access identifier. This is the address of the telemetry slot for which this command is intended.

Entity: Signal (SUPR, CMS) [End Terminals and Repeaters]

Legal Values: (SUPR, CMS)-(ALL, 1, 2)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

In response to a valid instance of this command, the following output report is returned.

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

Both the OLS end and repeater terminals verify transmission through all supervisory channels via the optical amplifiers and telemetry packs. The end and repeater terminals have four lines in service.

For an End Terminal (ET) under supervisory (SUPR) test with a TLM 1B pack in the slot, the SUPR output signal is looped back on to the SUPR input signal.

Also, for an ET under CMS test with a TLM 1B pack in the slot, the CMS output signal is looped back on to the CMS input signal. The CMS test is currently being done for Repeaters.

If a **TEST-AUTO-LOCAL** command is issued to the OLS equipped with the E1 TLM circuit pack (for a CMS port) the command shall be denied. The error code for the DENY response shall be STAB (Status- Test Aborted).

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

aid

Slot access identifier. This is the address of the slot for which the test result is being reported. Valid values are for the address of the slot through which the requested SUPR and CMS signals go through.

spec_block

Specific block. This parameter field is used in a positionally independent comma separated list for returning a name defined parameter of: *PARAMETER=value*. The parameter(s) is (are) listed and explained as follows:

result_status

The result status field is used for returning the result of the test and it takes on the following values:

good

Test result was good or successful.

FAIL

Test result failed or was unsuccessful.

\ "- \ "

The entity was not tested.

EXAMPLE INPUT/OUTPUT

The following example shows the response to the request for all supervisory channels via the optical amplifiers and the telemetry packs for the end ("supr-all") terminal.

```
test-auto-local:LT-OLS:supr-all:789012;  
IP 789012  
<  
  LT-OLS 93-10-26 16:42:11  
M 789012 COMPLD  
  "tlm-1a::result_status=good"  
  "tlm-2a::result_status=good"  
  "tlm-1b::result_status=\"-\""  
  "tlm-2b::result_status=\"-\""  
;
```

The following example shows the response to the request for all supervisory channels via the optical amplifiers and the telemetry packs for the repeater ("supr-all") terminal.

```
test-auto-local:LT-OLS:supr-all:789012;  
IP 789012  
<  
  LT-OLS 93-10-26 16:42:11  
M 789012 COMPLD  
  "tlm-1a::result_status=good"  
  "tlm-2a::result_status=good"  
  "tlm-1b::result_status=good"  
  "tlm-2b::result_status=good"  
;
```

The following example shows the response to the request for all supervisory channels via the optical amplifiers and the telemetry packs for an ET ("supr - all") provisioned in 1A-TX-THRU mode.

```
test-auto-local:LT-OLS:supr-all:789012;  
IP 789012  
<  
  LT-OLS 93-10-26 16:42:11  
M 789012 COMPLD  
  "tlm-1a::result_status=good"  
  "tlm-2a::result_status=good"  
  "tlm-1b::result_status=good"  
  "tlm-2b::result_status=good"  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If this command is received with an invalid access identifier, the following error response is returned:

```
sid date time  
M ctag DENY  
  IIAC  
  /* Input, Invalid Access Identifier */  
;
```

A condition may occur that (a) is not associated with the entity under test, and (b) would cause NE-ACTY to be lighted if the test wasn't running. Such conditions include the absence of a line controller in the case that the test is directed to a single line without a line controller, and the preemption of the high speed switch. In these cases the command shall be denied with the following error response:

```
sid date time  
M ctag DENY  
  FNEA  
  /* Fault, Near End Activity  
  The requested test can not be completed because of a condition  
  (or conditions) giving rise to Near End Activity. */  
;
```

If a test is addressed to a slot in the AUTO state, the command shall be denied with the following error response:

```
sid date time
M ctag DENY
SNVS
/* Status, Not in Valid State
The requested command can not be executed because of the improper
status of the specified entity. */
;
```

If a test is addressed to a slot equipped with the E1 TLM circuit pack (for a CMS port), the command shall be denied with the following error response:

```
sid date time
M ctag DENY
STAB
/* Status, Test Aborted
The requested command can not be executed because the test is invalid
for the E1 TLM circuit pack for a CMS port. */
;
```

RELATED TL1 COMMANDS/MESSAGES

None

TEST-LED

TEST-LED: Test LED

The privilege level for this command is REPORTS.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 2.1.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

TEST-LED:*tid:[aid]:ctag[::repeat];*

DESCRIPTION

The **TEST-LED** command provides for testing of the LEDs of the whole system or of each circuit pack.

The LED(s) under test is turned on for 10 seconds, then off for 10 seconds, after which it reverts to its normal operation. This command does not affect the operation of the office alarms.

The definition of "normal" is the state of the indicator immediately before the test was executed. After the test is executed, "normal" also includes any state changes during the test.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. *aid* determines the slot or operations interface address whose LED is to be tested. If no value is provided for this field, **all** is assumed.

Entity: All

Legal Values: (ALL)

Entity: Slot (TOHCTL)

Legal Values: (TOHCTL)

Entity: Operations Interface (User Panel)

Legal Values: (USER)-(PANEL)

Entity: Slot (SYSCTL)

Legal Values: (SYSCTL)

Entity: Slot (SYSMEM)

Legal Values: (SYSMEM)

Entity: Slot (OA)

Legal Values: (OA)-(ALL, 1A-2B)

Entity: Slot (TLM) [End terminals and Repeaters]

Legal Values: (TLM)-(ALL, 1A, 1B, 2A, 2B)

Entity: Slot (OTU)

Legal Values: (OTU)-(ALL), (OTU)-(1,2)-(ALL,1-32)

CenterLink CIT selection options: (OTU)-(ALL, 1, 2)-(ALL, 1-32)

Entity: Slot (OTCTL)

Legal Values: (OTCTL)-(ALL, 1, 2)

Entity: Slot (OUPSR)

Legal Values: (OTU)-(ALL), (OTU)-(1,2)-(ALL,1-32)

CenterLink CIT selection options: (OTU)-(ALL), (OTU)-(1,2)-(ALL,1-32)

Entity: (LI)

Legal Values: (OA)-(ALL, 1A-2B)

Entity: (OMON)

Legal Values: (OA)-(ALL, 2A)

Entity: Slot (OT Port Module)

Legal Values: (OTPM)-(ALL),

(OTPM)-(1,2)-(ALL,1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31)-(ALL,1-4)

CenterLink CIT selection options: (OTPM)-(ALL, 1, 2)-(ALL, 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31)-(ALL, 1-4)

tag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *tag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

repeat

Repeat. This indicates the number of times the test will be repeated. This parameter must be an integer between (1-10). If no value is provided for this parameter, 1 is assumed.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

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

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

```
TEST-LED:LT-PF-2000:sysmem:123456::REPEAT=1;
IP 123456
<
  LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If this command is received with an invalid access identifier, the following error response is returned:

```
sid date time
M ctag DENY
IIAC
/* Input, Invalid Access Identifier */
;
```

If the network element receives this command with an invalid *repeat*, the following error response is returned:

```
sid date time
M ctag DENY
IDNV
/* Input, Data Not Valid, invalid REPEAT */
;
```

RELATED TL1 COMMANDS/MESSAGES

None

TEST-LOOPBACK

TEST - LOOPBACK: Test Loopback

The privilege level for this command is PRIVILEGED.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 8.2.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

TEST - LOOPBACK:*tid:aid:ctag::mode;*

DESCRIPTION

The **TEST - LOOPBACK** command is used to test the loopback functionality of the MUX OTU. When this command is executed, traffic passed to the transmitter are shunted directly to the receiver, overriding any signal detected by the receiver on its attached link. This command can also be used to revert the MUX OTU back to normal operation. This command can only be executed when the port state the MUX_OTU under test is set to "NMON" via command "ENT-OTPS".

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

aid

Access identifier. This is the address of the telemetry slot for which this command is intended.

Entity: Port (2DM25)

Legal Values: (2DM25)-(1,2)-(1-32)-(HS, P1, P2)

CenterLink CIT selection options: (2DM25)-(1, 2)-(1-32)-(HS, P1, P2)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

mode

Test mode. This is the mode in which the loopback is initiated:

LS_SIDE

Data received by the low-speed side from the egress direction will be sent back to the SONET side in the ingress direction. This mode is only applicable to the low-speed ports of the MUX OTUs.

HS_SIDE

High speed side. Data received by the high speed side from the ingress direction will be sent back to the client side in the egress direction. This mode is only applicable to the high-speed port of the MUX OTUs.

