



# SNMP and the Management Information Base

A Simple Network Management Protocol (SNMP) Management Information Base (MIB) is a hierarchically organized collection of information, such as Loss of Signal Alarm Thresholds, about the network. MIBs consist of managed objects that are identified by object identifiers (OIDs). An MIB supplies the pertinent attributes of a device. Some attributes are fixed in the MIB while others are dynamic values calculated by the agent software running on the device.

SNMP is an application-layer protocol enabling a device user to retrieve and modify management information from a MIB and to provide event notification to a network management system (NMS).

This chapter explains how to read and understand the SNMP MIB as it relates to the Cisco ONS 15216 EDFA3. This chapter contains the following sections:

- [10.1 Overview, page 10-1](#)
- [10.2 SNMP MIBs and Message Types, page 10-5](#)
- [10.3 SNMP Capabilities, page 10-6](#)
- [10.4 ONS 15216 EDFA3 Tables and Groups, page 10-7](#)
- [10.5 SNMP Traps, page 10-19](#)
- [10.6 SNMP Generic Objects, page 10-24](#)
- [10.7 SNMP Specific Objects, page 10-25](#)

## 10.1 Overview

The ONS 15216 EDFA3 SNMP implementation uses standard Internet Engineering Task Force (IETF) MIBs to convey inventory, fault, and performance management information. SNMP allows management of the ONS 15216 EDFA3 by a generic third-party SNMP manager such as Cisco Transport Manager (CTM), HP OpenView Network Node Manager (NNM), or Open Systems Interconnection (OSI) NetExpert. While an SNMP agent is included with the ONS 15216 EDFA3, no SNMP manager is included with the ONS 15216 EDFA3.

The ONS 15216 EDFA3 supports SNMP Version 1 (SNMPv1) and SNMP Version 2c (SNMPv2c).

SNMP includes a limited set of management commands and responses that can be used in order to retrieve a single object variable or multiple object variables or to establish the value of a single variable. When an SNMP command is sent, the managed agent sends a Response message to indicate completion of the Get, GetNext, GetBulk, or Set. The managed agent sends an event notification, called a trap, to the management system in order to identify the occurrence of conditions such as a threshold that exceeds a preset value.

## 10.1.1 SNMP Components

An SNMP-managed network consists of three primary components:

- Managed devices (for example, the ONS 15216 EDFA3 and ONS 15454)
- Agents (for example, the SNMP agent that resides on the ONS 15216 EDFA3)
- Management systems (for example, CTM or HP OpenView NNM)

A managed device is a network node that contains an SNMP agent and resides on an SNMP-managed network. Managed devices collect and store management information and use SNMP to make this information available to management systems that use SNMP. Managed devices include routers, access servers, switches, bridges, hubs, computer hosts, and network elements such as the ONS 15216 EDFA3.

## 10.1.2 ONS 15216 EDFA3 SNMP Elements

The following three SNMP elements can be used with the ONS 15216 EDFA3:

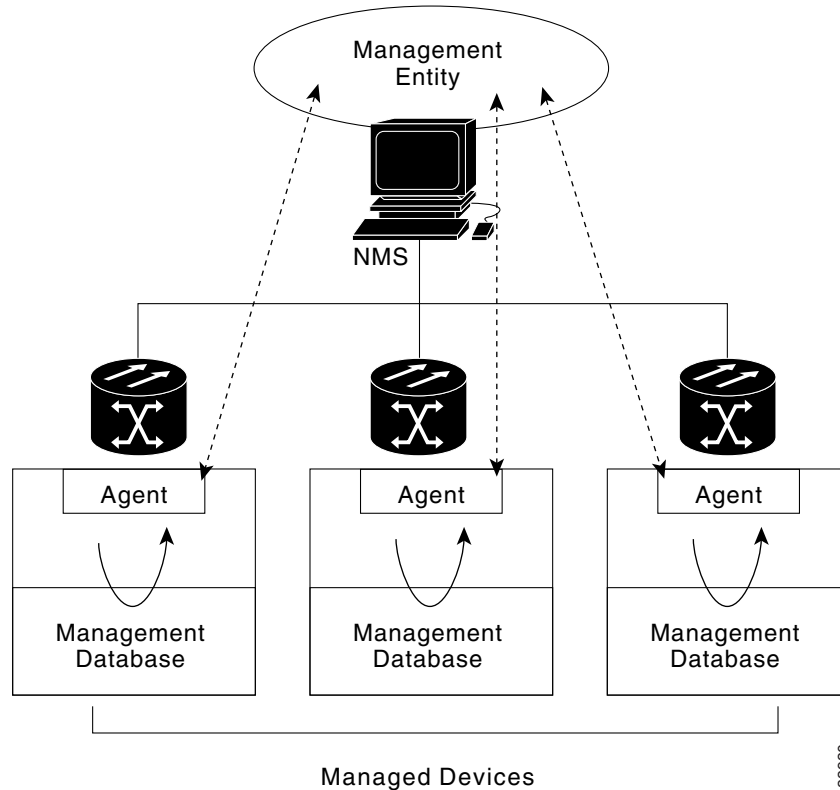
- SNMP agent
- SNMP MIB
- A third-party SNMP manager

The MIB file names are:

- rfc 1155.mib
- rfc 1212.mib
- rfc 1213.mib
- rfc 1157.mib
- rfc 1445.mib
- rfc 1901.mib
- rfc 1906.mib
- rfc 1907.mib
- rfc 1908.mib
- rfc 2011.mib
- rfc 2012.mib
- rfc 2013.mib
- rfc 2579.mib
- rfc 2580.mib
- rfc 2737.mib
- rfc 3014.mib
- cerentedfa3.mib
- CERENT-GLOBAL-REGISTRY.mib
- CERENT-TC.mib

The SNMP elements are shown in [Figure 10-1](#).

