Release Notes for Cisco ONS 15454 Release 9.0

Revised: October 2008, OL-15507-01

Release notes contain the new features and enhancements for the Cisco ONS 15454 SONET platform. For detailed information regarding features, capabilities, hardware, and software introduced with this release, refer to the "Release 9.0" version of the Cisco ONS 15454 DWDM Installation and Operations Guide; and the "Release 9.0" version of the *Cisco ONS 15454 Procedure Guide*; *Cisco ONS 15454 Reference Manual*; *Cisco ONS 15454 Troubleshooting Guide*; and *Cisco ONS 15454 SONET TL1 Command Guide*. For the latest version of the Release Notes for Cisco ONS 15454 Release 9.0, visit the following URL:

http://www.cisco.com/en/US/products/hw/optical/ps2006/prod_release_notes_list.html

Cisco also provides Bug Toolkit, a web resource for tracking defects. To access Bug Toolkit, visit the following URL:

http://tools.cisco.com/Support/BugToolKit/action.do?hdnAction=searchBugs

Contents

Changes to the Release Notes

This section documents supplemental changes that have been added to the *Release Notes for Cisco ONS 15454 Release 9.0* since the production of the Cisco ONS 15454 System Software CD for Release 9.0.

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Using the Bug ToolKit

In Cisco ONS 15454 Software Release 9.0 and later, use the Bug ToolKit to view the list of outstanding and resolved bugs in a release. This section explains how to use the Bug ToolKit.

Step 1 Go to http://tools.cisco.com/Support/BugToolKit/action.do?hdnAction=searchBugs and click **Launch Bug Toolkit**.

You will be prompted to log into Cisco.com.

Step 2 To search for a specific bug, enter the bug ID in the **Search for Bug ID** field and click **Go**.

To search for all the bugs in a specified release, enter the following search criteria:

- Select the Product Category—Select **Optical Networking**.
- Select Products—Select the products from the list. Press and hold the **Ctrl** key to select multiple products.
- Software Version—Select **9.0** to view the list of outstanding and resolved bugs in Cisco ONS 15454 Software Release 9.0.
- Advanced Options—You can either perform a search using the default search criteria or define custom criteria for an advanced search. To customize the advanced search, select **Use custom settings for severity, status, and others** and provide the following information:
  - Severity—Select the severity level.
  - Status—Select **Open**, **Fixed**, or **Terminated**.

    Select **Open** to view all the open bugs. To filter the open bugs, clear the Open check box and select the appropriate suboptions that appear below the Open check box. The suboptions are New, Held, More, Open, Waiting, Assigned, Forwarded, Postponed, Submitted, and Information Required. For example, if you want to view only new bugs in Cisco ONS 15454 Software Release 9.0, only select **New**.

    To view fixed bugs, select **Fixed**. To filter fixed bugs, clear the Fixed check box and select the appropriate suboptions that appear below the fixed check box. The suboptions are **Resolved** or **Verified**.

    To view terminated bugs, select **Terminated**. To filter fixed bugs, clear the Terminated check box and select the appropriate suboptions that appear below the terminated check box. The suboptions are **Closed**, **Junked**, and **Unreproducible**. Select select multiple options as required.
  - Advanced—Select the **Show only bugs containing bug details** check box to view only those bugs that contain detailed information, such as symptoms and workarounds.
  - Modified Date—Select this option if you want filter bugs based on the date on which the bugs were last modified.
  - Results Displayed Per Page—Select the appropriate option from the list to restrict the number of results that appear per page.

Step 3 Click **Search**.

The Bug Toolkit displays the list of bugs based on the specified search criteria. You can filter the search results based on severity, status and/or technology.

New Features and Functionality

This section highlights new features and functionality for Release 9.0. For detailed documentation of each of these features, consult the user documentation.

Common Hardware

Cisco ONS 15454 Software Release 9.0 supports the following new hardware:

OPT-RAMP-C Card

The OPT-RAMP-C is a double slot unit and improves unregenerated sections in long spans using the span fiber to amplify the optical signal. To achieve Raman amplification, two Raman signals (that don't carry any payload or overhead) are transmitted on the fiber and are used because the gain generated by one signal is not flat (different wavelengths in C-band receive different gain values). The energy of these Raman signals transfer to the higher region of the spectrum thereby amplifying the signals transmitted at higher wavelengths. The Raman effect provided by the OPT-RAMP-C card enables span loss reduction.

PSM Card

The optical Protection Switching Module (PSM) card performs splitter protection functions. In the transmission (TX) section of the PSM card, the signal received on the common receiving port is duplicated by a hardware splitter on to both the working and protect transmitting ports. In the receiving (TX) section of the PSM card, a switch is provided to select one of the two input signals (on working and protect receiving ports) to be transmitted through the common transmitting port.

The PSM card supports multiple protection configurations:

- Channel protection—The PSM COM ports are connected to the TXP/MXP trunk ports.
- Line (or path) protection—The PSM W and P ports are connected directly to the external line.
- Multiplex section protection—The PSM is equipped between the MUX/DMX stage and the amplification stage.

OTU2_XP Card

The OTU2_XP card is a four-port, XFP-based multirate (OC-192/STM-64, 10GE, 10G FC) Xponder for the ONS 15454 ANSI and ETSI platforms. The OTU2_XP card supports multiple configurations:

- 2 x 10G transponder
- 2 x 10G standard regenerator (with enhanced FEC (E-FEC) only on one port)
- 1 x 10G E-FEC regenerator (with E-FEC on two ports)

- 1 x 10G splitter protected transponder

All the four ports are ITU-T G.709 compliant and support 40 channels (wavelengths) at 100-GHz channel spacing in the C-band (that is, the 1530.33 nm to 1561.42 nm wavelength range). The OTU2_XP card can be installed in Slots 1 through 6 or 12 through 17. The OTU2_XP card is a single-slot card with four ports. The ports support SONET SR1, IR2, LR2 XFPs, 10GE BASE SR, SW, LR, LW, ER EW and ZR XFPs, and 10G FC MX-SN-I , SM-LL-L XFPs.

GE_XPE Cards

GE_XPE card is enhanced version of GE_XP card. GE_XPE cards are Gigabit Ethernet (GE) Xponders for the ONS 15454 ANSI and ETSI platforms. The card is designed for bulk GE_XPE point-to-point, point-to-multipoint, multipoint-to-mutipoint transport over 10GE LAN PHY wavelengths for Video-on-Demand (VOD), or broadcast video across protected 10GE LAN PHY wavelengths. This section lists the hardware features in GE_XPE card:

- Interoperable with TXP_MR_10E and TXP_MR_10E_C cards. Also interoperable with Cisco Catalyst 6500 and Cisco 7600 series GE and 10GE interfaces and CRS-1 10GE Interfaces.
- Compatible with the ONS 15454 ANSI high-density shelf assembly, the ETSI ONS 15454 shelf assembly, and the ETSI ONS 15454 high-density shelf assembly. Compatible with TCC2 and TCC2P cards.
- Ports—The GE_XPE cradhave twenty GE client ports and two 10GE trunk ports. The GE_XPE card have two 10GE client ports.
- FEC and E-FEC—ITU-T G.709 framing with standard Reed-Soloman (RS) (255,237) FEC and Ehhanced FEC in accordance with G.975.1. Performance monitoring and ITU-T G.709 Optical Data Unit (ODU) synchronous and asynchronous mapping.
- Layer 2 switch mode provides VLAN translation, QinQ, ingress CoS egress QoS, Fast Ethernet protection switching, and other Layer 2 Ethernet services.
- IEEE 802.3 frame format supported for 10GE interfaces. The minimum frame size is 64 bytes. The maximum frame size is user-provisionable.
- In Layer 2 switch mode, ports can be provisioned as network-to-network interfaces (NNIs) or user-network interfaces (UNIs) to facilitate service provider to customer traffic management.
- When a port is in UNI mode, tagging can be configured as transparent or selective. In transparent mode, only SVLANs in the node's VLAN database can be configured. In selective mode, a CVLAN to SVLAN relationship can be defined.
- Layer 2 VLAN port mapping allows the cards to be configured as multiple GE TXPs and MXPs.
- 32K MAC address support
- Pluggable client interface optic modules (SFPs and XFPs): Client ports support GE SX, LX, and ZX SFPs, CWDM and DWDM SFPs, 10/100/1000 Base-T SFPs.
- Pluggable trunk interface optic modules; trunk ports support the 10GE BASE SR, LR and ER XFPs and DWDM XFP.

10GE_XPE Cards

10GE_XPE card is enhanced version of 10GE_XP card. 10GE_XPE card is a 10Gigabit Ethernet (10GE) Xponders for the ONS 15454 ANSI and ETSI platforms. The card is designed for bulk 10GE_XPE point-to-point, point-to-multipoint and multipoint-to-multipoint transport over 10GE LAN PHY wavelengths for Video-on-Demand (VOD), or broadcast video across protected 10GE LAN PHY wavelengths.

This section lists the hardware features in GE_XPE and 10GE_XPE cards:

- 10GE TXP, and Layer 2 switch capability over the ONS 15454 DWDM platform.
- Interoperable with TXP_MR_10E and TXP_MR_10E_C cards. Also interoperable with Cisco Catalyst 6500 and Cisco 7600 series and CRS-1 10GE interfaces.
- Compatible with the ONS 15454 ANSI high-density shelf assembly, the ETSI ONS 15454 shelf assembly, and the ETSI ONS 15454 high-density shelf assembly. Compatible with TCC2 and TCC2P cards.
- Ports—The 10GE_XPE card has two 10GE client ports and two 10GE trunk ports.
- FEC and E-FEC—ITU-T G.709 framing with user configurable standard Reed-Soloman (RS) (255,237) FEC or G.975.1 EFEC. Performance monitoring and ITU-T G.709 Optical Data Unit (ODU) synchronous and asynchronous mapping.
- Broadcast drop-and-continue capability for VOD and broadcast video applications.
- Layer 2 switch mode provides VLAN translation, QinQ, ingress CoS egress QoS, Fast Ethernet protection switching, and other Layer 2 Ethernet services.
- IEEE 802.3 frame format supported for 10GE interfaces. The minimum frame size is 64 bytes. The maximum frame size is user-provisionable.
- In Layer 2 switch mode, ports can be provisioned as network-to-network interfaces (NNIs) or user-network interfaces (UNIs) to facilitate service provider to customer traffic management.
- When a port is in UNI mode, tagging can be configured as transparent or selective. In transparent mode, only SVLANs in the node's VLAN database can be configured. In selective mode, a CVLAN to SVLAN relationship can be defined.
- Layer 2 VLAN port mapping allows the cards to be configured as multiple GE TXPs and MXPs.
- 32K MAC address support
- Pluggable client interface optic modules (XFPs): Client ports support 10GE BASE-SR,LR and ER XFPs
- Pluggable trunk interface optic modules; trunk ports support 10GE BASE-SR,LR and ER XFPs and DWDM XFP.

