Release Notes for Cisco ONS 15454 Release 9.1

Revised: November 2009, OL-18464-01

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 9.1" 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 9.1, 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 9.1* since the production of the Cisco ONS 15454 System Software CD for Release 9.1.

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Using the Bug ToolKit

In Cisco ONS 15454 Software Release 9.1 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.

Search Bugs

This section explains how to use the Bug ToolKit to search for a specific bug or to search for all the bugs in a specified release.

Step 1 Go to http://tools.cisco.com/Support/BugToolKit/action.do?hdnAction=searchBugs.

You will be prompted to log into Cisco.com. After successful login, the Bug Toolkit page opens.

Step 2 Click **Launch Bug Toolkit**.

Step 3 To search for a specific bug, enter the bug ID in the **Search for Bug ID** field and click **Go** in the **Search Bugs** tab.

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

- Select Product Category—Select **Optical Networking**.
- Select Products—Select **Cisco ONS 15400 Series** from the list.
- Software Version—Select **9.10** to view the list of outstanding and resolved bugs in Cisco ONS 15454 Software Release 9.1.
- Search for Keyword(s)—Separate search phrases with boolean expressions (AND, NOT, OR) to search within the bug title and details.
- 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 sub-options that appear below the Open check box. The sub-options 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 9.1, only select **New**.

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

    Select **Terminated** to view terminated bugs. To filter terminated bugs, clear the Terminated check box and select the appropriate sub-options that appear below the terminated check box. The sub-options are **Closed**, **Junked**, and **Unreproducible**. 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 4 Click **Search**. The Bug Toolkit displays the list of bugs based on the specified search criteria.

Export to Spreadsheet

The Bug ToolKit provides the following options to export bugs to a spreadsheet:

- Click **Export All to Spreadsheet** link in the Search Results page under the Search Bugs tab. Specify file name and folder name to save the spreadsheet. All the bugs retrieved by the search will be exported.
- Click **Export All to Spreadsheet** link in the My Notifications tab. Specify file name and folder name to save the spreadsheet. All the saved bugs in all the groups will be exported.

If you are unable to export the spreadsheet, log into the Technical Support Website at http://www.cisco.com/cisco/web/support/index.html for more information or call Cisco TAC (1-800-553-2447).

New Features and Functionality

This section highlights new features and functionality for Release 9.1. For detailed documentation of each of these features, consult the user documentation.

Common Hardware

Cisco ONS 15454 Software Release 9.1 supports the following new hardware:

40-SMR1-C and 40-SMR2-C Cards

The 40-SMR1-C and 40-SMR2-C cards integrate the following functional blocks onto a single line card:

- Optical preamplifier
- Optical booster amplifier
- Optical service channel (OSC) filter
- 2x1 wavelength cross-connect (WXC) or a 4x1 WXC
- Optical channel monitor (OCM)

The 40-SMR1-C and 40-SMR2-C cards can manage up to 40 channels spaced at 100GHz on each port. The cards are optically passive and provide bidirectional capability. The cards can be installed in Slots 1 to 6 and 12 to 17.

The 40-SMR1-C and 40-SMR2-C can be used along with the 15216-MD-40-ODD (ONS 15216 40-channel mux/demux patch panel) card in terminal, ROADM, or hub nodes. The cards can be used in ring networks, linear networks, or mesh networks.

OPT-RAMP-CE Card

(DWDM only) The OPT-RAMP-CE card is a 20 dBm output power, gain-enhanced version of the OPT-RAMP-C card optimized for short spans.

TDC-CC and TDC-FC Cards

(DWDM only) The TDC-CC and TDC-FC cards reduces the chromatic dispersion of the transmission line. The cards provide a selectable set of discrete negative chromatic dispersion values to compensate for chromatic dispersion of the transmission line. The TDC-CC and TDC-FC cards operate over the entire C-band (in the range of 1529.0 nm to 1562.5 nm) and monitors the optical power at the input and the output ports.

Tunable SFPs and XFPs

The following table provides information on tunable SFPs and XFPs:

SFP or XFP	Card name
ONS-XC-10G-L2	10GE-XP and 10GE-XPE
ONS-XC-10G-I2	ADM-10G
ONS-SE-GE-BXD	GE-XP and GE-XPE
ONS-SE-GE-BXU	GE-XP and GE-XPE
ONS-SI-100-LX10	GE-XPE
ONS-XC-10G-C	OC192SR1/STM64IO Short Reach. This card is designated as OC192-XFP or STM 64 XFP in CTC.
ONS-XC-10G-C	• GE-XP, 10GE-XP, GE-XPE, and 10GE-XPE • ADM-10G • 40G MXP • OTN XP
ONS-SI-100-FX	GE-XPE
ONS-SE-Z1	TXP_MR_2.5G and TXPP_MR_2.5G

TXP_MR_10EX_C, MXP_2.5G_10EX_C, and MXP_MR_10DMEX_C Cards

(DWDM only) The maximum likelihood sequence estimation (MLSE) based universal transponder (UT) modules are added to the TXP_MR_10EX_C, MXP_2.5G_10EX_C, and MXP_MR_10DMEX_C cards to support the error decorrelator functionality to enhance system performance. You can enable or disable the error decorrelator functionality using CTC or TL1. The MLSE-based UT module helps to reduce chromatic dispersion (CD) and polarization mode dispersion (PMD) without the use of a dispersion compensation unit (DCU).