Figure 10-1 SNMP Elements



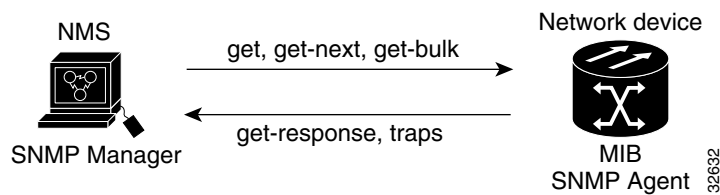
### 10.1.2.1 SNMP Agent

An agent is an entity that assumes an operational role to receive, process, and respond to requests and generated event reports. The SNMP agent gathers data from the MIB, which is the repository for device parameters and network data. To respond to requests, the agent must have network management information access. To generate reports, an agent must be notified of internal events.

Cisco provides an SNMP agent (installed on the ONS 15216 EDFA3) and an SNMP MIB to monitor and configure parameters for the ONS 15216 EDFA3. The SNMP agent software and MIB are preinstalled on each ONS 15216 EDFA3.

Figure 10-2 shows the relationship between the SNMP agent and the MIB.

Figure 10-2 SNMP Agent and MIB



### 10.1.2.2 SNMP MIB

A MIB is a collection of definitions of the properties of each managed object within a managed device. Each managed device keeps a corresponding database of values for each of the definitions written in the MIB.

The SNMP MIBs (CERENT-15216-EDFA-MIB.mib and CERENT-GLOBAL-REGISTRY.mib) are files written in ASN.1 syntax. The CERENT-15216-EDFA-MIB.mib file specifies what ONS 15216 EDFA3 information needs to be monitored. The CERENT-15216-EDFA-MIB.mib file and other MIBs can also be installed on a third-party SNMP manager located at a network management center. The SNMP manager at the network management center uses the SNMP MIBs to communicate with the SNMP agent.

### 10.1.2.3 SNMP Manager

The ONS 15216 EDFA3 requires a third-party SNMP manager in order to use SNMP commands. The SNMP manager can be accessed and used to communicate with the SNMP agent that is preinstalled on each ONS 15216 EDFA3. This document shows examples of issuing SNMP commands to the amplifier using the CTM SNMP manager.



#### Note

The community string must be set up using TL1 before SNMP commands can be used. The string can be set using TL1 commands (see [Chapter 9, “Preparing to Use SNMP”](#)).

SNMP managers from third-party vendors running on a separate computer located at a network management center are used to manage network elements. The third-party SNMP manager must be able to communicate with the SNMP agent preinstalled on the ONS 15216 EDFA3.

Each vendor-specific SNMP manager has an unique set of instructions for SNMP MIB installation. For directions on loading the SNMP MIBs, refer to your SNMP manager documentation. Cisco does not provide a standard third-party SNMP manager. See the *Cisco Transport Manager Operations Guide* for information about using CTM.

### 10.1.2.4 SNMP Traps

The ONS 15216 EDFA3 can receive SNMP requests from a number of SNMP managers and send traps to ten trap receivers. The ONS 15216 EDFA3 generates all alarms and events as SNMP traps. These traps will send to a maximum of ten different managers (include ten different IP addresses).

The ONS 15216 EDFA3 generates traps containing an object ID that uniquely identifies the alarm. An entity identifier uniquely identifies the entity that generated the alarm. The traps give the severity of the alarm (critical, major, minor, event, etc.) and indicate whether the alarm is service affecting or non-service affecting. The traps also contain a date/time stamp that shows the date and time the alarm occurred. The ONS 15216 EDFA3 also generates a trap for each alarm when the alarm condition clears. The trap for SNMPv2c also includes the sender IP address.

Each SNMP trap contains eleven variable bindings. The standard bindings for the ONS 15216 EDFA3 are listed in [Table 10-1](#).

**Table 10-1 Standard SNMP Trap Variable Bindings for ONS 15216 EDFA3**

Trap	From RFC	Description
coldStart	RFC1907-MIB	Agent up, cold start (delay for system routing).
warmStart	RFC1907-MIB	Agent up, warm start (delay for system routing).

**Table 10-1** Standard SNMP Trap Variable Bindings for ONS 15216 EDFA3 (continued)

Trap	From RFC	Description
authenticationFailure	RFC1907-MIB	Community string does not match.
entConfigChange	RFC2737/ENTITY-MIB	The entLastChangeTime value has changed.

### 10.1.2.5 SNMP Generic Objects

All sent traps are saved to the log file for viewing by the operator. One log file stores up to 1024 traps and events. There are two SNMP trap files:

- snmpNotifyLofA
- snmpNotifyLogB

In total, 2048 traps can be stored. The SNMP agent can be used to save or clear important traps and event statuses on the cerent15216EdfaGenericStandingCondTable.