New Software Features and Functionality

The following new software features are added for Release 9.0:

- GE_XPE and 10GE_XPE Cards, page 6
- Enhancements to the GE_XP and 10GE_XP Cards, page 7
- Fixed Port MRC Upgrade, page 7
- ADM-10G Card, page 7
- Integration with Cisco CRS-1 Routers, page 8

GE_XPE and 10GE_XPE Cards

GE_XPE and 10GE_XPE cards are enhanced version of GE_XP and 10GE_XP cards, respectively. This section lists the software features of GE_XPE and 10GE_XPE Cards:

- 1+1 protection—Protection scheme to address card, port, or shelf failures for client ports. This is supported only when the card is in Layer 2 Mode.
- Internet Group Management Protocol (IGMP) snooping to restrict the flooding of multicast traffic by forwarding multicast traffic to those interfaces where a multicast device is present.
- Multicast VLAN Registration (MVR) for applications using wide-scale deployment of multicast traffic across an Ethernet ring-based service provider network.
- End-to-end SVLAN circuit management-An end-to-end SVLAN circuit can be created between the cards.
- Pseudo IOS CLI-PCLI is a IOS-like management interface from where you can operate, provision and retrieve GE_XP, 10GE_XP, GE_XPE, and 10GE_XPE card information .
- TL1 XC—Supports Ethernet circuit provisioning using TL1commands.
- Per SVLAN Ingress Rate Limit—Limits the bandwidth per SVLAN on a given port.
- Configurable service provider VLANs (SVLANs) and customer VLANs (CVLANs).
- Protection through Y-cable protection schemes.
- 1+1 protection over layer 2 (L2) card mode to protect against client port and card failure SW
- End-to-end Ethernet link integrity
- Multicast VLAN Registration (MVR) for applications using wide-scale deployment of multicast traffic across an Ethernet ring-based service provider network.
- Ingress CoS—Assigns a CoS value to the port from 0 (highest) to 7 (lowest) and accepts CoS of incoming frames. Ingress COS can be configured based on a SVLAN. Up to 128 CVLAN and COS relationships can be performed.
- Egress QoS—Defines the QoS capabilities at the egress port.

- MAC Learning—MAC Address learning to facilitate switch processing. MAC Address Learning can be enabled or disabled per SVLAN.

Enhancements to the GE_XP and 10GE_XP Cards

The following enhancements have been made to the XP card in Cisco ONS 15454 Software Release 9.0:

- 1+1 protection—Protection scheme to address card, port, or shelf failures for client ports. This is supported only when the card is in Layer 2 Mode.
- Ethernet link integrity.
- Internet Group Management Protocol (IGMP) snooping to restrict the flooding of multicast traffic by forwarding multicast traffic to those interfaces where a multicast device is present.
- Multicast VLAN Registration (MVR) for applications using wide-scale deployment of multicast traffic across an Ethernet ring-based service provider network.
- End-to-end SVLAN circuit management-An end-to-end SVLAN circuit can be created between the cards.
- Pseudo IOS CLI-PCLI is a IOS-like management interface from where you can operate, provision and retrieve GE_XP, 10GE_XP, GE_XPE, and 10GE_XPE card information .
- TL1 XC—Supports Ethernet circuit provisioning using TL1commands.
- Per SVLAN Ingress Rate Limit—Limits the bandwidth per SVLAN on a given port.

Fixed Port MRC Upgrade

The MRC-12 multirate card supports an in-service card upgrade from a four-port OC-3 card. The configurations on Ports 1 to 4 of the OC-3 card are migrated to Ports 1 to 4 of the MRC-12 card with OC-3 SFPs. The MRC-12 multirate card supports an in-service card upgrade from a four-port OC-12 card. For an MRC-12 card with OC-12 SFPs, the configurations on Ports 1, 2, 3, 4 of the OC-12 card are migrated to Ports 1, 4, 7, 10 of the MRC-12 card. The MRC-12 card also supports an in-service card upgrade from an eight-port OC-3 card. The configurations on Ports 1 to 8 of the OC-3 card are migrated to Ports 1 to 8 of the MRC-12 card with OC-3 SFPs.

The MRC-2.5G-4 card supports an in-service card upgrade from a four-port OC-3 card. The configurations on Ports 1 to 4 of the OC-3 card are migrated to Ports 1 to 4 of the MRC-2.5G-4 card with OC-3 SFPs. The MRC-2.5G-4 card also supports an in-service card upgrade from a four-port OC-12 card. For an MRC-2.5G-4 card with OC-12 SFPs, the configurations on Ports 1 to 4 of the OC-12 card are migrated to Ports 1 to 4 of the MRC-2.5G-4 card.

ADM-10G Card

The ADM-10G card supports both single-card and double-card (ADM-10G peer group) configuration. In a single-card configuration, port 18 must be configured as a trunk interface (OC-192/STM-64 or OTU2 payload) and in a double-card configuration (ADM-10G peer group), port 18 must be configured as an ILK2 interface.

The card supports path protection/SNCP on client and trunk ports for both single-card and double-card configuration. The card does not support path protection/SNCP between a client port and a trunk port. Path protection/SNCP is supported only between two client ports or two trunk ports. The card supports client to client hairpinning, that is, creation of circuits between two client ports for both single-card and double-card configuration.

Integration with Cisco CRS-1 Routers

In Software Release 9.0, you can integrate a Cisco ONS 15454 DWDM node with a Cisco CRS-1 router. This feature provides end-to-end circuit provisioning from one CRS-1 router to another CRS-1 router passing through an MSTP network (without using GMPLS). In other words, you can use CTC to create an OCH trail circuit that includes the involved CRS-1 nodes. With this feature, circuit provisioning is extended to the physical layer interface module (PLIM) trunk ports of the CRS-1 router.

Enhancements to ML-MR Card

The following sections describe the enhancements to ML-MR Card:

Ethernet Operations, Administration, and Maintenance (OAM)

Ethernet Operations, Administration, and Maintenance (OAM) is a protocol for installing, monitoring, and troubleshooting metro Ethernet networks and Ethernet WANs. It relies on a new optional sublayer in the data link layer of the OSI model. Ethernet OAM can be implemented on any full-duplex point-to-point or emulated point-to-point Ethernet link. A system-wide implementation is not required and OAM can be deployed for part of a system, which is on particular interfaces.

In Software Release 9.0, the Cisco ME 3400 ML-MR-10 card on the Cisco ONS 15454 SDH platform supports end-to-end Ethernet OAM functionality required for Carrier class Service Provider Ethernet networks. The ML-MR-10 card supports the following Ethernet OAM features:

- IEEE 802.1ag Connectivity Fault Management (CFM)
- Ethernet Local Management Interface (E-LMI)
- IEEE 802.3ah Ethernet OAM discovery
- Support for CFM interworking with E-LMI
- Support for CFM interworking with IEEE 802.3ah (OAM)
- Link monitoring
- Remote fault detection
- Remote loopback

For detailed information on the EOAM features supported on the ML-MR-10 card, see the *Cisco ONS 15454 SDH Ethernet Card Software Feature and Configuration Guide, R9.0.*

IP Host Functionality

The ML-MR hardware does not support IP forwarding or routing protocols. In order to send and receive IP packets, ML-MR card supports IP Host Functionality. The IP host functionality enables the ML-MR card to do the following:

- Receive IP packets destined to its main interface or sub-interfaces

- Generate IP packets and send it on its main interface and sub-interfaces

When sending the IP packets, the ML-MR may not know the IP destination address due to lack of IP routing protocols. In order to overcome this situation, you configure a next hop node (IP node) either with a specific route or with a default route on the ML-MR card.

IP Host functionality supports the following IP applications:

- SNMP queries
- TELNET
- IP Ping functionality
- RADIUS (standalone and relay modes)

Security Feature for ML-MR Card

In Software Release 9.0, the ML-MR card supports the following security features:

- Radius Standalone
- Radius Relay via Shelf Controller
- Disable or enable console access

The RADIUS stand alone feature operates independently from the ONS node where the ML-MR card is installed and is configured with Cisco IOS.

The RADIUS relay feature and the disable or enable console access feature are configured using the Cisco Transport Controller (CTC) or Transaction Language One (TL1).

CPP on POS Ports

CPP can be configured to supports POS interfaces on the ML-MR-10 card. To achieve this, two ML-MR-10 cards that are present on the same ONS 5454 chassis are configured as CPP peer cards. A protection group is configured to which interfaces which need protection are added to this protection group. The same numbered ports are protected on the peer cards. For example, POS0 on CPP card A will protect POS0 on peer CPP card B and so on.

VCAT-LCAS on RPR Ports on ML-MR-10 Card

In Cisco ONS 15454 Software Release 9.0, VCAT/LCAS circuits are supported on the RPR ports. The following new circuit-sizes are supported:

- STS-1-nv (1 <= N <= 95) (VCAT and LCAS)
- STS-3c-nv (1 <= N <= 31). (VCAT and LCAS)

POS Ports on ML-MR-10 Card

In Cisco ONS 15454 Software Release 9.0, you can configure up to 26 POS circuits on the ML-MR-10 card, in addition to the two RPR circuits. GFP is the only framing mode supported on these POS ports. Also, the POS ports support VCAT and LCAS.

The following circuit sizes are supported on the POS ports:

- CCAT—STS-1, STS-3c, STS-6c, STS-9c, STS-12c, STS-24c, STS-48c, STS-192c.
- HO-VCAT
  - STS-1-nv (1 <= n <= 191)
  - STS-3c-nv (1 <=n <= 63)

- LO-VCAT—VT1.5-nv (1 <= n <= 63)

You can configure point-to-point ethernet services on these POS ports using IOS CLI.

Qualification of Pluggables

This enhancement qualifies additional pluggables on already released ONG boards across different platform. This feature includes:

- Qualifying few existing pluggables that were not earlier supported on few existing cards. This includes:
  - ONS-SI-100-LX10 on ML100X-8 card
  - ONS-SI-100-FX on ML100X-8 card
  - ONS-SE-100-BX10D on ML100X-8 card
  - ONS-SE-100-BX10U on ML100X-8 card
  - ONS-SI-GE-SX on ML1000-2 card
  - ONS-SI-GE-LX on ML1000-2 card
  - ONS-SI-GE-ZX on ML1000-2 card
  - ONS-SC-2G-30.3 to ONS-SC-2G-60.6 on ML-MR-10 card and CE-MR-10 card
  - ONS-SC-Z3-1470 to ONS-SC-Z3-1610 on ML-MR-10 card and CE-MR-10 card
  - ONS-SC-155-EL on ADM-10G card
  - ONS-SI-155-I1 on TXP_MR_2.5G card
  - ONS-SI-622-I1 on TXP_MR_2.5G card
  - ONS-SI-2G-S1 on TXP_MR_2.5G card
  - ONS-SI-2G-I1 on TXP_MR_2.5G card
  - ONS-SI-2G-L2 on TXP_MR_2.5G card
  - ONS-XC-10G-S1 on OTU2-XP card
  - ONS-XC-10G-I2 on OTU2-XP card
  - ONS-XC-10G-L2 on OTU2-XP card
  - ONS-XC-10G-30.3 to ONS-XC-10G-61.4 on OTU2-XP card
- One new pluggable (ONS-XC-10G-SR-MM) qualified on TXP-MR-10E, GE-XP, GE-XPE, 10GE-XP, 10GE-XPE, and ADM-10G cards.