NORMAL

Revert back to normal operation. In this case, the Muxing OTU reverts back to the normal operation and continues receive the signal detected by the receiver on its attached link.

OUTPUT FORMAT

In response to a valid instance of this command, the following output report is returned.

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

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows the response to the request for testing the MUX OTU installed in shelf 1 slot 10 for client side loopback:

```
test-loopback:LT-OLS:2dm25-1-10-p1:789012::mode=LS_SIDE;  
IP 789012  
<  
  LT-OLS 93-10-26 16:42:11  
M 789012 COMPLD  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If this command is received with an invalid access identifier, the following error response is returned:

```
sid date time  
M ctag DENY  
IIAC  
/* Input, Invalid Access Identifier */  
;
```

If this command is received with an access identifier that does not identify a valide MUX OTU, the following error response is returned:

```
sid date time  
M ctag DENY  
IDNV  
/* Input, Data Not Valid, parameter settings inconsistent with modifier  
value */  
;
```

If this command is received with an access identifier that does not match the mode (i.e., the AID identifies a high-speed port while mode is set to LS_SIDE), the following error response is returned:

```
sid date time  
M ctag DENY  
IDNV  
/* Input, Data Not Valid, parameter settings inconsistent with modifier  
value */  
;
```

If a test is addressed to a slot in the AUTO state, the command shall be denied with the following error response:

```
sid date time
M ctag DENY
SNVS
/* Status, Not in Valid State
The requested command can not be executed because of the improper
status of the specified entity. */
;
```

RELATED TL1 COMMANDS/MESSAGES

None

TEST-TLM-PAR

TEST-TLM-PAR: Test Telemetry Parallel

The privilege level for this command is GENERAL.

The OSI category for this command is FAULT.

This command is available starting in OLS Release 2.1.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

TEST-TLM-PAR:*tid::ctag::[mode][, repeat];*

DESCRIPTION

The **TEST-TLM-PAR** command provides for general and specific tests of the parallel telemetry and miscellaneous discrete points. The general test turns all parallel telemetry and miscellaneous points on for 20 seconds, then off for 20 seconds, and then reverts to normal operation. The specific test performs similarly, but on one parallel telemetry or miscellaneous discrete point.

The definition of "normal" is the state of the indicator immediately before the test was executed. After the test is executed, "normal" also includes any state changes during the test.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]
.
(period)
+
(plus)
%
(percentage)

(pound)
{ [((open parenthesis)
)] } (close parenthesis)
@
(at sign)
\$
(dollar sign)
&
(ampersand)
*
(star)
-
(dash)
_
(underscore)
/
(slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

mode

Mode. This is the mode or the name of the point being tested. Valid values are:

ALL

Default value, ALL

CRNE

CRitical-Near End

MJNE

MaJor-Near End

MNNE

MiNor-Near End

CRFE

CRitical-Far End

MJFE

MaJor-Far End

MNFE

MiNor-Far End

CONT1 - CONT36

Control Point One through Control Point Thirty-six, inclusive

repeat

Repeat. This indicates the number of times the test will be repeated. This parameter must be an integer between (1-10). If no value is provided for this parameter, **1** is assumed.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

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

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

```
TEST-TLM-PAR:LT-PF-2000::123456::MODE=CRNE,1;  
IP 123456  
<  
  LT-PF-2000 93-10-26 16:42:11  
M 123456 COMPLD  
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives a **TEST-TLM-PAR** command with an invalid *mode*, the following error response is returned:

```
sid date time  
M ctag DENY  
IDNV  
/* Input, Data Not Valid, invalid MODE */  
;
```

If the network element receives this command with an invalid *repeat*, the following error response is returned:

```
sid date time  
M ctag DENY  
IDNV  
/* Input, Data Not Valid, invalid REPEAT */  
;
```

RELATED TL1 COMMANDS/MESSAGES

None

UPD-SYS

UPD-SYS: Update System

The privilege level for this command is GENERAL.

The OSI category for this command is CONFIGURATION.

This command is available starting in OLS Release 1.0.

Beginning with Release 8.2, the abbreviation of the product name is Metropolis® EON or EON.

INPUT FORMAT

UPD-SYS:*tid::ctag;*

DESCRIPTION



CAUTION:

Execution of this command may affect service on a protected line or slot if the associated circuit packs are missing.