## 10.1.3 Entering Measurement Units with SNMP Commands

The SNMP interface for the ONS 15216 EDFA3 does not understand decimals. For this reason, when a decimal value (10.1, for example) is entered, you must specify that value as 101. In order to provide consistency, whole numbers also must have an additional digit appended to them (10, for example, would be entered as 100).

The TL1 interface represents values as floating points.

## 10.2 SNMP MIBs and Message Types

Using SNMP operations, a manager can retrieve or modify the value of management information accessible by an agent. An agent can report an event to a manager. A manager can inform another manager of the value of management information on an agent.

Using retrieval and modification operations, the manager can cause an agent to perform an action or to execute a command. The manager can also create new and delete existing instances of management information in the MIB.

A MIB is a hierarchically organized collection of information. Network management protocols, such as SNMP, gain access to these MIBs. MIBs consist of managed objects that are identified by object identifiers (OID). To view the contents of a table, select the table, and perform a GET operation on the table.

The ONS 15216 EDFA3 SNMP agent communicates with an SNMP management application (a third-party application) using SNMP messages. [Table 10-2](#) describes SNMP operation types.

**Table 10-2** *SNMP Operation Types*

<b>SNMP Operation</b>	<b>Description</b>
get-request	Retrieves a value from a specific variable in the MIB.
get-next-request	Retrieves the value following the named variable; this operation is often used to retrieve variables in a table. With this operation, an SNMP agent does not need to know the exact variable name. The SNMP manager searches sequentially to find the needed variable in the MIB.
get-response	The reply to a get-request, get-next-request, get-bulk-request, or set-request sent by an NMS.
get-bulk-request	Similar to a get-next-request, but this operation fills the get-response with up to the max-repetition number of get-next interactions.
trap	An unsolicited message sent by an SNMP agent to an SNMP manager indicating that an event has occurred.
set-request	Sets the value of a specific variable.

## 10.3 SNMP Capabilities

This section discusses some of the capabilities of SNMP.

### 10.3.1 Community String Support

The SNMP implementation allows the Community String parameter to be configurable for each SNMP manager.

### 10.3.2 Trap Destination Table

For security purposes, the Trap Destination Table cannot be modified through the SNMP interface. It can be modified through the TL1 interface.

### 10.3.3 Enable/Disable SNMP set-request Operations

The SNMP agent provides a parameter to enable or disable the set-request operations. This parameter can be modified only through the TL1 interface.

### 10.3.4 Log

The SNMP agent can manage trap accumulations for up to 1000 events. When the limit has been reached, the log wraps without sending any notification. Every trap is saved into the log file in real time.

## 10.3.5 SNMP Attribute Value Change Notification

The SNMP agent sends an event to all connected SNMP managers to notify them of any changes in the ONS 15216 EDFA3 database.

## 10.3.6 General Software Downloading

Only one download session is permitted at a time (using FTP, TL1, or the SNMP interface). During the download, the SNMP command to start and to apply the cutover is inhibited. The EDFA3 can store and retrieve the two versions of its software on its flash file system (FFS):

- Active (specified in the first boot entry)
- Standby (specified in the second boot entry)

The module firmware download is transparent to the user (the user is not aware of it happening during software download). A checksum test on the downloaded software file is performed to prevent loading the wrong files on the ONS 15216 EDFA3. To activate the download, the user provides the following parameters:

- IP address, user identifier, and password for the FTP server
- Name and path of the file to be downloaded

The agent download is accomplished using FTP protocol, according to this procedure:

1. The agent receives the command to start the download.
2. The agent acts as a FTP client to open a connection to the specified FTP server. The agent returns an error message if the connection fails.
3. The TL1 agent posts the get command to the FTP server and then sends the event to indicate that the download is in progress (ipdownload).
4. Upon successful file transfer, the agent issues a (compldownload) event that indicates the success of the operation.
5. In case of transfer failure or checksum failure, the agent generates an event (failedownload) to notify the ONS 15216 EDFA3 that the download attempt failed.

The agent does not process any other download command during an active download.

The download replaces the software file contained in the secondary boot entry. To activate the new software file a command is used to apply the software cutover in memory and to reset the EDFA3. One event is generated to communicate the software cutover and the EDFA3 reset (cutoverreset) to the ONS 15216 EDFA3.

## 10.4 ONS 15216 EDFA3 Tables and Groups

The cerent15216Edfa.mib contains several key tables that are used to review and provision the ONS 15216 EDFA3. These tables are listed and described in the following sections:

- [10.4.1 CERENT-15216-EDFA-GENERIC-MIB, page 10-8](#)
- [10.4.2 cerent15216EdfaGenericGeneralGroup Table, page 10-9](#)
- [10.4.3 cerent15216EdfaGenericSoftware Table, page 10-10](#)
- [10.4.4 cerent15216EdfaGenericNotifDestn Table, page 10-10](#)

- 10.4.5 [cerent15216EdfaGenericStandingCondns Table](#), page 10-11
- 10.4.6 [cerent15216EdfaGenericEdfa3Group Table](#), page 10-11
- 10.4.7 [cerent15216EdfaGenericEventProfileTable](#), page 10-16
- 10.4.8 [GenericEdfa3MiscGroup](#), page 10-17
- 10.4.9 [GenericOprnsGroup](#), page 10-17

The MIB used in the ONS 15216 EDFA3 contains several key tables and groups. To fully understand and use them, [Table 10-3](#) lists the main object identifier, syntax, access, and description.