Dynamic RPR Topology Information

In Software Release 9.0, the RPR topology view is dynamically updated. In an earlier version, you had to click the Refresh button to view the latest RPR topology information.

ISC3 Bidirectional Switching

This feature supports bidirectional Y cable support for MXP-MR 2.5 G/10DME cards for ISC3 payload. The bidirectional switching option that is available for SONET and SDH 1+1 protection groups is also available on MXP_MR_10DME with Y cable protection, when the provisioned client payload is

ISC3_PEER_1G/ISC3_PEER_2G. For Y cable protection group on MXP_MR_10DME and MXP_MR_2.5G with fiber channel as a payload, the bidirectional switching option is automatically enabled/disabled with distance extension enabled/disabled respectively.

Fast Switching

The fast switching feature is available in MXP_MR_10DME_C and MXP_MR_10DME_L cards. This feature can be used to avoid reinitialization of the ISL link between two Cisco MDS switches when a MXP_MR_10DME Y-cable protected circuit interconnects the switches and a Y-cable switchover occurs. By avoiding the reinitialization of the ISL link, the end-to-end traffic hit is reduced considerably. The fast switch feature is supported on the MXP_MR_10DME_C and MXP_MR_10DME_L cards for FC1G, FC2G, FC4G, FICON1G, FICON2G, and FICON4G trunk failures as well as user-initiated Y-cable protection switch such as, Manual, Force, or Lockout. When enabling fast switch on the MXP_MR_10DME_C or MXP_MR_10DME_L card, ensure that the attached MDS switches have the buffer-to-buffer credit recovery feature enabled otherwise buffer credits lost during the y-cable switchovers could result in signal degradation on the ISL link.

Login Warning Message Window

In Software Release 8.5 and earlier, the warning text in the CTC login screen is not displayed automatically. The user has to slide the vertical slider bar to see the warning text. A new warning message window has been added to display the warning message when you log into CTC.

Counter for Discarded Frames

In earlier releases, on enabling Flow Control, the discarded frames were counted by the PM ifInDiscards. However, on disabling Flow Control, the ifInDiscards did not count discarded frames.

This enhancement ensures that the PM ifInDiscards counts discarded frames regardless of whether Flow Control is enabled or disabled.

Counter for PAUSE Frames

This enhancement adds counters for received and transmitted pause frame for CE-MR-10 and CE-MR-6 cards.

IPv6 Native Support

Cisco ONS 15454 Software R9.0 and later supports native IPv6. ONS 15454 can be managed over IPv6 DCN networks by enabling the IPv6 feature. After you enable IPv6 in addition to IPv4, you can use CTC, TL1, and SNMP over an IPv6 DCN to manage ONS 15454. Each NE can be assigned an IPv6 address in addition to the IPv4 address. You can access the NE by entering the IPv4 address, an IPv6 address or the DNS name of the device. The IPv6 address is assigned only on the LAN interface of the NE. DCC/GCC interfaces use the IPv4 address.

SNMPv3 Support

Cisco ONS 15454 Software R9.0 and later supports SNMPv3 in addition to SNMPv1 and SNMPv2c. SNMPv3 is an interoperable standards-based protocol for network management. SNMPv3 provides secure access to devices by a combination of authentication and encryption of packets over the network based on the User Based Security Model(USM) and the View-based Access Control Model (VACM).

- **User Based Security Model**—The User based Security Model (USM) uses the HMAC algorithm for generating keys for authentication and privacy. SNMPv3 authenticates data based on its origin, and ensures that the data is received intact. SNMPv1 and v2 authenticate data based on the plain text community string which is less secure when compared to user based authentication model.
- **View-based Access Control Model**—The view-based access control model controls the access to the managed objects.

You can configure SNMPv3 on a node to allow SNMP get and set access to management information and configure a node to send SNMPv3 traps to trap destinations in a secure way. SNMPv3 can be configured in secure mode, non-secure mode, or disabled mode.

Ethernet Drop and Continue Circuit

The CE-MR-10 card supports Ethernet drop and continue in CCAT circuits. Ethernet drop and continue (unidirectional) circuits have multiple destinations for use in broadcast circuit schemes. In broadcast scenarios, one source transmits traffic to multiple destinations, but traffic is not returned to the source. This circuit is supported only on CCAT circuit sizes of STS-48c, STS-24c, STS-12c, STS-9c, STS-6c, STS-3c, and STS-1. The creation of Ethernet drop and continue (unidirectional) circuits is supported on protected (path protected/SNCP, BLSR/MS-SPRing, and 1+1 protection) schemes and unprotected circuits with multiple drop points. Note The Ethernet drop and continue feature is supported on all cross-connect cards except XC and XCVT.

Overlay Ring Circuits

An overlay ring configuration consists of a core ring and subtended rings (Figure 12-36). An Overlay Ring Circuit routes traffic around multiple rings in an overlay ring configuration, passing through one or more nodes more than once. This results in multiple cross-connections on the nodes connecting the core ring to the subtended rings. For example, a customer having a core ring with cross-connects provisioned using TL1 can create create cross-connects on subtended rings, due to a business need, without having to hamper the existing cross-connects on the core ring. This circuit can be either protected or unprotected.

Overlay ring supports circuit sizes; STS-1, 3c, 6c, 9c, 12c, 24c, 36c, 48c, and 192cs. Both unidirectional and bidirectional circuits are supported. Overlay ring circuits are contiguous concatenated (CCAT) and not virtual concatenated (VCAT) circuits.

Manual routing is mandatory while provisioning the overlay ring circuit. Overlay ring circuits created using Transaction Language 1 (TL1) are discovered by CTC and the status "DISCOVERED" is displayed. If the overlay ring circuit is deleted, the cross-connects on the core ring and subtended rings get deleted. Cross-connects on a subtended ring can be deleted through TL1 but would reflect as a partial overlay ring circuit in CTC, i.e. core ring will continue having cross-connects.

Bit Error Rate Testing

The bit error rate testing (BERT) feature can be used to test the connectivity, error rate, and error count

of the traffic running on an electrical input/output (I/O) card port. The BERT feature is currently supported for ONS 15310-MA DS1-28-DS3-EC1-3 and DS1-84-DS3-EC1-3 electrical cards only. BERT is broadly classified into two components—Test pattern generator (TPG) and test pattern monitor (TPM) and is called test pattern generator and monitor (TPGM) when referring to test pattern generator and monitor.

TPG generates test patterns like PRBS15, PRBS20, PRBS23, QRSS. and ATL1s0s (alternating ones and zeroes). TPM monitors test patterns like PRBS15, PRBS20, PRBS23, QRSS. and ALT1s0s. TPG and TPM inject and monitor errors in the test pattern for both single bit and multirate (1E-3, 1E-4, 1E-5, and 1E-6) errors.

TPGM-L enables test pattern generation and monitoring on the line side . TPGM-B enables test pattern generation and monitoring on the backplane side (see Figure 12-9). You can enable TPGM-B on a port only if the port has a bidirectional circuit.

TL1

TL1 Command Changes

New Commands

The following new TL1 commands are added:

- CHG-ACCMD-STS96C
- CONN-TACC-STS96C
- DLT-BWP-ETH
- DLT-CRS-ETH
- DLT-CRS-STS96C
- DLT-FFP-OCH
- DLT-ROLL-STS96C
- ED-BWP-ETH
- ED-CRS-ETH
- ED-CRS-STS96C
- ED-FFP-OTS
- ED-MCAST
- ED-ROLL-STS96C
- ED-STS96C
- ED-VLAN-ETH
- ENT-BWP-ETH
- ENT-CRS-ETH
- ENT-CRS-STS96C
- ENT-FFP-OCH
- ENT-ROLL-STS96C
- INIT-REG-STS96C

- OPR-LPBK-STS96C
- OPR-PROTNSW-OTS
- OPR-PROTNSW-STS96C
- OPR-RAMAN
- RLS-LPBK-STS96C
- RLS-PROTNSW-OTS
- RLS-PROTNSW-STS96C
- RMV-STS96C
- RST-STS96C
- RTRV-ALM-STS96C
- RTRV-BWP-ETH
- RTRV-COND-STS96C
- RTRV-CRS-ETH
- RTRV-CRS-STS96C
- RTRV-FFP-OTS
- RTRV-MCAST
- RTRV-NE-APC
- RTRV-NE-WDMANS
- RTRV-PATH-OCH
- RTRV-PM-STS96C
- RTRV-PMMODE-STS96C
- RTRV-PMMODE-VC12
- RTRV-PMMODE-VC3
- RTRV-PMSCHED-STS96C
- RTRV-PROTNSW-OTS
- RTRV-PROTNSW-STS96C
- RTRV-PTHTRC-STS96C
- RTRV-RAMAN
- RTRV-ROLL-STS96C
- RTRV-SLV-WDMANS
- RTRV-STS96C
- RTRV-TARPPARAM
- RTRV-TH-STS96C
- RTRV-VLAN-ETH
- SCHED-PMREPT-STS96C
- SET-PMMODE-STS96C
- SET-PMMODE-VC12
- SET-PMMODE-VC3

- SET-TH-STS96C

In Software Release 9.0, the following OSI TL1 commands are not supported:

- DLT-MAT
- DLT-ROUTEROSI
- ED-LAPD
- ED-MAT
- ED-ROUTEROSI
- ED-TARPPARAM
- RTRV-LAPD
- RTRV-MAT
- RTRV-OSIRIB
- RTRV-ROUTEROSI

Changed Commands

The following new TL1 commands are changed:

- ED-NE-GEN
- RTRV-NE-GEN
- RTRV-NE-IPMAP
- RTRV-MAP-NETWORK
- RTRV-TADRMAP
- COPY-IOSCFG
- COPY-RFILE
- ENT-TRAPTABLE
- ED-TRAPTABLE
- DLT-TRAPTABLE
- RTRV-TRAPTABLE
- ENT-FTPSERVER
- ED-FTPSERVER
- DLT-FTPSERVER
- RTRV-FTPSERVER

Command Syntax Changes

The syntax of the following commands have changed:

- **ED-10GFC** syntax changed from:

  ED-10GFC[:<TID>]:<aid>:<CTAG>[:::LINKRCVRY=<linkrcvry>],[DISTEXTN=<distance_extension>],[AUTODETECTION=<auto_detection>],[LINKCREDITS=<credits>],[MFS=<maxfrmsize>],[NAME=<name>],[CMDMDE=<cmdmde>],[SOAK=<soak>],[FREQ=<freq>],[LOSSB=<lossb>],[SQUELCH=<squelch>][:<pst>[,<sst>]];

To:

ED-10GFC[:<TID>]:<aid>:<CTAG>[:::LINKRCVRY=<linkrcvry>],[DISTEXTN=<distance_extension>],[AUTODETECTION=<auto_detection>],[LINKCREDITS=<credits>],[FASTSWITCH=<fastswitch>],[MFS=<maxfrmsize>],[NAME=<name>],[CMDMDE=<cmdmde>],[SOAK=<soak>],[FREQ=<freq>],[LOSSB=<lossb>],[SQUELCH=<squelch>][:<pst>[, <sst>]];

- ED-1GFC syntax changed:

  ED-1GFC[:<TID>]:<aid>:<CTAG>[:::LINKRCVRY=<linkrcvry>],[DISTEXTN=<distance_extension>],[AUTODETECTION=<auto_detection>],[LINKCREDITS=<credits>],[MFS=<maxfrmsize>],[NAME=<name>],[CMDMDE=<cmdmde>],[SOAK=<soak>],[FREQ=<freq>],[LOSSB=<lossb>],[SQUELCH=<squelch>][:<pst>[,<sst>]];

  To:

  ED-1GFC[:<TID>]:<aid>:<CTAG>[:::LINKRCVRY=<linkrcvry>],[DISTEXTN=<distance_extension>],[AUTODETECTION=<auto_detection>],[LINKCREDITS=<credits>],[FASTSWITCH=<fastswitch>],[MFS=<maxfrmsize>],[NAME=<name>],[CMDMDE=<cmdmde>],[SOAK=<soak>],[FREQ=<freq>],[LOSSB=<lossb>],[SQUELCH=<squelch>][:<pst>[, <sst>]];

- ED-1GFICON syntax changed:

  ED-1GFICON[:<TID>]:<aid>:<CTAG>[:::LINKRCVRY=<linkrcvry>],[DISTEXTN=<distance_extension>],[AUTODETECTION=<auto_detection>],[LINKCREDITS=<credits>],[MFS=<maxfrmsize>],[NAME=<name>],[CMDMDE=<cmdmde>],[SOAK=<soak>],[FREQ=<freq>],[LOSSB=<lossb>],[SQUELCH=<squelch>][:<pst>[,<sst>]];

  To:

  ED-1GFICON[:<TID>]:<aid>:<CTAG>[:::LINKRCVRY=<linkrcvry>],[DISTEXTN=<distance_extension>],[AUTODETECTION=<auto_detection>],[LINKCREDITS=<credits>],[FASTSWITCH=<fastswitch>],[MFS=<maxfrmsize>],[NAME=<name>],[CMDMDE=<cmdmde>],[SOAK=<soak>],[FREQ=<freq>],[LOSSB=<lossb>],[SQUELCH=<squelch>][:<pst>[, <sst>]];

- ED-2GFC syntax changed:

  ED-2GFC[:<TID>]:<aid>:<CTAG>[:::LINKRCVRY=<linkrcvry>],[DISTEXTN=<distance_extension>],[AUTODETECTION=<auto_detection>],[LINKCREDITS=<credits>],[MFS=<maxfrmsize>],[NAME=<name>],[CMDMDE=<cmdmde>],[SOAK=<soak>],[FREQ=<freq>],[LOSSB=<lossb>],[SQUELCH=<squelch>][:<pst>[,<sst>]];

  To:

  ED-2GFC[:<TID>]:<aid>:<CTAG>[:::LINKRCVRY=<linkrcvry>],[DISTEXTN=<distance_extension>],[AUTODETECTION=<auto_detection>],[LINKCREDITS=<credits>],[FASTSWITCH=<fastswitch>],[MFS=<maxfrmsize>],[NAME=<name>],[CMDMDE=<cmdmde>],[SOAK=<soak>],[FREQ=<freq>],[LOSSB=<lossb>],[SQUELCH=<squelch>][:<pst>[, <sst>]];

- ED-2GFICON syntax changed:

ED-2GFICON[:<TID>]:<aid>:<CTAG>[:::LINKRCVRY=<linkrcvry>],[DISTEXTN=<distance_extension>],[AUTODETECTION=<auto_detection>],[LINKCREDITS=<credits>],[MFS=<maxfrmsize>],[NAME=<name>],[CMDMDE=<cmdmde>],[SOAK=<soak>],[FREQ=<freq>],[LOSSB=<lossb>],[SQUELCH=<squelch>][:<pst>[,<sst>]];

To:

ED-2GFICON[:<TID>]:<aid>:<CTAG>[:::LINKRCVRY=<linkrcvry>],[DISTEXTN=<distance_extension>],[AUTODETECTION=<auto_detection>],[LINKCREDITS=<credits>],[FASTSWITCH=<fastswitch>],[MFS=<maxfrmsize>],[NAME=<name>],[CMDMDE=<cmdmde>],[SOAK=<soak>],[FREQ=<freq>],[LOSSB=<lossb>],[SQUELCH=<squelch>][:<pst>[, <sst>]];

- ED-4GFC syntax changed:

  ED-4GFC[:<TID>]:<aid>:<CTAG>[:::LINKRCVRY=<linkrcvry>],[DISTEXTN=<distance_extension>],[AUTODETECTION=<auto_detection>],[LINKCREDITS=<credits>],[MFS=<maxfrmsize>],[NAME=<name>],[CMDMDE=<cmdmde>],[SOAK=<soak>],[FREQ=<freq>],[LOSSB=<lossb>],[SQUELCH=<squelch>][:<pst>[,<sst>]];

  To:

  ED-4GFC[:<TID>]:<aid>:<CTAG>[:::LINKRCVRY=<linkrcvry>],[DISTEXTN=<distance_extension>],[AUTODETECTION=<auto_detection>],[LINKCREDITS=<credits>],[FASTSWITCH=<fastswitch>],[MFS=<maxfrmsize>],[NAME=<name>],[CMDMDE=<cmdmde>],[SOAK=<soak>],[FREQ=<freq>],[LOSSB=<lossb>],[SQUELCH=<squelch>][:<pst>[, <sst>]

- ED-4GFICON syntax changed:

  ED-4GFICON[:<TID>]:<aid>:<CTAG>[:::LINKRCVRY=<linkrcvry>],[DISTEXTN=<distance_extension>],[AUTODETECTION=<auto_detection>],[LINKCREDITS=<credits>],[MFS=<maxfrmsize>],[NAME=<name>],[CMDMDE=<cmdmde>],[SOAK=<soak>],[FREQ=<freq>],[LOSSB=<lossb>],[SQUELCH=<squelch>][:<pst>[,<sst>]];

  To:

  ED-4GFICON[:<TID>]:<aid>:<CTAG>[:::LINKRCVRY=<linkrcvry>],[DISTEXTN=<distance_extension>],[AUTODETECTION=<auto_detection>],[LINKCREDITS=<credits>],[FASTSWITCH=<fastswitch>],[MFS=<maxfrmsize>],[NAME=<name>],[CMDMDE=<cmdmde>],[SOAK=<soak>],[FREQ=<freq>],[LOSSB=<lossb>],[SQUELCH=<squelch>][:<pst>[, <sst>]];

- ED-APC syntax changed:

  ED-APC[:<TID>]:<aid>:<CTAG>[:::APCENABLE=<apcenable>][:];

  To:

  ED-APC[:<TID>]:<aid>:<CTAG>[::<role>][:APCENABLE=<apcenable>][:];

- ED-CRS-STS1 syntax changed:

  ED-CRS-STS1[:<TID>]:<src>,<dst>:<CTAG>[:::ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

  To:

  ED-CRS-STS1[:<TID>]:<src>,<dst>:<CTAG>[::<cct>][:ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

- ED-CRS-STS12C syntax changed:

  ED-CRS-STS12C[:<TID>]:<src>,<dst>:<CTAG>[:::ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

  To:

  ED-CRS-STS12C[:<TID>]:<src>,<dst>:<CTAG>[::<cct>][:ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

- ED-CRS-STS18C syntax changed:

  ED-CRS-STS18C[:<TID>]:<src>,<dst>:<CTAG>[:::ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

  To:
  ED-CRS-STS18C[:<TID>]:<src>,<dst>:<CTAG>[::<cct>][:ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

- ED-CRS-STS192C syntax changed:

  ED-CRS-STS192C[:<TID>]:<src>,<dst>:<CTAG>[:::ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

  To:

  ED-CRS-STS192C[:<TID>]:<src>,<dst>:<CTAG>[::<cct>][:ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

- ED-CRS-STS24C syntax changed:

  ED-CRS-STS24C[:<TID>]:<src>,<dst>:<CTAG>[:::ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

  To:

  ED-CRS-STS24C[:<TID>]:<src>,<dst>:<CTAG>[::<cct>][:ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

- ED-CRS-STS36C syntax changed:

  ED-CRS-STS36C[:<TID>]:<src>,<dst>:<CTAG>[:::ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

  To:

  ED-CRS-STS36C[:<TID>]:<src>,<dst>:<CTAG>[::<cct>][:ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

- ED-CRS-STS3C syntax changed:

  ED-CRS-STS3C[:<TID>]:<src>,<dst>:<CTAG>[:::ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

  To:

  ED-CRS-STS3C[:<TID>]:<src>,<dst>:<CTAG>[::<cct>][:ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

- ED-CRS-STS48C syntax changed:

  ED-CRS-STS48C[:<TID>]:<src>,<dst>:<CTAG>[:::ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

  To

ED-CRS-STS48C[:<TID>]:<src>,<dst>:<CTAG>[::<cct>][:ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

- ED-CRS-STS6C syntax changed:

  ED-CRS-STS6C[:<TID>]:<src>,<dst>:<CTAG>[:::ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

  To:

  ED-CRS-STS6C[:<TID>]:<src>,<dst>:<CTAG>[::<cct>][:ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

- ED-CRS-STS9C syntax changed:

  ED-CRS-STS9C[:<TID>]:<src>,<dst>:<CTAG>[:::ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

  To:

  ED-CRS-STS9C[:<TID>]:<src>,<dst>:<CTAG>[::<cct>][:ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

- ED-CRS-VC3 syntax changed:

  ED-CRS-VC3[:<TID>]:<src>,<dst>:<CTAG>[:::ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

  To:

  ED-CRS-VC3[:<TID>]:<src>,<dst>:<CTAG>[::<cct>][:ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

- ED-CRS-VT1 syntax changed:

  ED-CRS-VT1[:<TID>]:<src>,<dst>:<CTAG>[:::ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

  To:

  ED-CRS-VT1[:<TID>]:<src>,<dst>:<CTAG>[::<cct>][:ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]

  ];

- ED-CRS-VT2 syntax changed:

  ED-CRS-VT2[:<TID>]:<src>,<dst>:<CTAG>[:::ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

  To:

  ED-CRS-VT2[:<TID>]:<src>,<dst>:<CTAG>[::<cct>][:ADD=<add>],[REMOVE=<remove>],[CKTID=<cktid>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

- ED-E3 syntax changed:

  ED-E3[:<TID>]:<aid>:<CTAG>[:::TACC=<tacc>],[TAPTYPE=<taptype>],[SFBER=<sfber>],[SDBER=<sdber>],[SOAK=<soak>],[NAME=<name>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

  To:

  ED-E3[:<TID>]:<aid>:<CTAG>[:::TACC=<tacc>],[TAPTYPE=<taptype>],[SFBER=<sfber>],[SDBER=<sdber>],[SOAK=<soak>],[NAME=<name>],[CMDMDE=<cmdmde>],[AISONLPBK=<aisonlpbk>][:<pst>[,<sst>]];

- ED-ETH syntax changed:

  ED-ETH[:<TID>]:<src>:<CTAG>[:::FLOW=<flow>],[EXPDUPLEX=<expduplex>],[SELECTIVEAUTO=<selectiveauto>],[EXPSPEED=<expspeed>],[VLANCOS=<vlancosthreshold>],[IPTOS=<iptosthreshold>],[NAME=<name>],[CMDMDE=<cmdmde>],[SOAK=<soak>],[LITIMER=<litimer>][:<pst>[,<sst>]];