New Software Features and Functionality

The following new software features are added for Release 9.1:

10G Ethernet LAN to WAN Conversion

(DWDM only) The OTU2_XP card can be configured to convert the 10G Ethernet LAN traffic to WAN traffic. The OTU2_XP card supports 10G Ethernet LAN Phy to 10G Ethernet WAN Phy conversion on Ports 1 (client port) and 3 (trunk port). The 10G Ethernet LAN to WAN conversion is provisionable from the CTC and TL1.

ADM-10G Card Enhancement

(DWDM only) The ADM-10G card operates on ONS 15454 SONET, ONS 15454 SDH, and DWDM networks to carry optical signals and Gigabit Ethernet signals over DWDM wavelengths for transport. The card aggregates lower bit-rate client SONET or SDH signals onto a C-band tunable DWDM trunk operating at a higher OC-192/STM-64 rate. In a DWDM network, the ADM-10G card transports traffic over DWDM by mapping Gigabit Ethernet and SONET or SDH circuits onto the same wavelength with multiple protection options.

In Release 9.1, Port 17 is configurable as trunk port in a single-card configuration mode and ILK1 in a double-card configuration mode.

Automatic Node Setup Enhancements

(DWDM only) The enhancements made to the Automatic Node Setup (ANS) parameters in Cisco ONS 15454 Software Release 9.1 are:

- The Provisioning tab is automatically populated with the ANS parameters when the CTP XML file is imported into CTC.
- All the ANS parameters are mapped to the physical ports of the cards.

- The Provisioning tab displays the following information for each ANS parameter:
  - Shelf
  - Slot
  - Port (physical position in the chassis)
  - Value
- The ANS parameters can be manually added, modified, or deleted from the Provisioning tab in CTC

Backup NTP/SNTP Server

CTC allows you to specify a backup NTP/SNTP server along with the primary NTP/SNTP server. When the primary NTP/SNTP server fails, the node uses the secondary NTP/SNTP server to synchronize its date and time. If both the primary and secondary NTP/SNTP servers fail, an SNTP-FAIL alarm is raised. The node checks for the availability of the primary or secondary NTP/SNTP server at regular intervals until it can fetch the time from any one of the NTP/SNTP servers.

Booster and OSC-CSM Enhancements

(DWDM only) The following enhancements are made to the booster and OSC-CSM cards in Release 9.1. The Booster and OSC-CSM Enhancements are supported only on DWDM platform.

- The photodiodes on the cards are calibrated to new ports
- Support for OSC power set-point
- Support for performance monitoring (PM) parameters for all power values
- Support for new alarm thresholds

Cisco CRS-1 Router Configuration

(DWDM only) In Release 9.1, Link Management Protocol (LMP) can be configured automatically or manually on the Cisco CRS-1 router using Cisco IOS XR Software Release 3.9.0 and later. If an earlier version of the Cisco IOS XR software is used, LMP cannot be configured and the router is visible in CTC (network view) as an unknown node.

Gigabit Ethernet Xponder Card Enhancements

(DWDM only) The following enhancements have been made to the GE_XP, 10GE_XP, GE_XPE, 10GE_XPE cards in Cisco ONS 15454 Software Release 9.1:

- An end-to-end SVLAN circuit can be created between client ports configured in network interface (NNI) mode.
- A provisional patchcord (PPC) can be created between NNI client and trunk ports provisioned in L2-over-DWDM mode.
- MAC addresses can be retrieved if the card is provisioned in L2-over-DWDM mode.

Network Functional View

(DWDM only) This feature displays a graphical representation of existing physical connections at the Network level. Circuit connections, optical power, and alarms in the DWDM network can also be viewed. If a loss of signal occurs in the network, NFV finds an alternate network path and re-establishes the connection.

Onboard Failure Logging

(DWDM only) Onboard Failure Logging (OBFL) records events that occur during the card operation. In the event of a card failure, the event log assists in determining the root cause of failure.

The OBFL feature is supported on the following cards:

- OPT-BST
- OPT-PRE
- 40-SMR1-C
- 40-SMR2-C

Note To determine if OBFL is supported on the OPT-BST and OPT-PRE cards running in your system, contact the Cisco Technical Assistance Center (TAC).

Payload Enhancements on TXP_MR_2.5G and TXPP_MR_2.5G Cards

(DWDM only) The TXP_MR_2.5G and TXPP_MR_2.5G cards are enhanced to pass data transparently from a client side interface to a trunk side interface, and similarly from a trunk interface to a client interface. The following two new payloads are added to support the pass-through mode on TXP_MR_2.5G and TXPP_MR_2.5G cards:

- DVB_ASI —Video Payload
- ISC_1—Data Storage Payload

Photonic Path Trace

The Photonic Path Trace (PPT) validates optical paths in ONS 15454 MSTP networks. The power values on each port are measured to validate the path. For every node in the optical path, a plot of power values versus threshold values are displayed.