**Table 10-3** Standard MIB

MIB Variable	Syntax	Maximum Access	Description
sysDescr	DisplayString (SIZE (0..255))	read-only	A textual description of the entity. This value should include the full name and version identification of the system hardware type, software operating system, and networking software. Modify using TL1.
sysName	DisplayString (SIZE (0..255))	read-write	An administratively assigned name for this managed node. By convention, this is the node's fully qualified domain name. If the name is unknown, the value is the zero-length string. Modify using TL1.
sysLocation	DisplayString (SIZE (0..255))	read-write	The physical location of this node (for example, “telephone closet, 3rd floor”). If the location is unknown, the value is the zero-length string. This can be modified to Longitude and Latitude, separated by a colon.
ifAdminStatus	INTEGER up(1), down(2), testmode(3)	read-write	The desired state of the interface. The testing (3) state indicates that no operational packets can be passed. When a managed system initializes, all interfaces start in the down (2) state. As a result of either explicit management action or configuration information retained by the managed system, ifAdminStatus is then changed to either the up (1) or testing (3) state (or remains in the down (2) state). This can be modified to write up (1) only.

## 10.4.1 CERENT-15216-EDFA-GENERIC-MIB

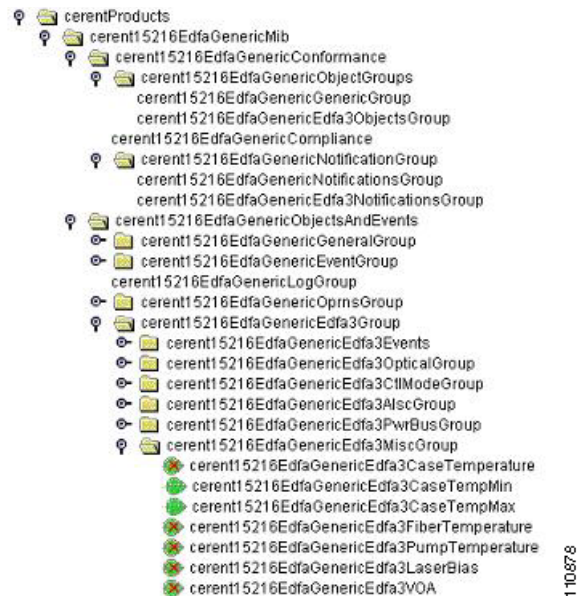
The CERENT-15216-EDFA-GENERIC-MIB is used to set or get ONS 15216 EDFA3 configuration data and operation modes as well as management and performance information. The tree structure of the MIB is shown as [Figure 10-3](#). When there is a plus sign (+) to the left of an entry in this tree structure, the tree can be expanded to reveal branches of the tree as shown in [Figure 10-4](#).

**Figure 10-3** CERENT-15216-EDFA-GENERIC-MIB Generic Structure





Figure 10-4 Cerent Products Main Groups and Tables



## 10.4.2 cerent15216EdfaGenericGeneralGroup Table

The cerent15216EdfaGenericGroup table (Table 10-4) is used to hold generic information.

Table 10-4 cerent15216EdfaGenericGeneralGroup Table

Generic General Variable	Syntax	Maximum Access	Description
cerent15216EdfaGenericEnableNotification	TruthValue	read/write	By setting this object to enable/disable, the management station can turn the notification generation from the device to ON or OFF.
cerent15216EdfaGenericEnableSetRequestProcessing	TruthValue	read only	This object indicates whether the device can be provisioned through the SNMP interface. If set to disable, the device will reject all SNMP set requests. This object cannot be provisioned through the SNMP interface for security reasons.
cerent15216EdfaGenericNodeTime	DateAndTime	read/write	The wall clock time at the device.
cerent15216EdfaGenericSentNotifications	Counter32	read only	A count of SNMPv1 plus SNMPv2 notifications sent out by the agent. The count resets to zero after a cold/warm start. The NMS should use this to detect loss of communication to the ONS 15216 EDFA3.

Table 10-4 *cerent15216EdfaGenericGeneralGroup Table (continued)*

Generic General Variable	Syntax	Maximum Access	Description
cerent15216EdfaGenericIpAddress	IpAddress	read/write	The IP address of the ONS 15216 EDFA3.
cerent15216EdfaGenericIpNetMask	IpAddress	read/write	The network mask used by the ONS 15216 EDFA3.
cerent15216EdfaGenericIpDefaultGateway	IpAddress	read/write	The default gateway used by the ONS 15216 EDFA3.
cerent15216EdfaGenericCleiCode	OCTET STRING (SIZE (0..10))	read-only	The CLEI code assigned to the ONS 15216 EDFA3.

## 10.4.3 cerent15216EdfaGenericSoftware Table

The cerent15216EdfaGenericSoftware table (Table 10-5) is used to store information about the software.