  To:

  ED-ETH[:<TID>]:<src>:<CTAG>[:::FLOW=<flow>],[EXPDUPLEX=<expduplex>],[SELECTIVEAUTO=<selectiveauto>],[EXPSPEED=<expspeed>],[VLANCOS=<vlancosthreshold>],[IPTOS=<iptosthreshold>],[NAME=<name>],[CMDMDE=<cmdmde>],[SUPPRESS=<suppress>],[SOAK=<soak>],[LITIMER=<litimer>][:<pst>[,<sst>]];

- ED-L2-ETH syntax changed:

  ED-L2-ETH[:<TID>]:<aid>:<CTAG>[:::NIMODE=<nimode>],[MACLEARNING=<maclearning>],[INGRESSCOS=<ingresscos>],[ETHERCETYPE=<ether_ce_type>],[ETHERSTYPE=<ether_s_type>],[ALWMACADDR=<alw_mac_addr>],[INHMACADDR=<inh_mac_addr>],[BPDU=<bpdu>],[BRIDGESTATE=<bridge_state>],[QNQMODE=<qnqmode>],[TRNSPSVLAN=<trnsp_svlan>],[NAME=<name>][:];

  To:

  ED-L2-ETH[:<TID>]:<aid>:<CTAG>[:::NIMODE=<nimode>],[MACLEARNING=<maclearning>],[INGRESSCOS=<ingresscos>],[ETHERCETYPE=<ether_ce_type>],[ETHERSTYPE=<ether_s_type>],[ALWMACADDR=<alw_mac_addr>],[INHMACADDR=<inh_mac_addr>],[BPDU=<bpdu>],[BRIDGESTATE=<bridge_state>],[QNQMODE=<qnqmode>],[TRNSPSVLAN=<trnsp_svlan>],[NAME=<name>],[IGMPROUTER=<igmprouter>],[AISACTION=<aisaction>],[PROTACTION=<protaction>][:];

- ED-NE-GEN syntax changed:

  ED-NE-GEN[:<TID>]::<CTAG>[:::NAME=<name>],[IPADDR=<ipaddr>],[IPMASK=<ipmask>],[DEFRTR=<defrtr>],[IIOPPORT=<iiopport>],[NTP=<ntp>],[SUPPRESSIP=<mode>],[MODE=<mode>],[SERIALPORTECHO=<serialportecho>];

  To:

  ED-NE-GEN[:<TID>]::<CTAG>[:::NAME=<name>],[IPADDR=<ipaddr>],[IPMASK=<ipmask>],[DEFRTR=<defrtr>],[IPV6ADDR=<ipv6addr>],[IPV6PREFLEN=<ipv6preflen>],[IPV6DEFRTR=<ipv6defrtr>],[IPV6ENABLE=<ipv6enable>],[IIOPPORT=<iiopport>],[NTP=<ntp>],[SUPPRESSIP=<suppressip>],[MODE=<mode>],[SERIALPORTECHO=<serialportecho>],[OSIROUTINGMODE=<osiroutingmode>],[OSIL1BUFSIZE=<osil1bufsize>],[OSIL2BUFSIZE=<osil2bufsize>];

- ED-OC12 syntax changed:

  ED-OC12[:<TID>]:<aid>:<CTAG>[:::DCC=<dcc>],[AREA=<area>],[SYNCMSG=<syncmsg>],[SENDDUS=<senddus>],[PJMON=<pjmon>],[SFBER=<sfber>],[SDBER=<sdber>],[MODE=<mode>],[SOAK=<soak>],[OSPF=<ospf>],[LDCC=<ldcc>],[NAME=<name>],[CMDMDE=<cmdmde>],[EXPTRC=<exptrc>],[TRC=<trc>],[TRCMODE=<trcmode>],[TRCFORMAT=<trcformat>],[ADMSSM=<admssm>],[SENDDUSFF=<senddusff>],[AISONLPBK=<aisonlpbk>],[FOREIGNFEND=<foreignFarEnd>],[FOREIGNIP=<foreignIpAddress>],[FREQ=<freq>],[LOSSB=<lossb>],[OPRNOMINAL=<oprnominal>][:<pst>[,<sst>]];

  To:

  ED-OC12[:<TID>]:<aid>:<CTAG>[:::DCC=<dcc>],[AREA=<area>],[SYNCMSG=<syncmsg>],[SENDDUS=<senddus>],[PJMON=<pjmon>],[SFBER=<sfber>],[SDBER=<sdber>],[MODE=<mode>],[SOAK=<soak>],[OSPF=<ospf>],[LDCC=<ldcc>],[NAME=<name>],[CMDMDE=<cmdmde>],[EXPTRC=<exptrc>],[TRC=<trc>],[TRCMODE=<trcmode>],[TRCFORMAT=<trcformat>],[

ADMSSM=<admssm>],[SENDDUSFF=<senddusff>],[AISONLPBK=<aisonlpbk>],[FOREIGNFEND=<foreignFarEnd>],[FOREIGNIP=<foreignIpAddress>],[FREQ=<freq>],[LOSSB=<lossb>],[OPRNOMINAL=<oprnominal>],[OSISDCC=<osisdcc>],[OSILDCC=<osildcc>],[OSIROUTER=<osirouter>][:<pst>[,<sst>]];

- ED-OC192 syntax changed:

  ED-OC192[:<TID>]:<aid>:<CTAG>[:::DCC=<dcc>],[AREA=<area>],[SYNCMSG=<syncmsg>],[SENDDUS=<senddus>],[PJMON=<pjmon>],[SFBER=<sfber>],[SDBER=<sdber>],[MODE=<mode>],[SOAK=<soak>],[OSPF=<ospf>],[LDCC=<ldcc>],[NAME=<name>],[CMDMDE=<cmdmde>],[EXPTRC=<exptrc>],[TRC=<trc>],[TRCMODE=<trcmode>],[TRCFORMAT=<trcformat>],[ADMSSM=<admssm>],[SENDDUSFF=<senddusff>],[AISONLPBK=<aisonlpbk>],[FOREIGNFEND=<foreignFarEnd>],[FOREIGNIP=<foreignIpAddress>],[FREQ=<freq>],[LOSSB=<lossb>],[OPRNOMINAL=<oprnominal>][:<pst>[,<sst>]];

  To:

  ED-OC192[:<TID>]:<aid>:<CTAG>[:::DCC=<dcc>],[AREA=<area>],[SYNCMSG=<syncmsg>],[SENDDUS=<senddus>],[PJMON=<pjmon>],[SFBER=<sfber>],[SDBER=<sdber>],[MODE=<mode>],[SOAK=<soak>],[OSPF=<ospf>],[LDCC=<ldcc>],[NAME=<name>],[CMDMDE=<cmdmde>],[EXPTRC=<exptrc>],[TRC=<trc>],[TRCMODE=<trcmode>],[TRCFORMAT=<trcformat>],[ADMSSM=<admssm>],[SENDDUSFF=<senddusff>],[AISONLPBK=<aisonlpbk>],[FOREIGNFEND=<foreignFarEnd>],[FOREIGNIP=<foreignIpAddress>],[FREQ=<freq>],[LOSSB=<lossb>],[OPRNOMINAL=<oprnominal>],[OSISDCC=<osisdcc>],[OSILDCC=<osildcc>],[OSIROUTER=<osirouter>][:<pst>[,<sst>]];

- ED-OC3 syntax changed:

  ED-OC3[:<TID>]:<aid>:<CTAG>[:::DCC=<dcc>],[AREA=<area>],[SYNCMSG=<syncmsg>],[SENDDUS=<senddus>],[PJMON=<pjmon>],[SFBER=<sfber>],[SDBER=<sdber>],[MODE=<mode>],[SOAK=<soak>],[OSPF=<ospf>],[LDCC=<ldcc>],[NAME=<name>],[CMDMDE=<cmdmde>],[EXPTRC=<exptrc>],[TRC=<trc>],[TRCMODE=<trcmode>],[TRCFORMAT=<trcformat>],[ADMSSM=<admssm>],[SENDDUSFF=<senddusff>],[AISONLPBK=<aisonlpbk>],[FOREIGNFEND=<foreignFarEnd>],[FOREIGNIP=<foreignIpAddress>],[FREQ=<freq>],[LOSSB=<lossb>],[OPRNOMINAL=<oprnominal>][:<pst>[,<sst>]];

  To:

  ED-OC3[:<TID>]:<aid>:<CTAG>[:::DCC=<dcc>],[AREA=<area>],[SYNCMSG=<syncmsg>],[SENDDUS=<senddus>],[PJMON=<pjmon>],[SFBER=<sfber>],[SDBER=<sdber>],[MODE=<mode>],[SOAK=<soak>],[OSPF=<ospf>],[LDCC=<ldcc>],[NAME=<name>],[CMDMDE=<cmdmde>],[EXPTRC=<exptrc>],[TRC=<trc>],[TRCMODE=<trcmode>],[TRCFORMAT=<trcformat>],[ADMSSM=<admssm>],[SENDDUSFF=<senddusff>],[AISONLPBK=<aisonlpbk>],[FOREIGNFEND=<foreignFarEnd>],[FOREIGNIP=<foreignIpAddress>],[FREQ=<freq>],[LOSSB=<lossb>],[OPRNOMINAL=<oprnominal>],[OSISDCC=<osisdcc>],[OSILDCC=<osildcc>],[OSIROUTER=<osirouter>][:<pst>[,<sst>]];

- ED-OC48 syntax changed:

  ED-OC48[:<TID>]:<aid>:<CTAG>[:::DCC=<dcc>],[AREA=<area>],[SYNCMSG=<syncmsg>],[SENDDUS=<senddus>],[PJMON=<pjmon>],[SFBER=<sfber>],[SDBER=<sdber>],[MODE=<mode>],[SOAK=<soak>],[OSPF=<ospf>],[LDCC=<ldcc>],[NAME=<name>],[CMDMDE=<cmdmde>],[EXPTRC=<exptrc>],[TRC=<trc>],[TRCMODE=<trcmode>],[TRCFORMAT=<trcformat>],[ADMSSM=<admssm>],[SENDDUSFF=<senddusff>],[AISONLPBK=<aisonlpbk>],[FOREIGNFEND=<foreignFarEnd>],[FOREIGNIP=<foreignIpAddress>],[FREQ=<freq>],[LOSSB=<lossb>],[OPRNOMINAL=<oprnominal>][:<pst>[,<sst>]];

  To:

ED-OC48[:<TID>]:<aid>:<CTAG>[:::DCC=<dcc>],[AREA=<area>],[SYNCMSG=<syncmsg>],[SENDDUS=<senddus>],[PJMON=<pjmon>],[SFBER=<sfber>],[SDBER=<sdber>],[MODE=<mode>],[SOAK=<soak>],[OSPF=<ospf>],[LDCC=<ldcc>],[NAME=<name>],[CMDMDE=<cmdmde>],[EXPTRC=<exptrc>],[TRC=<trc>],[TRCMODE=<trcmode>],[TRCFORMAT=<trcformat>],[ADMSSM=<admssm>],[SENDDUSFF=<senddusff>],[AISONLPBK=<aisonlpbk>],[FOREIGNFEND=<foreignFarEnd>],[FOREIGNIP=<foreignIpAddress>],[FREQ=<freq>],[LOSSB=<lossb>],[OPRNOMINAL=<oprnominal>],[OSISDCC=<osisdcc>],[OSILDCC=<osildcc>],[OSIROUTER=<osirouter>][:<pst>[,<sst>]];