The **UPD-SYS** command updates the network element data base to reflect the existing configuration and incoming signals.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9]

. (period)

+ (plus)

% (percentage)

(pound)

{ [((open parenthesis)

)] } (close parenthesis)

@ (at sign)

\$ (dollar sign)

& (ampersand)

* (star)

- (dash)

_ (underscore)

/ (slash)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with this command, the following output message is returned:

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

The network element will return a COMPLD whenever it is completed even if the update resulted in no change to the database of the network element.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example illustrates the command/response associated with an update:

```
upd-sys:LT-PF-2000::123456;
IP 123456
<
LT-PF-2000 93-10-26 16:42:11
M 123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives an **UPD-SYS** command while the SYSCTL and SYSMEM have incompatible software versions, the following error response is returned:

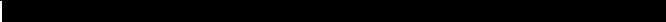
```
sid date time
M ctag DENY
SSTP
/* Status, SToPped
The execution of this command stopped because SYSCTL and SYSMEM
have incompatible software versions.
*/
;
```

RELATED TL1 COMMANDS/MESSAGES

INIT-SYS

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Contents

Overview

This section presents information on parallel telemetry interfaces to the Element Management System (EMS). This includes information on provisioning and alarm and status points.

Introduction

The Metropolis[®] Enhanced Optical Networking (EON) also supports parallel telemetry. The Metropolis[®] EON parallel telemetry interface is dependent on the wiring of individual (parallel) leads to the telemetry remote.

Table 4-1 summarizes the Metropolis[®] EON parallel telemetry points for SONET.

Table 4-1. SONET Parallel Telemetry Points

Point Name	Type (Note)	Point Description
CR-NE	SA	Critical Alarm - Near End
CR-FE	SA	Critical Alarm - Far End
MJ-NE	NSA	Major Alarm - Near End
MJ-FE	NSA	Major Alarm - Far End
MN-NE	NSA	Minor Alarm - Near End
MN-FE	NSA	Minor Alarm - Far End

Note: SA = service affecting; NSA = non-service affecting

Table 4-2 summarizes the Metropolis® EON parallel telemetry points for SDH.

Table 4-2. SDH Parallel Telemetry Points

Point Name	Type (Note)	Point Description
CR-NE	SA	Critical Alarm - Near End
CR-FE	SA	Critical Alarm - Far End
PROMPT-NE	NSA	Prompt Alarm - Near End
PROMPT-FE	NSA	Prompt Alarm - Far End
DEFR-NE	NSA	Deferred Alarm - Near End
DEFR-FE	NSA	Deferred Alarm - Far End

Note: SA = service affecting; NSA = non-service affecting

Parallel telemetry wiring to a telemetry remote is only necessary at one end or the other of an Metropolis® EON point-to-point application, because either Metropolis® EON end terminal can report the parallel telemetry for the other. The parallel telemetry updates are exchanged using the supervisory signal. Thus, a far-end Metropolis® EON parallel telemetry alarm and status information is forwarded to the telemetry remote by the near-end Metropolis® EON.

There are four cases when parallel telemetry updates will not be exchanged between Metropolis® EONs in a subnetwork:

- a. If the remote activity reporting is disabled
- b. If the supervisory channel fails, or if any of the equipment which carries it fails
- c. If Metropolis® EONs belong to different alarm groups
- d. Network element Status Comm Failure when AGNE cannot communicate with subordinates

Parallel Telemetry Test

The Metropolis® EON supports parallel telemetry testing via the **TEST-TLM-PAR** command. The parallel telemetry test consists of setting the user-specified parallel telemetry points "on" for 20 seconds and then "off" for 20 seconds. The same test may be repeated up to ten times. The user can include any one point or all points in a test.



Appendix A: Support for Signal Types

Overview

Purpose This appendix serves as a reference for the support of various signal types by Metropolis[®] Enhanced Optical Networking (EON).



Support for Signal Types

Name	Supporting OTUs/ OTPMs	Data Rate	PM Type Supported
IBM® Mainframe Protocols			
ETR (External Timing Request)	ELSBB, UBB	16 Mb/s	none
CLO (Control Link Oscillator)	ELSBB, UBB	16 Mb/s	none
ESCON® (Enterprise System Connection)	2DM25, LSBB, ELSBB, UBB	200 Mb/s	8B/10B ³
ISC (Inter-System Channel)	2DM25, ELSBB	1.062 Gb/s	none
ISC-2	2DM25, ELSBB	1.062 Gb/s	none
ISC-3 at Peer Mode	UBB	2.13 Gb/s	none
FICON™ (Fiber Connection)	2DM25, ELSBB, UBB	1.062 Gb/s	8B/10B ¹
Ethernet			
100Base-FX (also called FX, Fast Ethernet)	LSBB, ELSBB, UBB	125 Mb/s	none
1000Base-LX (also called GbE-1, Gigabit Ethernet)	2DM25, GbE, UBB	1.25 Gb/s	8B/10B ¹
Fiber Distributed Data Interface			
FDDI	LSBB, ELSBB, UBB	125 Mb/s	none
Fibre Channel			
FC-12	LSBB, ELSBB, UBB	133 Mb/s	8B/10B ¹
FC-25	LSBB, ELSBB, UBB	266 Mb/s	8B/10B ¹
FC-50	LSBB, ELSBB, UBB	531 Mb/s	8B/10B ¹
FC-100	2DM25, ELSBB, UBB	1.062 Gb/s	8B/10B ¹
Video			
D1 Video	LSBB, ELSBB, UBB	270 Mb/s	none
DV6000	UBB	2.38 Gb/s	none
<i>continued next page...</i>			