Protection Switching Module Standalone

(DWDM only) The Protection Switching Module (PSM) card can be used in standalone configuration. In standalone configuration, the PSM card can be equipped in any slot and supports all node configurations. The PSM card in standalone configuration provides only basic functionality such as, protection against a fiber cut, optical safety, and automatic laser shutdown (ALS). It does not provide other functionalities such as, automatic power control (APC), automatic node setup (ANS), or circuit management.

Shared Risk Link Groups

(DWDM only) SRLG is a unique 32-bit number that can be assigned to a link or an MSTP node. There are two types of SRLGs— unique and additional. If SRLG is provisioned on MSTP nodes and links, the SRLG information is used for making routing decisions. SRLGs part of the current network can be viewed as reports.

Shelf Voltage and Temperature

The CTC displays the input voltage and temperature of the ONS 15454 chassis. The voltage supplied to the shelf (in millivolts) is displayed in the voltage area of the pane in the CTC. The temperature of the shelf (in degrees Celsius) is displayed in the temperature area of the pane in the CTC.

The temperature measured by the TCC2/TCC2P sensors appear on the LCD screen in the ONS 15454 chassis.

TL1

TL1 Command Changes

New Commands

The following new TL1 commands are added:

CLR-MACTABLE	DLT-40GIGE
DLT-5GIB	DLT-8GFC
DLT-BULKROLL-OC768	DLT-DVBASI
DLT-FFP-40GIGE	DLT-FFP-8GFC
DLT-FFP-DVBASI	DLT-FFP-FSTE
DLT-FFP-ISC1	DLT-FFP-OC768
DLT-FFP-OTU3	DLT-FSTE
DLT-ISC1	DLT-OC768
DLT-OTU3	DLT-RMONTH-40GIGE
DLT-RMONTH-8GFC	DLT-WDMANS
ED-40GIGE	ED-5GIB
ED-8GFC	ED-BULKROLL-OC768
ED-DVBASI	ED-FFP-40GIGE
ED-FFP-8GFC	ED-FFP-DVBASI
ED-FFP-FSTE	ED-FFP-ISC1
ED-FFP-OC768	ED-FFP-OTU3
ED-ISC1	ED-OC768
ED-OTU3	ENT-40GIGE
ENT-5GIB	ENT-8GFC

ENT-BULKROLL-OC768	ENT-DVBASI
ENT-FFP-40GIGE	ENT-FFP-8GFC
ENT-FFP-DVBASI	ENT-FFP-FSTE
ENT-FFP-ISC1	ENT-FFP-OC768
ENT-FFP-OTU3	ENT-FSTE
ENT-ISC1	ENT-OC768
ENT-OTU3	ENT-RMONTH-40GIGE
ENT-RMONTH-8GFC	ENT-WDMANS
EX-SW-OC768	INIT-REG-40GIGE
INIT-REG-5GIB	INIT-REG-8GFC
INIT-REG-DVBASI	INIT-REG-ISC1
INIT-REG-OC768	INIT-REG-OTU3
OPR-LPBK-40GIGE	OPR-LPBK-5GIB
OPR-LPBK-8GFC	OPR-LPBK-OC768
OPR-LPBK-OTU3	OPR-PROTNSW-40GIGE
OPR-PROTNSW-8GFC	OPR-PROTNSW-DVBASI
OPR-PROTNSW-FSTE	OPR-PROTNSW-ISC1
OPR-PROTNSW-OC768	OPR-PROTNSW-OTU3
RLS-LPBK-40GIGE	RLS-LPBK-5GIB
RLS-LPBK-8GFC	RLS-LPBK-OC768
RLS-LPBK-OTU3	RLS-PROTNSW-40GIGE
RLS-PROTNSW-8GFC	RLS-PROTNSW-DVBASI
RLS-PROTNSW-FSTE	RLS-PROTNSW-ISC1
RLS-PROTNSW-OC768	RLS-PROTNSW-OTU3
RMV-40GIGE	RMV-5GIB
RMV-8GFC	RMV-DVBASI
RMV-ISC1	RMV-OC768
RMV-OTU3	RST-40GIGE
RST-5GIB	RST-8GFC
RST-DVBASI	RST-ISC1
RST-OC768	RST-OTU3
RTRV-40GIGE	RTRV-5GIB
RTRV-8GFC	RTRV-ALM-40GIGE
RTRV-ALM-5GIB	RTRV-ALM-8GFC
RTRV-ALM-DVBASI	RTRV-ALM-ISC1
RTRV-ALM-OC768	RTRV-ALM-OTU3
RTRV-ALMTH-40GIGE	RTRV-ALMTH-5GIB
RTRV-ALMTH-8GFC	RTRV-ALMTH-DVBASI