- ED-OCH syntax changed:

  ED-OCH[:<TID>]:<aid>:<CTAG>[:::EXPWLEN=<expwlen>],[VOAATTN=<voaattn>],[VOAPWR=<voapwr>],[CALOPWR=<calopwr>],[CHPOWER=<chpower>],[NAME=<portname>],[OSDBER=<sdber>],[GCC=<gcc>],[GCCRATE=<gccrate>],[DWRAP=<drwap>],[FEC=<fec>],[PAYLOADMAP=<payloadmap>],[SOAK=<soak>],[LOSSB=<lossb>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

  To:

  ED-OCH[:<TID>]:<aid>:<CTAG>[:::EXPWLEN=<expwlen>],[VOAATTN=<voaattn>],[VOAPWR=<voapwr>],[CALOPWR=<calopwr>],[CHPOWER=<chpower>],[NAME=<portname>],[OSDBER=<sdber>],[GCC=<gcc>],[GCCRATE=<gccrate>],[DWRAP=<drwap>],[FEC=<fec>],[PAYLOADMAP=<payloadmap>],[SOAK=<soak>],[LOSSB=<lossb>],[CMDMDE=<cmdmde>],[PEERID=<peerid>],[REGENNAME=<regenname>],[PORTMODE=<portmode>],[ODUTRANSMODE=<odutransmode>][:<pst>[,<sst>]];

- ED-QNQ-ETH syntax changed:

  ED-QNQ-ETH[:<TID>]:<aid>:<CTAG>::<firstcevlanid>,<lastcevlanid>,<s_vlan_id>[:RULE=<rule>][:];

  To:

  ED-QNQ-ETH[:<TID>]:<aid>:<CTAG>::<firstcevlanid>,<lastcevlanid>,<s_vlan_id>[:RULE=<rule>],[INTERNALVLAN=<internal_vlan_id>],[INGRESSCOS=<ingresscos>][:];

- ED-SLV-WDMANS syntax changed:

  ED-SLV-WDMANS[:<TID>]:<aid>:<CTAG>[:::HIGHSLVEXP=<highslvexp>],[LOWSLVEXP=<lowslvexp>][:];

  To:

  ED-SLV-WDMANS[:<TID>]:<aid>:<CTAG>[::<role>][:HIGHSLVEXP=<highslvexp>],[LOWSLVEXP=<lowslvexp>][:];

- ED-T1 syntax changed:

  ED-T1[:<TID>]:<aid>:<CTAG>[:::LINECDE=<linecde>],[FMT=<fmt>],[LBO=<lbo>],[TACC=<tacc>],[TAPTYPE=<taptype>],[SOAK=<soak>],[SFBER=<sfber>],[SDBER=<sdber>],[SYNCMSG=<syncmsg>],[SENDDUS=<senddus>],[NAME=<name>],[CMDMDE=<cmdmde>],[AISONLPBK=<aisonlpbk>],[MODE=<mode>],[SYNCMAP=<syncmap>],[ADMSSM=<admssm>],[VTMAP=<vtmap>],[AISVONAIS=<aisvonais>],[AISONLOF=<aisonlof>],[INHFELPBK=<inhfelpbk>],[BERTMODE=<bertmode>],[BERTPATTERN=<bertpattern>],[BERTERRCOUNT=<berterrcount>][:<pst>[,<sst>]];

  To:

  ED-T1[:<TID>]:<aid>:<CTAG>[:::LINECDE=<linecde>],[FMT=<fmt>],[LBO=<lbo>],[TACC=<tacc>],[TAPTYPE=<taptype>],[SOAK=<soak>],[SFBER=<sfber>],[SDBER=<sdber>],[SYNCMSG=<syncmsg>],[SENDDUS=<senddus>],[NAME=<name>],[CMDMDE=<cmdmde>],[AISONLPBK=<aisonlpbk>],[MODE=<mode>],[SYNCMAP=<syncmap>],[ADMSSM=<admssm>],[VTM

AP=<vtmap>],[AISVONAIS=<aisvonais>],[AISONLOF=<aisonlof>],[INHFELPBK=<inhfelpbk>],[INHFEBPLPBK=<inhfebplpbk>],[BERTMODE=<bertmode>],[BERTPATTERN=<bertpattern>],[BERTERRCOUNT=<berterrcount>][:<pst>[,<sst>]];

- ED-VLAN syntax changed:

  ED-VLAN[:<TID>]:<aid>:<CTAG>[:::NAME=<name>],[PROTN=<protn>][:];

  To:

  ED-VLAN[:<TID>]:<aid>:<CTAG>[:::NAME=<name>],[PROTN=<protn>],[MACLEARNING=<maclearning>],[IGMPENABLE=<igmpenable>],[IGMPFASTLEAVE=<igmpfastleave>],[IGMPSUPP=<igmpsupp>][:];

- ED-WDMANS syntax changed:

  ED-WDMANS[:<TID>]:<aid>:<CTAG>[:::POWERIN=<powerIn>],[POWEROUT=<powerOut>],[POWEREXP=<powerExp>],[POWEROSC=<powerOSC>],[NTWTYPE=<ringType>],[PPMESH=<ppmesh>],[DITHER=<dither>];

  To:

  ED-WDMANS[:<TID>]:<aid>:<CTAG>[::<role>][:POWERIN=<powerIn>],[POWEROUT=<powerOut>],[POWEREXP=<powerExp>],[POWEROSC=<powerOSC>],[NTWTYPE=<ringType>],[PPMESH=<ppmesh>],[DITHER=<dither>];

- ENT-FTPSERVER syntax changed:

  ENT-FTPSERVER[:<TID>]::<CTAG>:::IPADDR=<IPADDR>,IPMASK=<IPMASK>,ENABLE=<ENABLE>,[TIMER=<TIMER>];

  To:

  ENT-FTPSERVER[:<TID>]::<CTAG>:::IPADDR=<IPADDR>,[IPMASK=<IPMASK>],ENABLE=<ENABLE>,[TIMER=<TIMER>];

- ENT-QNQ-ETH syntax changed:

  ENT-QNQ-ETH[:<TID>]:<aid>:<CTAG>::<firstcevlanid>,<lastcevlanid>,<s_vlan_id>[:RULE=<rule>][:];

  To:

  ENT-QNQ-ETH[:<TID>]:<aid>:<CTAG>::<firstcevlanid>,<lastcevlanid>,<s_vlan_id>[:RULE=<rule>],[INTERNALVLAN=<internal_vlan_id>],[INGRESSCOS=<ingresscos>][:];

- ENT-VLAN syntax changed:

  ENT-VLAN[:<TID>]:<aid>:<CTAG>[:::NAME=<name>],[PROTN=<protn>][:];

  To:

  ENT-VLAN[:<TID>]:<aid>:<CTAG>:::NAME=<name>,[PROTN=<protn>],[MACLEARNING=<maclearning>],[IGMPENABLE=<igmpenable>],[IGMPFASTLE

  AVE=<igmpfastleave>],[IGMPSUPP=<igmpsupp>][:];

- OPR-APC syntax changed:

  OPR-APC[:<TID>]:<aid>:<CTAG>;

  To:

  OPR-APC[:<TID>]:<aid>:<CTAG>[::<role>];

- OPR-SLV-WDMANS syntax changed:

  OPR-SLV-WDMANS[:<TID>]:<aid>:<CTAG>;

To:

OPR-SLV-WDMANS[:<TID>]:<aid>:<CTAG>[::<role>];

Command Response Changes

The following TL1 command responses have changed:

- RTRV-ALM-BITS response changes:

  <aid>,[<condtype>]:<condeff>,,,[<locn>],[<dirn>],,:,

  To:

  <aid>,[<aidtype>]:<ntfcncde>,<condtype>,<srveff>,[<ocrdat>],[<ocrtm>],[<location>],[<direction>]:[<desc>],

- RTRV-ALM-UCP response changes:

  <aid>:<ntfcncde>,<condtype>,<srveff>,,,,:[<desc>],

  To:

  <aid>:<ntfcncde>,<condtype>,<srveff>,[<ocrdat>],[<ocrtm>],,:[<desc>],

- RTRV-ALS response changes:

  <slot>,[<rslt>]:[<diagtype>],[<peer>],[<aid>],[<aidtype>]

  To:

  :[<TID>]:<aid>:<CTAG>[::::]

  > rtrv-apc::all:1

- RTRV-APC response changes:

  [<aid>]::[<apcenable>],[<apcstate>]:

  To:

  [<TID>]:<aid>:<CTAG>[::::];

- RTRV-BLSR response changes:

  [<UID>]:[<aid>]:[<ntfcncde>],[<secualmtype>],[<time>],[<date>],[<source>],[<userid>],[<dbchgseq>],[<command>],[<aid>],,

  To:

  [<aid>]::[<ringid>],[<nodeid>],[<mode>],[<rvrtv>],[<rvtm>],[<srvrtv>],[<srvtm>],[<eastwork>],[<westwork>],[<eastprot>],[<westprot>]

- RTRV-E3 response changes:

  <aid>::[<tacc>],[<taptype>],[<sfber>],[<sdber>],[<soak>],[<soakleft>],[<name>]:<pst>,[<sst>]

  To:

  <aid>::[<tacc>],[<taptype>],[<sfber>],[<sdber>],[<soak>],[<soakleft>],[<name>],[<aisonlpbk>]:<pst>,[<sst>]

- RTRV-ETH response changes:

  <aid>::[<adminstate>],[<linkstate>],[<mtu>],[<flowctrl>],[<optics>],[<duplex>],[<speed>],[<flow>],[<expduplex>],[<expspeed>],[<vlancosthreshold>],[<iptosthreshold>],[<name>],[<soak>],[<soakleft>],[<selectiveauto>],[<litimer>]:<pst>,[<sst>]

  To:

<aid>::[<adminstate>],[<linkstate>],[<mtu>],[<flowctrl>],[<optics>],[<duplex>],[<speed>],[<flow>],[<expduplex>],[<expspeed>],[<vlancosthreshold>],[<iptosthreshold>],[<name>],[<suppress>],[<soak>],[<soakleft>],[<selectiveauto>],[<litimer>]:<pst>,[<sst>]

- RTRV-GIGE response changes:

  <aid>:,,[<role>],[<status>]:[<adminstate>],[<linkstate>],[<mtu>],[<mfs>],[<flow>],[<flowctrl>],[<autoneg>],[<hiwmrk>],[<lowmrk>],[<optics>],[<duplex>],[<speed>],[<name>],[<macaddr>],[<lbcl>],[<opt>],[<opr>],[<freq>],[<lossb>],[<suppress>],[<soak>],[<soakleft>],[<squelch>],[<cir>],[<cbs>],[<ebs>],[<lienable>],[<litimer>]:<pst>,[<sst>]