Table 10-5 *cerent15216EdfaGenericSoftware Table*

Generic Software Variable	Syntax	Maximum Access	Description
cerent15216EdfaGenericSoftwareStatus	INTEGER {active(10),standby(20)}	read only	This object indicates the active/standby status of the software load.
cerent15216EdfaGenericSoftwareName	DisplayString	read only	The name of the software load file in the FFS.
cerent15216EdfaGenericSoftwareTimeStamp	DateAndTime	read only	The timestamp that indicates when this software is to be copied to the nonvolatile file system.

## 10.4.4 cerent15216EdfaGenericNotifDestn Table

The cerent15216EdfaGenericNotifDestn table (Table 10-6) is used to hold information about generic notifications. Values in the cerent15215EdfaGenericNotifDestn table can be created only through TL1.

Table 10-6 *cerent15216EdfaGenericNotifDestn Table*

Generic Notification Variable	Syntax	Maximum Access	Description
cerent15216EdfaGenericNotifDestnIpAddr	IpAddress	Not-accessible	—
cerent15216EdfaGenericNotifDestnCommName	OCTET STRING (SIZE (0..64))	read-only	Remote manager community name for security.
cerent15216EdfaGenericNotifDestnPort	Integer32	read-only	Remote manager SNMP trap receive port number. The default is 162. The user can set any value above 2000.

Table 10-6 *cerent15216EdfaGenericNotifDestn Table (continued)*

Generic Notification Variable	Syntax	Maximum Access	Description
cerent15216EdfaGenericNotifDestnVersion	INTEGER { snmpV1(10), snmpV2(20), unknown(1) }	read-only	The SNMP version that the remote manager will receive.
cerent15216EdfaGenericNotifDestnStatus	RowStatus	read-only	From SNMPv2-TC: <ul style="list-style-type: none"> <li>• 1: active</li> <li>• 2: notInService</li> <li>• 3: notReady</li> <li>• 4: createAndGo</li> <li>• 5: createAndWait</li> <li>• 6: destroy</li> </ul>

## 10.4.5 cerent15216EdfaGenericStandingCondN Table

The cerent15216EdfaGenericStandingCondN table (Table 10-7) is used to store information about standing conditions.

Table 10-7 *cerent15216EdfaGenericStandingCond Table*

Standing Condition Variable	Syntax	Maximum Access	Description
cerent15216EdfaGenericStandingCondNTimeStamp	DateAndTime	read-only	The time the trap occurred.
cerent15216EdfaGenericStandingCondNType	OBJECT IDENTIFIER	read-only	The Trap and event OID number.
cerent15216EdfaGenericStandingCondNState	CerentNotificationClass	read-only	The state of the trap or event.
cerent15216EdfaGenericStandingCondNVariableOneOid	OBJECT IDENTIFIER	read-only	Additional OID 1.
cerent15216EdfaGenericStandingCondNVariableOneValue	Integer 32	read-only	Additional Value 1.
cerent15216EdfaGenericStandingCondNVariableTwoOid	OBJECT IDENTIFIER	read-only	Additional OID 2.
cerent15216EdfaGenericStandingCondNVariableTwoValue	Integer 32	read-only	Additional Value 2.

## 10.4.6 cerent15216EdfaGenericEdfa3Group Table

The cerent15216EdfaGenericEdfa3Group table contains five subgroups. The groups are listed in Table 10-8. The groups are outlined in Sections 10.4.6.1 through 10.4.6.4 .

**Table 10-8** *cerent15216EdfaGenericEdfa3Group Tables*

Group	Description
cerent15216EdfaGenericEdfa3OpticalGroup	Contains parameters related to optical input and output lines.
cerent15216EdfaGenericEdfa3CtlModeGroup	Used to retrieve and configure the ONS 15216 EDFA3 operational mode.
cerent15216EdfaGenericEdfa3AlscGroup	Contains amplifier laser status (ALS) and optical safety remote interlock (OSRI) related objects.
cerent15216EdfaGenericEdfa3PwrBusGroup	Contains all power bus related parameters.
cerent15216EdfaGenericEdfa3MBCGroup	Contains all temperature and laser current parameters.

### 10.4.6.1 cerent15216EdfaGenericEdfa3OpticalGroup

The cerent15216EdfaGenericEdfa3OpticalGroup table (Table 10-9) contains parameters related to optical input and output lines.

**Table 10-9** *cerent15216EdfaGenericEdfa3OpticalGroup Table*

Optical Group Variable	Syntax	Maximum Access	Description
cerent15216EdfaGenericEdfa3Line1RxPwr	Integer32 (-600..250) unit 0.1 dBm	read-only	Amplifier input power value related to the LINE1RX port.
cerent15216EdfaGenericEdfa3Line1RxPwrThFailLow	Integer32 (-490..130) unit 0.1 dBm	read-write	Fail low threshold value associated to the input power value related to the LINE1RX port.
cerent15216EdfaGenericEdfa3Line2TxPwr	Integer32 (-600..250) unit 0.1 dBm	read-only	Mid-stage access output power value related to the LINE2TX port.
cerent15216EdfaGenericEdfa3Line2RxPwr	Integer32 (-600..250) unit 0.1 dBm	read-only	Mid-stage access input power value related to the LINE2RX port.
cerent15216EdfaGenericEdfa3Line2RxPwrThFailLow	Integer32 (-490..150) unit 0.1 dBm	read-write	Fail low threshold associated to the input power value related to the port LINE2RX port.
cerent15216EdfaGenericEdfa3Tilt	Integer32 (-150..150) unit 0.1 dB	read-only	The tilt for all wavelengths.
cerent15216EdfaGenericEdfa3TiltSetpoint	Integer32 (-150..150) unit 0.1 dB	read-write	The tilt set point for all wavelengths.