RTRV-ALMTH-FSTE	RTRV-ALMTH-ISC1
RTRV-ALMTH-OC768	RTRV-ALMTH-OTU3
RTRV-BULKROLL-OC768	RTRV-BWP-ETH
RTRV-COND-40GIGE	RTRV-COND-5GIB
RTRV-COND-8GFC	RTRV-COND-DVBASI
RTRV-COND-ISC1	RTRV-COND-OC768
RTRV-COND-OTU3	RTRV-COS-ETH
RTRV-CRS-ETH	RTRV-DSCP-ETH
RTRV-DVBASI	RTRV-FFP-40GIGE
RTRV-FFP-8GFC	RTRV-FFP-DVBASI
RTRV-FFP-FSTE	RTRV-FFP-ISC1
RTRV-FFP-OC768	RTRV-FFP-OTU3
RTRV-ISC1	RTRV-MACTABLE
RTRV-NE-APC	RTRV-NE-WDMANS
RTRV-OC768	RTRV-OCM
RTRV-OTU3	RTRV-PATH-OCH
RTRV-PM-40GIGE	RTRV-PM-5GIB
RTRV-PM-8GFC	RTRV-PM-DVBASI
RTRV-PM-ISC1	RTRV-PM-OC768
RTRV-PM-OTU3	RTRV-PMSCHED-40GIGE
RTRV-PMSCHED-5GIB	RTRV-PMSCHED-8GFC
RTRV-PMSCHED-DVBASI	RTRV-PMSCHED-ISC1
RTRV-PMSCHED-OC768	RTRV-PMSCHED-OTU3
RTRV-PROTNSW-40GIGE	RTRV-PROTNSW-8GFC
RTRV-PROTNSW-DVBASI	RTRV-PROTNSW-FSTE
RTRV-PROTNSW-ISC1	RTRV-PROTNSW-OC768
RTRV-PROTNSW-OTU3	RTRV-RMONTH-40GIGE
RTRV-RMONTH-8GFC	RTRV-SHELFSTAT
RTRV-SLV-WDMANS	RTRV-TH-40GIGE
RTRV-TH-5GIB	RTRV-TH-8GFC
RTRV-TH-DVBASI	RTRV-TH-FSTE
RTRV-TH-ISC1	RTRV-TH-OC768
RTRV-TH-OTU3	RTRV-TRC-OC768
SCHED-PMREPT-40GIGE	SCHED-PMREPT-5GIB
SCHED-PMREPT-8GFC	SCHED-PMREPT-DVBASI
SCHED-PMREPT-ISC1	SCHED-PMREPT-OC768
SCHED-PMREPT-OTU3	SET-ALMTH-40GIGE
SET-ALMTH-5GIB	SET-ALMTH-8GFC

SET-ALMTH-DVBASI	SET-ALMTH-FSTE
SET-ALMTH-ISC1	SET-ALMTH-OC768
SET-ALMTH-OTU3	SET-TH-40GIGE
SET-TH-5GIB	SET-TH-8GFC
SET-TH-DVBASI	SET-TH-FSTE
SET-TH-ISC1	SET-TH-OC768
SET-TH-OTU3	

Note In Software Release 9.1, the following OSI TL1 commands are not supported.

Changed Commands

The following new TL1 commands are changed:

- ED-FSTE— A LIENBALE parameter is added to this command in Release 9.1.
- RTRV-FSTE— A LIENBALE parameter is added to this command in Release 9.1.

Command Syntax Changes

The syntax of the following commands have changed:

- ED-EQPT syntax changed from:

  ED-EQPT[:<TID>]:<aid>:<CTAG>[:::PROTID=<protid>],[PRTYPE=<prtype>],[RVRTV=<rvrtv>],[RVTM=<rvtm>],[CARDMODE=<cardmode>],[PEERID=<peerid>],[REGENNAME=<regenname>],[PEERNAME=<peername>],[CMDMDE=<cmdmde>],[RETIME=<retime>],[SHELFROLE=<shelfrole>],[NEWSHELFID=<newshelfid>],[FRPROLE=<frprole>],[FRPSTATE=<frpstate>][:<pst>[,<sst>]];

  To:

  ED-EQPT[:<TID>]:<aid>:<CTAG>[:::PROTID=<protid>],[PRTYPE=<prtype>],[RVRTV=<rvrtv>],[RVTM=<rvtm>],[CARDMODE=<cardmode>],[PEERID=<peerid>],[REGENNAME=<regenname>],[PEERNAME=<peername>],[CMDMDE=<cmdmde>],[RETIME=<retime>],[SHELFROLE=<shelfrole>],[NEWSHELFID=<newshelfid>],[FRPROLE=<frprole>],[FRPSTATE=<frpstate>],[FRPHOLDOFFTIME=<frpholdofftime>][:<pst>[,<sst>]];

- ED-FSTE syntax changed from:

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

  To:

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

- ED-NE-GEN syntax changed from:

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>];

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>],[MSPUBVLANID=<mspubvlanid>],[MSINTLVLANID=<msintlvlanid>],[SERIALPORTECHO=<serialportecho>],[OSIROUTINGMODE=<osiroutingmode>],[OSIL1BUFSIZE=<osil1bufsize>],[OSIL2BUFSIZE=<osil2bufsize>],[BKUPNTP=<bkupntp>];

- ED-OCH syntax changed from:

  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>]];

  To:

  ED-OCH[:<TID>]:<aid>:<CTAG>[:::EXPWLEN=<expwlen>],[VOAATTN=<voaattn>],[FCS=<fcs>],[VOAPWR=<voapwr>],[CALOPWR=<calopwr>],[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>],[ERRORDECORRELATOR=<errordecorrelator>][:<pst>[,<sst>]];

- ED-OMS syntax changed from:

  ED-OMS[:<TID>]:<aid>:<CTAG>[:::EXPBAND=<expband>],[VOAATTN=<voaattn>],[VOAPWR=<voapwr>],[CALOPWR=<calopwr>],[CHPOWER=<chpower>],[NAME=<name>],[SOAK=<soak>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

  To:

  ED-OMS[:<TID>]:<aid>:<CTAG>[:::EXPBAND=<expband>],[VOAATTN=<voaattn>],[VOAPWR=<voapwr>],[CALOPWR=<calopwr>],[NAME=<name>],[SOAK=<soak>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

- ED-OTS syntax changed from:

  ED-OTS[:<TID>]:<aid>:<CTAG>[:::VOAATTN=<voaattn>],[VOAPWR=<voapwr>],[OFFSET=<offset>],[REFTILT=<reftilt>],[CALTILT=<caltilt>],[OSRI=<osri>],[AMPLMODE=<amplmode>],[CHPOWER=<chpower>],[EXPGAIN=<expgain>],[NAME=<name>],[SOAK=<soak>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

  To:

  ED-OTS[:<TID>]:<aid>:<CTAG>[:::VOAATTN=<voaattn>],[VOAPWR=<voapwr>],[OFFSET=<offset>],[CALTILT=<caltilt>],[OSRI=<osri>],[NAME=<name>],[SOAK=<soak>],[FG=<fg>],[CG=<cg>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];

- ED-WDMANS syntax changed from:

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

To:

ED-WDMANS[:<TID>]:<aid>:<CTAG>[::<wlen>][:VOAATTN=<voaattn>],[POWEROSC=<powerosc>],[NTWTYPE=<ntwtype>],[CHLOSS=<chloss>],[GAIN=<gain>],[TILT=<tilt>],[CHPWR=<chpwr>],[AMPLMODE=<amplmode>],[RATIO=<ratio>],[OSCLOSS=<oscloss>],[DITHER=<dither>],[TOTALPWR=<totalpwr>];

- ENT-EQPT syntax changed from:

  ENT-EQPT[:<TID>]:<aid>:<CTAG>::<aidtype>[:PROTID=<protid>],[PRTYPE=<prtype>],[RVRTV=<rvrtv>],[RVTM=<rvtm>],[CARDMODE=<cardmode>],[PEERID=<protid>],[REGENNAME=<regenname>],[CMDMDE=<cmdmde>],[TRANSMODE=<transmode>],[RETIME=<retime>],[SHELFROLE=<shelfrole>],[FRPROLE=<frprole>],[FRPSTATE=<frpstate>][:];

  To:

  ENT-EQPT[:<TID>]:<aid>:<CTAG>::<aidtype>[:PROTID=<protid>],[PRTYPE=<prtype>],[RVRTV=<rvrtv>],[RVTM=<rvtm>],[CARDMODE=<cardmode>],[PEERID=<protid>],[REGENNAME=<regenname>],[CMDMDE=<cmdmde>],[TRANSMODE=<transmode>],[RETIME=<retime>],[SHELFROLE=<shelfrole>],[FRPROLE=<frprole>],[FRPSTATE=<frpstate>],[FRPHOLDOFFTIME=<frpholdofftime>][:];

Note In Software Release 9.1, the OSI TL1 commands are not supported.

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:

  <aid>,[<aidtype>]:[<alsmode>],[<alsrcint>],[<alsrcpw>],[<lsrstat>]

- 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-EQPT response changes:

  <aid>:<aidtype>,<equip>,[<role>],[<status>]:[<protid>],[<prtype>],[<rvrtv>],[<rvtm>],[<cardname>],[<ioscfg>],[<cardmode>],[<peerid>],[<regenname>],[<peername>],[<transmode>],[<retime>],[<shelfrole>],[<frprole>],[<frpstate>]:<pst>,[<sst>]

  To:

  <aid>:<aidtype>,<equip>,[<role>],[<status>]:[<protid>],[<prtype>],[<rvrtv>],[<rvtm>],[<cardname>],[<ioscfg>],[<cardmode>],[<peerid>],[<regenname>],[<peername>],[<transmode>],[<retime>],[<shelfrole>],[<frprole>],[<frpstate>],[<frpholdofftime>]:<pst>,[<sst>]

- RTRV-FSTE response changes:

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

  To:

  <aid>:[<role>],[<status>]:[<adminstate>],[<linkstate>],[<mtu>],[<flowctrl>],[<optics>],[<duplex>],[<speed>],[<flow>],[<expduplex>],[<expspeed>],[<vlancosthreshold>],[<iptosthreshold>],[<name>],[<suppress>],[<soak>],[<soakleft>],[<selectiveauto>],[<litimer>],[<lbcl>],[<opt>],[<opr>],[<freq>],[<lossb>],[<actflow>],[<actduplex>],[<actspeed>]:<pst>,[<sst>]