  To:

  <aid>:,,[<role>],[<status>]:[<adminstate>],[<linkstate>],[<mtu>],[<mfs>],[<flow>],[<flowctrl>],[<autoneg>],[<hiwmrk>],[<lowmrk>],[<optics>],[<duplex>],[<speed>],[<name>],[<macaddr>],[<lbcl>],[<opt>],[<opr>],[<freq>],[<lossb>],[<suppress>],[<soak>],[<soakleft>],[<squelch>],[<cir>],[<cbs>],[<ebs>],[<lienable>],[<litimer>],[<actflow>],[<actduplex>],[<actspeed>]:<pst>,[<sst>]

- RTRV-L2-ETH response changes:

  <aid>::[<nimode>],[<maclearning>],[<ingresscos>],[<ethercetype>],[<etherstype>],[<alwmacaddr>],[<inhmacaddr>],[<bpdu>],[<bridgestate>],[<actbridgestate>],[<qnqmode>],[<trnspsvlan>],[<name>]:

  To:

  <aid>::[<nimode>],[<maclearning>],[<ingresscos>],[<ethercetype>],[<etherstype>],[<alwmacaddr>],[<inhmacaddr>],[<bpdu>],[<bridgestate>],[<actbridgestate>],[<qnqmode>],[<trnspsvlan>],[<name>],[<igmprouter>],[<aisaction>],[<protaction>]:

- RTRV-NE-GEN response changes:

  [<ipaddr>],[<ipmask>],[<defrtr>],[<iiopport>],[<ntp>],[<name>],[<swver>],[<load>],[<protswver>],[<protload>],[<defdesc>],[<platform>],[<secumode>],[<suppressip>],[<mode>],[<autopm>],[<serialportecho>]

  To:

  [<ipaddr>],[<ipmask>],[<defrtr>],[<ipv6addr>],[<ipv6preflen>],[<ipv6defrtr>],[<ipv6enable>],[<iiopport>],[<ntp>],[<name>],[<swver>],[<load>],[<protswver>],[<protload>],[<defdesc>],[<platform>],[<secumode>],[<suppressip>],[<mode>],[<autopm>],[<serialportecho>],[<osiroutingmode>],[<osil1bufsize>],[<osil2bufsize>]

- RTRV-OCH response changes:

  <aid>:,,[<role>],[<status>]:[<opticalPortType>],[<power>],[<expWlen>],[<actWlen>],[<iloss>],[<voamode>],[<voaattn>],[<voapwr>],[<voarefattn>],[<voarefpwr>],[<refopwr>],[<calopwr>],[<chpower>],[<chpowerFlg>],[<portname>],[<gcc>],[<gccrate>],[<dwrap>],[<fec>],[<payloadmap>],[<lbclcurr>],[<optcurr>],[<oprcurr>],[<osfber>],[<osdber>],[<soak>],[<soakleft>],[<lossb>]:<pst>,[<sst>]

  To:

  <aid>:,,[<role>],[<status>]:[<opticalPortType>],[<power>],[<expWlen>],[<actWlen>],[<iloss>],[<voamode>],[<voaattn>],[<voapwr>],[<voarefattn>],[<voarefpwr>],[<refopwr>],[<calopwr>],[<chpower>],[<chpowerFlg>],[<portname>],[<gcc>],[<gccrate>],[<dwrap>],[<fec>],[<payloadmap>],[<lbclcurr>],[<optcurr>],[<oprcurr>],[<osfber>],[<osdber>],[<soak>],[<soakleft>],[<lossb>],[<peerid>],[<regenname>],[<portmode>],[<odutransmode>]:<pst>,[<sst>]

- RTRV-OTS response changes:

<aid>::<opticalPortType>,[<power>],[<iloss>],[<voamode>],[<voaattn>],[<voapwr>],[<voarefattn>],[<voarefpwr>],[<osri>],[<amplmode>],[<amplmodeFlg>],[<chpower>],[<chpowerFlg>],[<gain>],[<expgain>],[<expgainFlg>],[<refopwr>],[<offset>],[<reftilt>],[<reftiltFlg>],[<caltilt>],[<aseopwr>],[<dculoss>],[<awgst>],[<heatst>],[<name>],[<soak>],[<soakleft>],[<wrkchannels>]:<pst>,[<sst>]

To:

<aid>:,,[<role>],[<status>]:<opticalPortType>,[<power>],[<iloss>],[<voamode>],[<voaattn>],[<voapwr>],[<voarefattn>],[<voarefpwr>],[<osri>],[<amplmode>],[<amplmodeFlg>],[<chpower>],[<chpowerFlg>],[<gain>],[<expgain>],[<expgainFlg>],[<refopwr>],[<offset>],[<reftilt>],[<reftiltFlg>],[<caltilt>],[<aseopwr>],[<dculoss>],[<awgst>],[<heatst>],[<name>],[<soak>],[<soakleft>],[<wrkchannels>],[<ratio>],[<raman_status>],[<raman_quality>],[<time>],[<date>],[<raman_restore_fc>],[<time_fc>],[<date_fc>]:<pst>,[<sst>]

- RTRV-QNQ-ETH response changes:

  <aid>:<cevlanid>,<svlanid>:<rule>:

  To:

  <aid>:<cevlanid>,<svlanid>:<rule>,[<internalvlan>],[<ingresscos>]:

- RTRV-SLV-WDMANS response changes:

  <aid>::[<highslvexp>],[<lowslvexp>],[<slvact>],[<resolution>]
  <aid>:[<role>]:[<highslvexp>],[<lowslvexp>],[<slvact>],[<resolution>],[<type>]:

- RTRV-T1 response changes:

  <aid>::[<linecde>],[<fmt>],[<lbo>],[<tacc>],[<taptype>],[<soak>],[<soakleft>],[<sfber>],[<sdber>],[<name>],[<syncmsg>],[<senddus>],[<retime>],[<aisonlpbk>],[<aisvonais>],[<aisonlof>],[<mode>],[<syncmap>],[<admssm>],[<providesync>],[<vtmap>],[<inhfelpbk>],[<bertmode>],[<bertpattern>],[<berterrcount>],[<berterrrate>]:<bertsyncstatus>,[<pst>]

  <aid>::[<linecde>],[<fmt>],[<lbo>],[<tacc>],[<taptype>],[<soak>],[<soakleft>],[<sfber>],[<sdber>],[<name>],[<syncmsg>],[<senddus>],[<retime>],[<aisonlpbk>],[<aisvonais>],[<aisonlof>],[<mode>],[<syncmap>],[<admssm>],[<providesync>],[<vtmap>],[<inhfelpbk>],[<inhfebplpbk>],[<bertmode>],[<bertpattern>],[<berterrcount>],[<berterrrate>]:<bertsyncstatus>,[<pst>]

- RTRV-VLAN response changes:

  <aid>::[<name>],[<protn>]:

  <aid>::[<name>],[<protn>],[<maclearning>],[<igmpenable>],[<igmpfastleave>],[<igmpsupp>]:

- RTRV-WDMANS response changes:

  <aid>::[<powerIn>],[<powerInFlg>],[<powerOut>],[<powerOutFlg>],[<powerExp>],[<powerExpFlg>],[<powerOsc>],[<powerOscFlg>],[<ringType>],[<opticalNodeType>],[<nepLaunch>],[<fepLaunch>],[<ppmesh>],[<dither>],[<lastrundat>],[<lastruntm>],[<lastcalcdat>]:[<lastcalctm>]

  To:

  <aid>:[<role>]:[<powerIn>],[<powerInFlg>],[<powerOut>],[<powerOutFlg>],[<powerExp>],[<powerExpFlg>],[<powerOsc>],[<powerOscFlg>],[<ringType>],[<opticalNodeType>],[<nepLaunch>],[<fepLaunch>],[<ppmesh>],[<dither>],[<lastrundat>],[<lastruntm>],[<lastcalcdat>]:[<lastcalctm>]

- RTRV-WDMSIDE response changes:

  <aid>::[<linein>],[<lineout>],[<osc>]:

  To:

  <aid>:[<role>]:[<linein>],[<lineout>],[<osc>]:

TL1 ENUM Changes

CARDMODE

The following CARDMODE enum items are added:

- CARDMODE_MLMR_AUTO => "MLMR-AUTO"
- CARDMODE_MLMR_MANUAL => "MLMR-MANUAL"

CARDMODE is used in the following commands:

- ED-EQPT
- ED-OCH
- ENT-EQPT
- RTRV-EQPT
- RTRV-OCH

EQPT_TYPE

The following EQPT_TYPE enum items are added:

- EQPT_TYPE_EQPT_ID_FMEC_155E_CARD_1TO1 => "FMEC-155E-1TO1"
- EQPT_TYPE_EQPT_ID_OPT_RAMP_C => "OPT-RAMP-C"
- EQPT_TYPE_EQPT_ID_PSM => "PSM"
- EQPT_TYPE_EQPT_ID_WBE_21 => "E1-21-DS3-E3-3"
- EQPT_TYPE_EQPT_ID_WBE_63 => "E1-63-DS3-E3-3"
- EQPT_TYPE_EQPT_ID_XP_4_10G => "OTU2-XP"

The following EQPT_TYPE is used in the following commands:

- REPT-ALM-EQPT
- REPT-ALM-MOD2ALM
- REPT-ALM-SYNCN
- REPT-EVT-EQPT
- REPT-EVT-MOD2ALM
- REPT-EVT-SYNCN

EQUIPMENT_TYPE

The following EQUIPMENT_TYPE enum items are added:

- EQUIPMENT_TYPE_ET_OPT_RAMP_C => "OPT-RAMP-C"
- EQUIPMENT_TYPE_ET_PSM => "PSM"
- EQUIPMENT_TYPE_ET_WBE_21 => "E1-21-DS3-E3-3"
- EQUIPMENT_TYPE_ET_WBE_63 => "E1-63-DS3-E3-3"
- EQUIPMENT_TYPE_ET_XP_4_10G => "OTU2-XP"

EQUIPMENT_TYPE is used in the following commands:

- CHG-EQPT

- ENT-EQPT

ETH_AISACTION

The following ETH_AISACTION enum items are added:

- ETH_AISACTION_NONE => "AIS-NONE"
- ETH_AISACTION_PROPAGATION => "AIS-PROPAGATION"
- ETH_AISACTION_SQUELCH => "AIS-SQUELCH"

ETH_AISACTION is used in the following commands:

- ED-L2-ETH
- RTRV-L2-ETH

ETH_IGMPROUTER

The following ETH_IGMPROUTER enum items are added:

- ETH_IGMPROUTER_NONE => "NONE"
- ETH_IGMPROUTER_STATIC => "STATIC"

ETH_IGMPROUTER is used in the following commands:

- ED-L2-ETH
- RTRV-L2-ETH

ETH_INGRESSCOS

The following ETH_INGRESSCOS enum items are added:

- ETH_INGRESSCOS_0 => "0"
- ETH_INGRESSCOS_1 => "1"
- ETH_INGRESSCOS_2 => "2"
- ETH_INGRESSCOS_3 => "3"
- ETH_INGRESSCOS_4 => "4"
- ETH_INGRESSCOS_5 => "5"
- ETH_INGRESSCOS_6 => "6"
- ETH_INGRESSCOS_7 => "7"
- ETH_INGRESSCOS_DSCP => "DSCP"
- ETH_INGRESSCOS_TRUST => "TRUST"
- ETH_INGRESSCOS_VLAN => "VLAN"

ETH_INGRESSCOS is used in the following commands:

- ED-L2-ETH
- ED-QNQ-ETH
- ENT-QNQ-ETH
- RTRV-L2-ETH
- RTRV-QNQ-ETH

ETH_PROTACTION

The following ETH_PROTACTION enum items are added:

- ETH_PROTACTION_NONE => "PROT-NONE"
- ETH_PROTACTION_SQUELCH => "PROT-SQUELCH"

ETH_PROTACTION is used in the following commands:

- ED-L2-ETH
- RTRV-L2-ETH

ETH_RULE

The following ETH_RULE enum items are added:

- ETH_RULE_DOUBLE_ADD => "DOUBLE-ADD"
- ETH_RULE_XLTE_ADD => "XLTE-ADD"

ETH_RULE is used in the following commands:

- ED-QNQ-ETH
- ENT-QNQ-ETH
- RTRV-QNQ-ETH

ETH_VLANALM

The following ETH_VLANALM enum items are added:

- ETH_VLANALM_AIS => "VLAN-AIS"
- ETH_VLANALM_NONE => "NONE"

ETH_VLANALM is used in the following commands:

- RTRV-VLAN-ETH

MOD1PAYLOA

The following MOD1PAYLOAD enum items are added:

- MOD1PAYLOAD_E3 => "E3"

MOD2

The following MOD2 enum items are added:

- MOD2_M2_RAMAN => "RAMAN"

MOD2 is used in the following commands:

- RTRV-FFP
- RTRV-NE-APC
- RTRV-NE-WDMANS
- RTRV-PMSCHED-ALL
- RTRV-PMSCHED-MOD2
- RTRV-TRC-MOD2

- RTRV-TRC-OCH

MTU_TYPE

The following MTU_TYPE enum items added:

- MTU_64 => "64"
- MTU_9700 => "9700"

MTU_TYPE is used in the following commands:

- ED-GIGE

ODUTRANSMODE

The following ODUTRANSMODE enum items are added:

- ODUTRANSMODE_CISCOEXT => "CISCO-EXT"
- ODUTRANSMODE_TRANSSTD => "TRANS-STD"

ODUTRANSMODE is used in the following commands:

- ED-OCH
- RTRV-OCH

OPTICAL_PORT_TYPE

The following OPTICAL_PORT_TYPE enum items are added:

- OPTICAL_PORT_TYPE_OPT_PORT_IN_PROT => "IN-PROT"
- OPTICAL_PORT_TYPE_OPT_PORT_IN_RAMAN => "IN-RAMAN"
- OPTICAL_PORT_TYPE_OPT_PORT_IN_WORK => "IN-WORK"
- OPTICAL_PORT_TYPE_OPT_PORT_OUT_PROT => "OUT-PROT"
- OPTICAL_PORT_TYPE_OPT_PORT_OUT_RAMAN => "OUT-RAMAN"
- OPTICAL_PORT_TYPE_OPT_PORT_OUT_WORK => "OUT-WORK"

OPTICAL_PORT_TYPE is used in the following commands:

- RTRV-OCH
- RTRV-OMS
- RTRV-OTS

OPTICS

The following OPTICS enum items added:

- OPTICS_OP_1000_BASE_T => "1000_BASE_T"
- OPTICS_OP_100_BASE_BX_D => "100_BASE_BX_D"
- OPTICS_OP_100_BASE_BX_U => "100_BASE_BX_U"

OPTICS is used in the following commands:

- ED-GIGE
- RTRV-ETH

- RTRV-FSTE
- RTRV-G1000
- RTRV-GIGE

OSIMODE

The following OSIMODE enum items are added:

- AITS => "AITS"
- UITS => "UITS"

OSIMODE is used in the following commands:

- ED-LAPD
- RTRV-LAPD

Note In Software Release 9.0, OSI TL1 parameters/enum are not supported in commands.

OSIRIB

The following OSIRIB enum items are added:

- ES_IS => "ESIS"
- IS_IS => "ISIS"

OSIRIB is used in the following commands:

- RTRV-OSIRIB

Note In Software Release 9.0, OSI TL1 parameters/enum are not supported in commands.

OSIROLE

The following OSIROLE enum items are added:

- NETWORK => "NW"
- USER => "USR"

OSIROLE is used in the following commands:

- ED-LAPD
- RTRV-LAPD

Note In Software Release 9.0, OSI TL1 parameters/enum are not supported in commands.

OSISUBNET

The following OSISUBNET enum items are added:

- GCC => "GCC"
- INTERNAL => "INT"
- LAN => "LAN"

- LDCC => "LDCC"
- OSC => "OSC"
- SDCC => "SDCC"

OSISUBNET is used in the following commands:

- RTRV-OSIRIB

Note In Software Release 9.0, OSI TL1 parameters/enum are not supported in commands.

OSI_LEVEL

The following OSI_LEVEL enum items are added:

- LEVEL1 => "L1"
- LEVEL2 => "L2"

OSI_LEVEL is used in the following commands:

- DLT-MAT
- ED-MAT
- RTRV-MAT

Note In Software Release 9.0, OSI TL1 parameters/enum are not supported in commands.

OSI_ROUTING_MODE

The following OSI_ROUTING_MODE enum items are added:

- ES => "ES"
- IS1 => "IS1"
- IS2 => "IS2"

OSI_ROUTING_MODE is used in the following commands:

- ED-NE-GEN
- RTRV-NE-GEN

Note In Software Release 9.0, OSI TL1 parameters/enum are not supported in commands.

PAYLOAD_MAPPING

The following PAYLOAD_MAPPING enum items are added:

- PAYLOAD_MAPPING_NOFIXEDSTUFF => "NOOPU2FIXEDSTUFF"

PAYLOAD_MAPPING is used in the following commands:

- ED-OCH
- RTRV-OCH
- ED-OTU2

- RTRV-OTU2

PRODUCT_TYPE

The following PRODUCT_TYPE enum items are added:

- PRODUCT_TYPE_NE_15310_MA_SDH => "ONS15310-MA-SDH"

PRODUCT_TYPE is used in the following commands:

- RTRV-MAP-NETWORK

PROTTYPE

The following PROTTYPE enum items are added:

- PROTTYPE_PRT_ONEPLUSONEL2 => "ONEPLUSONEL2"

PROTTYPE is used in the following commands:

- ENT-FFP-MOD2
- RTRV-FFP

RAMAN_ACTION

The following RAMAN_ACTION enum items are added:

- ACCEPTPARAMS => "ACCEPT"
- DOCALCPARAMS => "DO-CALCPAR"
- DOMEAS => "DO-MEASURE"
- DORSTSM => "DO-RSTSM"
- DOTEST => "DO-TEST"
- RSTAFTERTEST => "RESTORE"

RAMAN_ACTION is used in the following commands:

- OPR-RAMAN

RAMAN_QUALITY

The following RAMAN_QUALITY enum items are added:

- RAMAN_QUAL_SETUP_FORCED => "SETUP-FORCED"
- RAMAN_QUAL_SETUP_GOOD => "SETUP-GOOD"
- RAMAN_QUAL_SETUP_NEED_ACCEPT => "SETUP-NEED-ACCEPT"
- RAMAN_QUAL_SETUP_UNACCEPT => "SETUP-UNACCEPT"

RAMAN_QUALITY is used in the following commands:

- RTRV-OTS

RAMAN_RESTORE_FC

The following RAMAN_RESTORE_FC enum items added:

- RAMAN_RESTORE_FC_FAILED => "FAILED"
- RAMAN_RESTORE_FC_NOT_EXECUTED => "NOTEXEC"

- RAMAN_RESTORE_FC_OK => "OK"
- RAMAN_RESTORE_FC_PENDING => "PENDING"

RAMAN_RESTORE_FC is used in the following commands:

- RTRV-OTS

RAMAN_SETUP

The following RAMAN_SETUP enum items are added:

- BYPASS_NODE => "BYPASS"
- MEASURE_NODE => "MEASURE"
- START_NODE_BOOSTER => "ST-BOOSTER"
- START_NODE_MUX => "ST-MUX"

RAMAN_SETUP is used in the following commands:

- OPR-RAMAN

RAMAN_STATUS

The following RAMAN_STATUS enum items are added:

- RAMAN_STATUS_ACCEPTED_TUNED => "ACCEPTED-TUNED"
- RAMAN_STATUS_FORCE_TUNED => "FORCE-TUNED"
- RAMAN_STATUS_NOT_TUNED => "NOT-TUNED"
- RAMAN_STATUS_TUNED => "TUNED"
- RAMAN_STATUS_TUNED_VERIFIED => "TUNED-VERIFIED"
- RAMAN_STATUS_TUNING => "TUNING"

RAMAN_STATUS is used in the following commands:

- RTRV-OTS

SLV_TYPE

The following SLV_TYPE enum items added:

- SLV_TYPE_ACTIVE_CHANNEL => "ACTIVE-CHANNEL"
- SLV_TYPE_OSC => "OSC"

SLV_TYPE is used in the following commands:

- RTRV-SLV-WDMANS

STM1E_MODE

The following STM1E_MODE enum items are added:

- PAYLOAD_PT_E3 => "E3"
- PAYLOAD_PT_OC12 => "OC12"
- PAYLOAD_PT_OC3 => "OC3"
- PAYLOAD_PT_OC48 => "OC48"

STM1E_MODE is used in the following commands:

- ED-FAC

Related Documentation

Release-Specific Documents

- Release Notes for the Cisco ONS 15454 SDH, Release 9.0
- Release Notes for the Cisco ONS 15310-CL, Release 9.0
- Release Notes for the Cisco ONS 15310-MA, Release 9.0
- Release Notes for the Cisco ONS 15310-MA SDH, Release 9.0
- Release Notes for the Cisco ONS 15600, Release 9.0
- Release Notes for the Cisco ONS 15600 SDH, Release 9.0
- Cisco ONS 15454 Software Upgrade Guide, Release 9.0

Platform-Specific Documents

- *Cisco ONS 15454 Procedure Guide*
  Provides installation, turn up, test, and maintenance procedures
- *Cisco ONS 15454 Reference Manual*
  Provides technical reference information for SONET/SDH cards, nodes, and networks
- *Cisco ONS 15454 DWDM Installation and Operations Guide*
  Provides technical reference information for DWDM cards, nodes, and networks
- *Cisco ONS 15454 Troubleshooting Guide*
  Provides a list of SONET alarms and troubleshooting procedures, general troubleshooting information, and hardware replacement procedures
- *Cisco ONS SONET TL1 Command Guide*
  Provides a comprehensive list of TL1 commands
- *Cisco ONS 15454 and Cisco ONS 15454 SDH Ethernet Card Software Feature and Configuration Guide*
  Provides technical reference and configuration information for Ethernet cards.

Obtaining Documentation and Submitting a Service Request

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http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

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