Table 10-9 cerent15216EdfaGenericEdfa3OpticalGroup Table (continued)

Optical Group Variable	Syntax	Maximum Access	Description
cerent15216EdfaGenericEdfa3TiltOffset	Integer32 (-200..200) unit 0.1 dB	read-write	The tilt set offset for all wavelengths. Used to compensate for possible wavelength dependency of an optical component placed at the output of the amplifier.
cerent15216EdfaGenericEdfa3DcuLoss	Integer32 (0..200) unit 0.1 dB	read-only	DCULoss measures the insertion loss of the Dispersion Compensating Unit located between stages.

### 10.4.6.2 cerent15216EdfaGenericEdfa3CtlModeGroup

The cerent15216EdfaGenericEdfa3CtlModeGroup table (Table 10-10) is used to retrieve and configure the EDFA3 operational mode.

Table 10-10 cerent15216EdfaGenericEdfaCtlModeGroup Table

Control Mode Variable	Syntax	Maximum Access	Description
cerent15216EdfaGenericEdfa3ControlMode	Integer { constantOutputPower(1), constantGain(2) }	read-write	There are two control modes.  (1) Constant Output Power mode: In this mode it is possible to set the EDFA3 LINE1TXPwrSetpoint.  (2) Constant Gain mode: In this mode, it is possible to set the GainSetpoint of the whole amplifier. The internal optical module firmware sets the gain of the two stages separately.
cerent15216EdfaGenericEdfa3Line1TxPwr	Integer (-600..250) units 0.1 dBm	read-only	This is the amplifier output power value related to the LINE1TX port.
cerent15216EdfaGenericEdfa3Line1TxPwrThDegLow	Integer32 (-90..150) units 0.1 dBm	read-write	Degrade low threshold associated to the amplifier output power value related to the LINE1TX port. The threshold is only valid when amplifier is used in Constant Output Power mode of operation.

Table 10-10 cerent15216EdfaGenericEdfaCtlModeGroup Table (continued)

Control Mode Variable	Syntax	Maximum Access	Description
cerent15216EdfaGenericEdfa3Line1TxPwrSetpoint	Integer (-70..170) units 0.1 dBm	read-write	Amplifier output power setpoint value related to the LINE1TX Port. The setpoint object is only valid when the amplifier is used in Constant Output Power mode of operation.
cerent15216EdfaGenericEdfa3Line1TxPwrThDegHigh	Integer (-50..190) units 0.1 dBm	read-write	Degrade high threshold associated with the amplifier output power value related to the LINE1TX port. The threshold is only valid when the amplifier is used in Constant Output Power mode of operation.
cerent15216EdfaGenericEdfa3Line1TxPwrThFailLow	Integer32 (-100..140) units 0.1 dBm	read-write	Fail low threshold associated with the output power value related to the LINE1TX port.
cerent15216EdfaGenericEdfa3PwrOffset	Integer32 (-200..200) units 0.1 dB	read-write	The output power offset is the difference between the output power measured at the output photodiode and the output power in the fiber. The power offset includes power losses due to cabling or inserted attenuators.
cerent15216EdfaGenericEdfa3Gain	Integer32 (0..400) units 0.1 dB	read-only	Gain value.
cerent15216EdfaGenericEdfa3GainSetpoint	Integer32 (50..385) units 0.1 dB	read-write	The gain setpoint object is only valid when the amplifier is used in Constant Gain mode of operation.

Table 10-10 cerent15216EdfaGenericEdfaCtlModeGroup Table (continued)

Control Mode Variable	Syntax	Maximum Access	Description
cerent15216EdfaGenericEdfa3GainThDegHigh	Integer32 (0..400) units 0.1 dB	read-write	Degrade high threshold associated with the amplifier gain. The threshold is only valid when the amplifier is used in Constant Gain mode of operation.
cerent15216EdfaGenericEdfa3GainThDegLow	Integer32 (0..400) units 0.1 dB	read-write	Degrade low threshold associated with the amplifier gain. The threshold is only valid when the amplifier is used in Constant Gain mode of operation.

### 10.4.6.3 cerent15216EdfaGenericEdfa3AlscGroup

The cerent15216EdfaGenericEdfa3AlscGroup table (Table 10-11) contains ALS and OSRI related objects.

Table 10-11 cerent15216EdfaGenericEdfa3AlscGroup Table

Variable	Syntax	Maximum Access	Description
cerent15216EdfaGenericEdfa3AmpLaserStatus	INTEGER { off(1), on(2), automaticPwrReduction Mode(3) }	read-only	ALS. There are three possible states. <ul style="list-style-type: none"> <li>On: The two EDFA3 lasers are on.</li> <li>APR: The two lasers are in the Automatic Power Reduction state.</li> <li>Off: The two lasers are off.</li> </ul>
cerent15216EdfaGenericEdfa3Osri	INTEGER { off(1), on(2) }	read-write	OSRI. There are two possible states. <ul style="list-style-type: none"> <li>On: The lasers remain off (that is, it locks the lasers switch on).</li> <li>Off: Default. No lock.</li> </ul>

### 10.4.6.4 cerent15216EdfaGenericEdfa3PwrBusGroup

Table 10-12 describes the variable, syntax, maximum access and description for entries in the cerent15216EdfaGenericEdfa3PwrBus group.