- RTRV-NE-GEN response changes:

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

  To:

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

- 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>],[<peerid>],[<regenname>],[<portmode>],[<odutransmode>]:<pst>,[<sst>]

  To:

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

- RTRV-OTS response changes:

  <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>]

  To:

  <aid>:,,[<role>],[<status>]:<opticalPortType>,[<power>],[<oscpower>],[<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>],[<tdcu_fg>],[<tdcu_cg>]:<pst>,[<sst>]

TL1 ENUM Changes

ALM_THR

The following ALM_THR enum items are added:

- ALM_THR_ADD_HDEG => "ADD-HDEG"
- ALM_THR_ADD_HFAIL => "ADD-HFAIL"
- ALM_THR_ADD_LDEG => "ADD-LDEG"
- ALM_THR_ADD_LFAIL => "ADD-LFAIL"

ALM_THR is used in the following commands:

- RTRV-ALMTH-MOD2O
- SET-ALMTH-MOD2O

CARDMODE

The following CARDMODE enum items are added:

- CARDMODE_LANWAN_SQUELCH => "10GLANWAN-LINE-SQUELCH"
- CARDMODE_PSM_NORMAL => "PSM-NORMAL"
- CARDMODE_PSM_STANDALONE => "PSM-STANDALONE"
- CARDMODE_WXC80_BIDI => "WXC80-BIDI"
- CARDMODE_WXC80_DMX => "WXC80-DMX"
- CARDMODE_WXC80_MUX => "WXC80-MUX"

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_15216_MD_40_EVEN => "15216-MD-40-EVEN"
- EQPT_TYPE_EQPT_ID_15216_MD_40_ODD => "15216-MD-40-ODD"
- EQPT_TYPE_EQPT_ID_15216_MD_ID_50 => "15216-MD-ID-50"
- EQPT_TYPE_EQPT_ID_40_MXP_C => "40-MXP-C"
- EQPT_TYPE_EQPT_ID_40_SMR1_C => "40-SMR1-C"
- EQPT_TYPE_EQPT_ID_40_SMR2_C => "40-SMR2-C"
- EQPT_TYPE_EQPT_ID_40_TXP_C => "40-TXP-C"
- EQPT_TYPE_EQPT_ID_80_WXC_C => "80-WXC-C"
- EQPT_TYPE_EQPT_ID_DCU => "DCU"
- EQPT_TYPE_EQPT_ID_FMEC_155E_CARD_1TO3 => "FMEC-155E-1TO3"
- EQPT_TYPE_EQPT_ID_FMEC_155E_CARD_UNPROT => "FMEC-155E-UNPROT"
- EQPT_TYPE_EQPT_ID_OPT_RAMP_E => "OPT-RAMP-CE"
- EQPT_TYPE_EQPT_ID_PP_4_SMR => "MESH-PP-SMR"
- EQPT_TYPE_EQPT_ID_PP_4_SMR => "PP-4-SMR"
- EQPT_TYPE_EQPT_ID_PP_MESH_4 => "PP-MESH-4"
- EQPT_TYPE_EQPT_ID_PP_MESH_8 => "PP-MESH-8"
- EQPT_TYPE_EQPT_ID_TDC_CC => "TDC-CC"
- EQPT_TYPE_EQPT_ID_TDC_FC => "TDC-FC"

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_15216_MD_40_EVEN => "15216-MD-40-EVEN"
- EQUIPMENT_TYPE_ET_15216_MD_40_ODD => "15216-MD-40-ODD"
- EQUIPMENT_TYPE_ET_15216_MD_ID_50 => "15216-MD-ID-50"
- EQUIPMENT_TYPE_ET_40_MXP_C => "40-MXP-C"
- EQUIPMENT_TYPE_ET_40_SMR1_C => "40-SMR1-C"
- EQUIPMENT_TYPE_ET_40_SMR2_C => "40-SMR2-C"
- EQUIPMENT_TYPE_ET_40_TXP_C => "40-TXP-C"

- EQUIPMENT_TYPE_ET_80_WXC_C => "80-WXC-C"
- EQUIPMENT_TYPE_ET_DCU => "DCU"
- EQUIPMENT_TYPE_ET_OPT_RAMP_E => "OPT-RAMP-CE"
- EQUIPMENT_TYPE_ET_PP_4_SMR => "MESH-PP-SMR"
- EQUIPMENT_TYPE_ET_PP_4_SMR => "PP-4-SMR"
- EQUIPMENT_TYPE_ET_PP_MESH_4 => "PP-MESH-4"
- EQUIPMENT_TYPE_ET_PP_MESH_8 => "PP-MESH-8"
- EQUIPMENT_TYPE_ET_TDC_CC => "TDC-CC"
- EQUIPMENT_TYPE_ET_TDC_FC => "TDC-FC"

EQUIPMENT_TYPE is used in the following commands:

- CHG-EQPT
- ENT-EQPT

FRPHOLDOFFTIME

The following FRPHOLDOFFTIME enum items are added:

- FRPHOLDOFF_100MSEC => "100-MSEC"
- FRPHOLDOFF_1MSEC => "1-MSEC"
- FRPHOLDOFF_200MSEC => "200-MSEC"
- FRPHOLDOFF_2MSEC => "2-MSEC"
- FRPHOLDOFF_500MSEC => "500-MSEC"
- FRPHOLDOFF_50MSEC => "50-MSEC"
- FRPHOLDOFF_5MSEC => "5-MSEC"
- FRPHOLDOFF_DISABLED => "DISABLED"

FRPHOLDOFFTIME is used in the following commands:

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

MAC_ADDRTYPE

The following MAC_ADDRTYPE enum items are added:

- CARD_MAC => "CARD-MAC"
- LEARNED_MAC => "LEARNED-MAC"

MAC_ADDRTYPE is used in the following commands:

- RTRV-MACTABLE

MOD1PAYLOAD

The following MOD1PAYLOAD enum items are added:

- MOD1PAYLOAD_40GIGE => "40GIGE"

- MOD1PAYLOAD_5GIB => "5GIB"
- MOD1PAYLOAD_8GFC => "8GFC"
- MOD1PAYLOAD_DVBASI => "DVBASI"
- MOD1PAYLOAD_ISC1 => "ISC1"
- MOD1PAYLOAD_OTU3 => "OTU3"

MOD1PAYLOAD is used in the following commands:

- ENT-MOD1
- DLT-MOD1
- ED-MOD1
- RTRV-MOD1

MOD2

The following MOD2 enum items are added:

- MOD2_M2_40GIGE => "40GIGE"
- MOD2_M2_5GIB => "5GIB"
- MOD2_M2_8GFC => "8GFC"
- MOD2_M2_DVBASI => "DVBASI"
- MOD2_M2_ISC1 => "ISC1"
- MOD2_M2_OC768 => "OC768"
- MOD2_M2_OTU3 => "OTU3"

MOD2 is used in the following commands:

- RTRV-FFP
- RTRV-PMSCHED-ALL
- RTRV-PMSCHED-MOD2

MOD2ALM

The following MOD2ALM enum items added:

- MOD2ALM_M2_40GIGE => "40GIGE"
- MOD2ALM_M2_5GIB => "5GIB"
- MOD2ALM_M2_8GFC => "8GFC"
- MOD2ALM_M2_DVBASI => "DVBASI"
- MOD2ALM_M2_ISC1 => "ISC1"
- MOD2ALM_M2_OC768 => "OC768"
- MOD2ALM_M2_OTU3 => "OTU3"

MOD2ALM is used in the following commands:

- RTRV-ALM-MOD2ALM
- RTRV-COND-MOD2ALM

MOD2B

The following MOD2B enum items are added:

- MOD2B_M2_40GIGE => "40GIGE"
- MOD2B_M2_5GIB => "5GIB"
- MOD2B_M2_8GFC => "8GFC"
- MOD2B_M2_DVBASI => "DVBASI"
- MOD2B_M2_ISC1 => "ISC1"
- MOD2B_M2_OC768 => "OC768"
- MOD2B_M2_OTU3 => "OTU3"

MOD2B is used in the following commands:

- RTRV-ALM-ALL
- RTRV-ALM-EQPT
- RTRV-ALS
- RTRV-COND-ALL
- RTRV-COND-EQPT
- RTRV-PM-MOD2
- RTRV-TH-ALL
- RTRV-TH-MOD2

MOD2O

The following MOD2O enum items are added:

- MOD2O_M2_40GIGE => "40GIGE"
- MOD2O_M2_5GIB => "5GIB"
- MOD2O_M2_8GFC => "8GFC"
- MOD2O_M2_DVBASI => "DVBASI"
- MOD2O_M2_ISC1 => "ISC1"
- MOD2O_M2_OC768 => "OC768"
- MOD2O_M2_OTU3 => "OTU3"

MOD2O is used in the following commands:

- RTRV-ALMTH-MOD2O

MOD2_DATA

The following MOD2_DATA enum items added:

- MOD2_DATA_M2_40GIGE => "40GIGE"
- MOD2_DATA_M2_8GFC => "8GFC"

MOD2_DATA is used in the following commands:

- RTRV-RMONTH-ETH

OPTICAL_LINK_TYPE

The following OPTICAL_LINK_TYPE enum items are added:

- OPTICAL_LINK_TYPE_OL_MPO => "MPO"

OPTICAL_LINK_TYPE is used in the following commands:

- RTRV-LINK

OPTICAL_PORT_TYPE

The following OPTICAL_PORT_TYPE enum items are added:

- OPTICAL_PORT_TYPE_OPT_PORT_AD_BIDI => "AD"
- OPTICAL_PORT_TYPE_OPT_PORT_COM_BIDI => "COM"
- OPTICAL_PORT_TYPE_OPT_PORT_EAD_BIDI => "EAD"

OPTICAL_PORT_TYPE is used in the following commands:

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

OPTICAL_WLEN

The following OPTICAL_WLEN enum items are added:

- OPTICAL_WLEN_WL_1528_77 => "1528.77"

OPTICAL_WLEN is used in the following commands:

- DLT-WDMANS
- ED-DWDM-CLNT
- ED-FC
- ED-FSTE
- ED-GIGE
- ED-OCH
- ED-OCN-TYPE
- ED-OTU2
- ED-WDMANS
- ENT-WDMANS
- RTRV-DWDM-CLNT
- RTRV-FC
- RTRV-FSTE
- RTRV-GIGE
- RTRV-LNK
- RTRV-OCH
- RTRV-OCN-TYPE
- RTRV-OTU2

- RTRV-PATH-OCH
- RTRV-WDANS

PAYLOAD

The following PAYLOAD enum items are added:

- PAYLOAD_PT_40GE => "40GIGE"
- PAYLOAD_PT_5GIB => "5GIB"
- PAYLOAD_PT_8GFC => "8GFC"
- PAYLOAD_PT_DVB_ASI => "DVBASI"
- PAYLOAD_PT_FE => "FSTE"
- PAYLOAD_PT_ISC1 => "ISC1"
- PAYLOAD_PT_OC768 => "OC768"
- PAYLOAD_PT_STM256 => "STM256"

PAYLOAD is used in the following commands:

- RTRV-FAC

REGULATED_PORT_TYPE

The following REGULATED_PORT_TYPE enum items are added:

- REGULATED_PORT_MISSING_INPUT_PWR_PARAM => "MISSING-INPUT-PWR-PARAM"
- REGULATED_PORT_MISSING_OUTPUT_PWR_PARAM => "MISSING-OUTPUT-PWR-PARAM"

REGULATED_PORT_TYPE is used in the following commands:

- RTRV-NE-WDMANS

TDCU_CG

The following TDCU_CG enum items are added:

- TDCU_CG_0 => "0"
- TDCU_CG_1 => "-110"
- TDCU_CG_10 => "-1100"
- TDCU_CG_11 => "-1210"
- TDCU_CG_12 => "-1320"
- TDCU_CG_13 => "-1430"
- TDCU_CG_14 => "-1540"
- TDCU_CG_15 => "-1650"
- TDCU_CG_2 => "-220"
- TDCU_CG_3 => "-330"
- TDCU_CG_4 => "-440"
- TDCU_CG_5 => "-550"

- TDCU_CG_6 => "-660"
- TDCU_CG_7 => "-770"
- TDCU_CG_8 => "-880"
- TDCU_CG_9 => "-990"

TDCU_CG is used in the following commands:

- ED-OTS
- RTRV-OTS

TDCU_FG

The following TDCU_FG enum items are added:

- TDCU_FG_0 => "0"
- TDCU_FG_1 => "-45"
- TDCU_FG_10 => "-450"
- TDCU_FG_11 => "-495"
- TDCU_FG_12 => "-540"
- TDCU_FG_13 => "-585"
- TDCU_FG_14 => "-630"
- TDCU_FG_15 => "-675"
- TDCU_FG_2 => "-90"
- TDCU_FG_3 => "-135"
- TDCU_FG_4 => "-180"
- TDCU_FG_5 => "-225"
- TDCU_FG_6 => "-270"
- TDCU_FG_7 => "-315"
- TDCU_FG_8 => "-360"
- TDCU_FG_9 => "-405"

TDCU_FG is used in the following commands:

- ED-OTS
- RTRV-OTS

WDMANS_PARAM

The following WDMANS_PARAM enum items are added:

- WDMANS_PARAM_AMPLMODE => "AMPLMODE"
- WDMANS_PARAM_CHLOSS => "CHLOSS"
- WDMANS_PARAM_CHPWR => "CHPWR"
- WDMANS_PARAM_DITHER => "DITHER"
- WDMANS_PARAM_GAIN => "GAIN"
- WDMANS_PARAM_HIGHSLVEXP => "HIGHSLVEXP"

- WDMANS_PARAM_LOWSLVEXP => "LOWSLVEXP"
- WDMANS_PARAM_NTWTYPE => "NTWTYPE"
- WDMANS_PARAM_OSCLOSS => "OSCLOSS"
- WDMANS_PARAM_POWEROSC => "POWEROSC"
- WDMANS_PARAM_RATIO => "RATIO"
- WDMANS_PARAM_TILT => "TILT"
- WDMANS_PARAM_TOTALPWR => "TOTALPWR"
- WDMANS_PARAM_VOAATTN => "VOAATTN"

WDMANS_PARAM is used in the following commands:

- DLT-WDMANS

Related Documentation

Release-Specific Documents

- Release Notes for the Cisco ONS 15454 SDH, Release 9.1
- Release Notes for the Cisco ONS 15310-CL, Release 9.1
- Release Notes for the Cisco ONS 15310-MA, Release 9.1
- Release Notes for the Cisco ONS 15310-MA SDH, Release 9.1
- Release Notes for the Cisco ONS 15600, Release 9.1
- Release Notes for the Cisco ONS 15600 SDH, Release 9.1
- Cisco ONS 15454 Software Upgrade Guide, Release 9.1

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 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.

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