Name	Supporting OTUs/ OTPMs	Data Rate	PM Type Supported
<i>SONET/SDH, DWDM</i>			
OC-3/STM-1	OC-3/STM-1, LSBB, ELSBB, UBB	155.52 Mb/s	SONET/SDH ²
OC-12/STM-4	OC-12/STM-4, LSBB, ELSBB, UBB	622.08 Mb/s	SONET/SDH ²
OC-48/STM-16	2.5G (OTPM25), UBB	2.488 Gb/s	SONET/SDH ²
OC-192/STM-64	10G	9.953 Gb/s	SONET/SDH ²
OCh10G	10G	10.664 Gb/s	OCh

Notes:

1. 8B/10B performance monitoring supported only by UBB and 2DM25.
2. SONET/SDH performance monitoring supported only by OC-3/STM-1, OC-12/STM-4, OC-48/STM-16, 10G, and 2DM25 packs.
3. 8B/10B performance monitoring supported only by 2DM25.



Glossary



100Base-FX (also called FX, Fast Ethernet)

An Ethernet protocol with a signal rate of 125 Mb/s.

1000Base-LX (also called GbE-1, Gigabit Ethernet)

An Ethernet protocol with a signal rate of 1.25 Gb/s.

0x1 Line Operation

An 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 alarm status

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.

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.

AIMS

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.

AUG

Administrative Unit Group

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.

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 Navis™ Optical EMS which was not a response to a Navis™ Optical EMS 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.

BCLAN (Board Controller Local Area Network)

The internal local area network that provides communications between the line controller circuit pack and board controllers on the circuit packs associated with a high-speed line.

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

BLSR (Bidirectional Line Switched Ring)

A method of SONET transport in which half of the working network is sent counter-clockwise over one fiber and the other half is sent clockwise over another fiber. BLSR offers bandwidth use advantages for distributed traffic in single-ring architectures.

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 Mb/s rates.

Broadband Service Transport

STM-1 concatenation transport over the 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 reconfigurable interconnections between tributaries of transmission interfaces.

Cell Relay

Fixed length cells. For example, ATM with 53 octets.

CenterLink

A user-friendly, menu-driven web-based browser interface that can be used with the Metropolis™ EON. CenterLink software runs on a Microsoft Windows95™,

Windows98™, Windows2000™, Windows2000™, WindowsNT™ compatible personal computer (PC).

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 CenterLink (Customer Interface Terminal)

The user interface terminal used by craft personnel to communicate with a network element.

CL

Clear

CLEC (Competitive - or Certified - Local Exchange Carrier)

A term coined for the deregulated, competitive telecommunications environment envisioned by the Telecommunications Act of 1996 (see ELEC).

CLEI

Common Language Equipment Identifier

CLF

Channel Loading Factor

Client

Computer in a computer network that generally offers a user interface to a server.

CLLI

Common Language Location Identifier

CLO (Control Link Oscillator)

An IBM® mainframe protocol with a signal rate of 16 Mb/s.

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)

A subsystem that configures the network and processes messages from the network.

CM (Customer Maintenance)

An optical signal

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.

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.

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.

Correlation

A process where related hard failure alarms are identified.

CP

Circuit Pack

CPE

Customer Premises Equipment

CR (Critical)

An 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.

Customer Maintenance Signal

A 155-Mb/s optical signal originating from customer supplied equipment and used for customer maintenance activities. It is carried as part of the supervisory signal.

D D1 Video

A video protocol with a signal rate of 270 Mb/s.

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

DCM (Dispersion Compensation Module)

A module that is fibered to an OA to compensate for dispersion of 10G signals over long distances.

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 preprogrammed 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.

DEMUX (Demultiplexer)

A device that splits a combined signal into individual signals at the receiver end of transmission.

Demultiplexing

A process applied to a multiplexed signal for recovering signals combined within it and for restoring the distinct individual channels of these signals.

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 Mb/s, 34 Mb/s, 140 Mb/s, VC12, VC3 or VC4 link between controlled network elements. The channels within a digital link are insignificant.

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.

DMA

Direct Memory Access

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.

Drop Side Signal

An optical signal suitable for transmission over Metropolis™ EON.

DS3

Digital Signal Level 3 (44.736 Mb/s)

DSNE (Directory Service Network Element)