**Table 10-12** *cerent15216EdfaGenericEdfa3PwrBus Group*

Variable	Syntax	Maximum Access	Description
cerent15216EdfaGenericEdfa3PwrBusMode	Integer { simplex (1), duplex (2) }	read-write	Simplex mode requires power only to Bus A. Duplex mode requires power to both Bus A and Bus B.
cerent15216EdfaGenericEdfa3PwrBusAvoltage	Integer (0–9999)	read-only	
cerent15216EdfaGenericEdfa3PwrBus	Integer (0–9999)	read-only	
cerent15216EdfaGenericEdfa3PwrBus	Integer (0–470)	read-write	
cerent15216EdfaGenericEdfa3PwrBus	Integer (490–700)	read-write	

## 10.4.7 cerent15216EdfaGenericEventProfileTable

The cerent15216EdfaGenericEventProfileTable (Table 10-13) is used to retrieve and configure the EDFA3 generic event profile.

**Table 10-13** *cerent15216EdfaGenericEventProfileTable*

Variable	Syntax	Description
cerent15216EdfaGenericEventProfileIndex	Integer32 (1–511)	OID of the events index from 1 to 27.
cerent15216EdfaGenericEventProfileEvent	Object identifier	OID of the event with a profile represented in this row.
cerent15216EdfaGenericEventProfileState	CerentNotification Class	Indicates the class of the event being sent out. Possible values are: <ul style="list-style-type: none"> <li>notReported: Condition not reported as a trap.</li> <li>administrative: Informational trap (for example, IETF trap).</li> <li>notAlarmedNonServiceAffecting: Nonalarmable event that is not service affecting.</li> <li>notAlarmedServiceAffecting: Nonalarmable event that is service affecting.</li> <li>cleared: This alarm has been cleared.</li> <li>minorNonServiceAffectin: Minor and NSA</li> <li>majorNonServiceAffecting: Major and NSA</li> <li>criticalNonServiceAffecting: Critical and NSA</li> <li>minorServiceAffecting: Minor and SA</li> <li>majorServiceAffecting: Major and SA</li> <li>criticalServiceAffecting: Critical and SA</li> <li>other</li> </ul>
cerent15216EdfaGenericEventProfileEvent Inhibit	TruthValue	When the value of this object is false, the event is dispatched as specified in the MIB module. When the value of this object is true, dispatch of this event is inhibited. The default value is false.



## 10.4.8 GenericEdfa3MiscGroup

The GenericEdfa3MiscGroup (Table 10-14) contains the case temperature thresholds.

**Table 10-14** GenericEdfa3MiscGroup

Case Temperature Object	Range Value	Default Value	Access	Description
CaseTempMax	60...100	65 degrees C	RW	Maximum allowable case temperature threshold
CaseTempMin	-10...30	-5 degrees C	RW	Minimum allowable case temperature threshold
Case Temperature	-100...150	—	R	Case temperature
Fiber Temperature	-100...150	—	R	Fiber temperature
Pump One Temperature	-100...150	—	R	Pump 1 temperature
Pump Two Temperature	-100...150	—	R	Pump 2 temperature
Laser 1 Bias	0...1500	—	R	Laser 1 bias
Laser 2 Bias	0...1500	—	R	Laser 2 bias
VOA	-100...100	—	R	VOA value

## 10.4.9 GenericOprnsGroup

Table 10-15 lists the variables, syntax, maximum access, and variable descriptions for the cerent15216EdfaGenericOprns Group.

**Table 10-15** cerent15216EdfaGenericOprns Group

Variable	Syntax	Maximum Access	Description
cerent15216EdfaGenericOprnsMode	INTEGER { idle(1), rebooting(2), applyingCutover(3), downloading(4), savingFile(5)—to remote location from node, restoringFile(6)—from remote location to node }	read-write	When the remote location and the file names are provisioned, setting this value to appropriate mode will commence the selected operation.  ApplyingCutover(3) will download(4) the standby file first, then excise cutover(3)
cerent15216EdfaGenericOprnsOwner	DisplayString	read-write	The management station that intends to commence an operation should set this object to a unique string as the first step. As soon as the operation is complete, the management station should set this back to a null string. This enables multiple management stations to coordinate their operations on this device among themselves

Table 10-15 *cerent15216EdfaGenericOprns Group (continued)*

Variable	Syntax	Maximum Access	Description
cerent15216EdfaGenericOprnsSrcFileLoc	DisplayString	read-write	<p>The fully qualified file name used as the source file in transfer operations. The object is used to specify userid, password, the server IP address (or hostname), and the name of the software file including the full directory path. The format of the data is identical to what is used by HTTP browsers for FTP operations (for example, <code>ftp://loginname:password@ftpserverIPaddress.com/home/directory/filename</code>). Refer to appropriate documentation for more details. The following options are available:</p> <p>4: Download the system and get the file (filename) from the directory of the outside ftp server directly store into standby position.</p> <p>5: (File save) System puts file from the directory /fd1 named from agent file system cerent15216EdfaGenericOprnsDestFileLoc to outside ftp server directory with name from cerent15216EdfaGenericOprnsDestFileLoc .</p> <p>6: (Restore) Agent system gets file as download (4) but stores it on /fd1 as name in cerent15216EdfaGenericOprnsDestFileLoc .</p>