A designated network element that is responsible for administering a database that maps network element names (TIDs) to NSAP addresses. There must be one and only one DSNE per subnetwork.

DTE (Data Terminating Equipment)

The equipment that originates data for transmission and accepts transmitted data.

DTMF

Dual Tone Multifrequency

Dual

An end terminal configuration that supports east-west transmission.

DUS

Do not Use for Synchronization

DV6000

A video protocol with a signal rate of 2.38 Gb/s.

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.

EC-1 (Electrical Carrier level-1 signal)

An STS-1 signal that has been shaped and encoded for transmission over electrical media.

ECC

Embedded Control Channel

EEPROM

Electrically Erasable Programmable Read-Only Memory

EIA (Electronic Industries Association)

A trade association of the electronic industry that establishes electrical and functional standards.

ELSBB (Enhanced Low-Speed Broadband)

This usually refers to the ELSBB circuit pack, which can transmit and receive signals with various protocols and with speeds between 16 Mb/s and 1.06 Gb/s.

EMC (Electromagnetic Compatibility)

A measure of equipment tolerance to external electromagnetic fields.

EMDU (External Miscellaneous Discrete Unit)

Connected to the serial telemetry interface of to provide an additional set of miscellaneous discrete input and output points.

EMI (Electromagnetic Interference)

High-energy, electrically induced magnetic fields that cause data corruption in cables passing through the fields.

EMS

Element Management System

EMS

Element Management System

End Terminal

Metropolis™ EON equipment that terminates optical line signals. It consists of a collocated optical multiplexer unit (OMU) and optical demultiplexer unit (ODU) for bidirectional transmission, optical amplifiers (OA), and telemetry packs.

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.

ESCON® (Enterprise System Connection)

An IBM® mainframe protocol with a signal rate of 200 Mb/s.

ESD

Electrostatic Discharge

ESP

Electrostatic Protection

ETR (External Timing Request)

An IBM® mainframe protocol with a signal rate of 16 Mb/s.

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.

FC-12

A fibre channel with a signal rate of 133 Mb/s.

FC-25

A fibre channel with a signal rate of 266 Mb/s.

FC-50

A fibre channel with a signal rate of 531 Mb/s.

FC-100

A fibre channel with a signal rate of 1.062 Gb/s.

FCC

Federal Communications Commission

FDA/CDRH

The Food and Drug Administration's Center for Devices and Radiological Health.

FDDI (Fiber Distributed Data Interface)

A fiber interface (having a signal rate of 125 Mb/s) 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.

FE ACTY

Far-End Activity.

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.

FEPROM (Flash EPROM)

A technology that combines the nonvolatility of EPROM with the in-circuit reprogrammability of EEPROM (electrically-erasable PROM).

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.

FICON™ (Fiber Connection)

An IBM® mainframe protocol with a signal rate of 1.062 Gb/s.

FIT (Failures in Time)

Circuit pack failure rates per 10⁹ hours as calculated using the method described in Reliability Prediction Procedure for Electronic Equipment, BellCore Method I, Issue 5, September 1995.

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.

H Hard Failure

An unrecoverable nonsymptomatic (primary) failure that causes signal impairment or interferes with critical network functions, such as DCC operation.

Hazard Level

Output power level of a Metropolis™ EON system or device that poses safety risks to personnel. For 1550-nm wavelengths, hazard levels are defined as follows:
Level 1 $\leq$ 10 dBm.

HDB3 (High Density Bipolar 3 Code)

Line code for 2 Mb/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)

A unit of frequency equal to one cycle per second.

I IAO LAN

Intraoffice Local Area Network

IAOLRP

Intraoffice Line Relay Pack

ID

Identifier

IEC

International Electro-Technical Commission

IEEE

Institute of Electrical and Electronics Engineers

ILEC (Incumbent Local Exchange Carrier)

The dominant phone carrier within a geographic area as determined by the FCC (see CLEC).

I/O

Input/Output

IMF

Infant Mortality Factor

Insert

To physically insert a circuit pack into a slot, thus causing a system initiated restoral 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.

IPC

Inter Processor Communications

IR

Intermediate Reach

IS (In-Service)

A memory administrative state for ports. IS refers to a port that is fully monitored and alarmed.

ISC (Inter-System Channel)

An IBM® mainframe protocol with a signal rate of 1.062 Gb/s.

ISC-2

An IBM® mainframe protocol (a newer version of ISC) with a signal rate of 1.062 Gb/s.

ISC-3 at Peer Mode

An IBM® mainframe protocol with a signal rate of 2.13 Gb/s.

ISDN

Integrated Services Digital Network

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.

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 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.

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

LED

Light-Emitting Diode

LGX

Lightguide cross-connect panel

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.

LO

Low Order

Location

An identifier for a specific circuit pack, interface module, interface port, or communications link.

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 to an incoming signal.

LOM

Loss Of Multiframe

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.

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.

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).

LIRCV

Line Interface Receive circuit pack

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

LSBB

Low-speed broadband. This usually refers to the LSBB circuit pack, which can transmit and receive signals with various protocols and with speeds between 16 and 750 Mb/s.

LTE

Line Terminating Equipment

LWS

Lucent Worldwide Services

M μ
Microns

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); selecting STATIC 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.

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

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.

MS-SPRING (Multiplexer Section Shared Protection Ring)

A protection method used in Add-Drop Multiplexer Network Elements.

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.

NE ACTY

Near-End Activity

NMA

Network Monitoring and Analysis 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.

NMS

Network Management System

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.

No Request State

This is the routine-operation quiet state in which no external command activities are occurring.

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)

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)

A device that amplifies an optical signal without converting the signal from optical to electrical, then back again to optical energy.

OADM Office (Optical Add/Drop Multiplex Office)

A dual terminal shelf or two colocated end terminal shelves with pass-through wavelengths.

OALAN (Overhead Access Local Area Network)

The internal local area network that provides communications between the system controller circuit pack and the overhead controller circuit pack.

OAM&P

Operations, Administration, Maintenance, and Provisioning

OC, OC-n

Optical Carrier

OC-3

Optical Carrier, Level 3 Signal (155 Mbit/s)

OC-12

Optical Carrier, Level 12 Signal (622.08 Mbit/s)

OC-48

Optical Carrier, Level 48 (2488.32 Mb/s) (2.5 Gbit/s)

OC-192

Optical Carrier, Level 192 (9953.28 Mb/s) (10 Gbit/s)

OCh10G

An optical channel for overhead in a DWDM system - signal rate is 10.664 Gb/s.

OCHAN

Optical Channel

ODU (Optical Demultiplexer Unit)

A type of circuit pack that demultiplexes the input optical signal into a maximum of 16 wavelengths.

OI (Operations Interworking)

The capability to access, operate, provision, and administer remote systems through craft interface access from any site in a SDH network or from a centralized operations system.

OLINE

Optical Line

OMU (Optical Multiplexer Unit)

A type of circuit pack that combines up to 16 optical wavelengths into one signal called the optical line signal.

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, CenterLink CIT, office alarms, and all telemetry interfaces.

Operator

A user of the system with operator-level user privileges.

Optical Line Signal

A multiplexed optical signal containing multiple wavelengths or channels.

Optical Section

See "Span."

Orderwire

A section of the supervisory signal that is used for communication between sites.

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).

OTU (Optical Translator Unit)

A circuit pack that regenerates an OC-48/STM-16 optical signal by converting the signal from an optical to an electrical format then converting the signal back into an optical signal that is compatible with MetropolisTM EON.

OTPM (Optical Translator Port Module)

Similar to the OTU (see "OTU"), except it is half the size.

OTPS

Optical Translator Port Signal

OUPSR (Optical Unidirectional Path Switched Ring)

A protection scheme where an OUPSR circuit pack (at the entrance of the DWDM ring) splits a single wavelength into two equal signals, sends one in each direction around the DWDM ring, then (at the exit of the DWDM) selects an acceptable signal from the two available.

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 Parallel Telemetry

A set of alarms and status information reported to an operations center.

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

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 demultiplexed. 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 a CIT or an OS. 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.

Protection Switching

The switching of traffic from a malfunctioning line/channel to one that is working.

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).

Provisioning

Assigning a value to a system parameter.

PSDN

Public Switched Data Network

PSTN

Public Switched Telephone Network

PTE

Path Terminating Equipment

PVC

Permanent Virtual Circuit

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 clock a Network Element. The level is provided by the Synchronization Status Marker which can accompany the timing signal. 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.

Possible levels are:

- PRC (Primary Reference Clock)
- SSU_T (Synchronization Supply Unit - Transit)
- SSU_L (Synchronization Supply Unit - Local)
- SEC (SDH Equipment Clock)
- DUS (Do not Use for Synchronization)

QOS

Quality of Service

QOTU

Quad Optical Translator Unit

R RAC

Rack connection panel

RAM

Random Access Memory

RCV

Receive

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 dejitterize 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.

Repeater Terminal

In Metropolis™ EON, a bidirectional terminal consisting of a pair of optical amplifiers and the corresponding telemetry packs.

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. This field is grayed out if the mode is non-revertive.

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.

RPP

Reliability Prediction Procedure

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

Short Reach

The capability to concatenate up to three spans between end terminals before regeneration is required.

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 (Single-Mode Fiber)

An 8-m diameter low-loss, long-span optical fiber typically operating at either 1310 nm, 1550 nm, or both.

SmartManual

Available from the CenterLink launch console screen, the SmartManual provides assistance in determining LBO values.

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 CenterLink CIT or an OS.

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 CenterLink CIT or an OS. The download procedure uses bulk transfer to move an uninterpreted 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.

Span Loss

Loss (in dB) of optical power due to the span transmission medium (includes fiber loss and splice losses).

SPE

Synchronous Payload Envelope

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

SSMF

Standard Single-Mode Fiber

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 Mb/s. Normally N=1, 4, 16, or 64.

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

The system controller circuit pack that provides overall administrative control of the terminal.

SYSMEM

The system memory circuit pack that, in conjunction with the SYSCTL circuit pack, maintains a provisioning map of the entire system.

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 condition set when a counter exceeds a user-selected high or low threshold. A TCA does not generate an alarm but is available on demand through the CIT.

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.

Telemetry Feedthrough

Operations capability for 4-fiber applications which allows the DCC to go from one end terminal (one subnetwork) through to the other collocated end terminal (separate subnetwork), thereby extending Metropolis™ EON operations domain.

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

Terrahertz (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 1)

A machine-to-machine communications language that is a subset of ITU's human-machine language.

TLM (Telemetry) Circuit Pack

The circuit pack that carries the Supervisory signal.

TMN

Telecommunications Management Network

TOPR

Total Optical Power Received

TR

Technical Requirement

Transmit-Direction

The direction outwards from the Network Element.

Tributary

A signal of a specific rate (2 Mb/s, 34 Mb/s, 140 Mb/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.

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, Inter-ring TSI (between rings), and Intra-ring TSI (within rings).

TSO

Technical Support Organization

T-TD (TL1 Translation Device)

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.

UBB (Universal Broadband)

This usually refers to the UBB circuit pack, which can transmit and receive signals with various protocols and with speeds between 16 Mb/s and 2.5 Gb/s.

UITS

Unacknowledged Information Transfer Service. Unconfirmed mode of LAPD operation.

UNEQ

Path Unequipped

UPSR (Unidirectional Path Switched Ring)

A SONET protection scheme where the original signal is split into two equal signals, one is sent in each direction around the SONET ring, then (at the exit of the ring) an acceptable signal is selected from the two available.

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 Coordinated Time)

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 Blocking

At a WAD site with branching, if a wavelength goes express between two co-located end terminals, that wavelength can only be added or dropped at the third co-located end terminal. Wavelength interchange permits the wavelength on the their end terminal to be converted into an available wavelength at the other two end terminals.

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 kb/s to 2 Mb/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.

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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