Table 10-15 *cerent15216EdfaGenericOprns Group (continued)*

Variable	Syntax	Maximum Access	Description
cerent15216EdfaGenericOprnsDestFileLoc	DisplayString	read-write	The fully qualified file name used as the destination file in the transfer operations. The object is used to specify the name of the software file including the full directory path, for example, /fd1/destname where the directory fd1 is the node where the file should be copied and destname is the name of the file being copied.
cerent15216EdfaGenericOprnsResult	INTEGER { none(1), success(10), connectionTimeOut(20), fileReadError(30), fileWriteError(40), noStandbySoftware(50) }	read only	This object indicates the end result of the operation. When any of the following objects are changed, the value of this object is reset to none by the SNMP agent. cerent15216EdfaGenericOprnsSrcfileLoc cerent15216EdfaGenericOprnsmode cerent15216EdfaGenericOprnsowner cerent15216EdfaGenericOprnsDestfileLoc As soon as the operation is completed, the resulting status is reflected in this object.

## 10.5 SNMP Traps

Traps are asynchronous notifications sent from the ONS 15216 EDFA3 to a predetermined location (IP address, subnet mask, etc.). A community entry must be created prior to remotely setting up traps using either Telnet or a terminal server.

The ONS 15216 EDFA3 can receive SNMP requests from a number of SNMP managers and can send traps to ten trap receivers. The ONS 15216 EDFA3 generates all alarms and events as SNMP traps which can be sent to a maximum of ten different managers (including ten different IP addresses).

The ONS 15216 EDFA3 generates traps containing an object ID that uniquely identifies the alarm. An entity identifier uniquely identifies the entity that generated the alarm. The traps give the severity of the alarm (critical, major, minor, event, etc.) and indicate whether the alarm is service affecting or non-service affecting. The traps also contain a date/time stamp that shows the date and time when the alarm occurred. The ONS 15216 EDFA3 also generates a trap for each alarm when the alarm condition clears.

Table 10-16 shows the Notification Type and the MIB object for each event notification.

Table 10-16 *Notification Types and the MIB Event Notification Objects*

Notification Type	Priority	SA/NSA	Alarm Description	Additional Info (MIB Object)
cerent15216EdfaGenericEdfa3PwrAlarmBusA	MN	NSA	Power BusA Alarm	cerent15216EdfaGenericEdfa3PwrBusAvoltage
cerent15216EdfaGenericEdfa3PwrAlarmBusB	MN	NSA	Power BusB Alarm	cerent15216EdfaGenericEdfa3PwrBusBvoltage

Table 10-16 Notification Types and the MIB Event Notification Objects (continued)

Notification Type	Priority	SA/NSA	Alarm Description	Additional Info (MIB Object)
cerent15216EdfaGenericEdfa3FreeMemoryOnSystemVeryLow	MN	NSA	Exceeding Memory Capacity	—
cerent15216EdfaGenericEdfa3FFSCapacityVeryLow	MN	NSA	Exceeding FFS Capacity	—
cerent15216EdfaGenericEdfa3EoptFailure	CR	SA	Equipment Failure	—
cerent15216EdfaGenericEdfa3ModuleCommFailure	MJ	NSA	Module Communication Failure	—
cerent15216EdfaGenericEdfa3CaseTempOutOfRange	MN	NSA	Case Temperature Out Of Range	cerent15216EdfaGenericEdfa3CaseTemperature
cerent15216EdfaGenericEdfa3FiberTempOutOfRange	MN	NSA	Fiber Temperature Out Of Range	cerent15216EdfaGenericEdfa3FiberTemperature
cerent15216EdfaGenericEdfa3ExcessivePumpOneTemperature	MN	NSA	Excessive Pump 1 Temperature	cerent15216EdfaGenericEdfa3PumpOneTemperature
cerent15216EdfaGenericEdfa3LaserBiasOneDegrade	MN	NSA	Laser Bias 1 Degrade	cerent15216EdfaGenericEdfa3LaserBiasOne
cerent15216EdfaGenericEdfa3LaserBiasOneFail	MJ	NSA	Laser Bias 1 Fail	cerent15216EdfaGenericEdfa3LaserBiasOne
cerent15216EdfaGenericEdfa3ExcessivePumpTwoTemperature	MN	NSA	Excessive Pump 2 Temperature	cerent15216EdfaGenericEdfa3PumpTwoTemperature
cerent15216EdfaGenericEdfa3LaserBiasTwoDegrade	MN	NSA	Laser Bias 2 Degrade	cerent15216EdfaGenericEdfa3LaserBiasTwo
cerent15216EdfaGenericEdfa3LaserBiasTwoFail	MJ	NSA	Laser Bias 2 Fail	cerent15216EdfaGenericEdfa3LaserBiasTwo
cerent15216EdfaGenericEdfa3PowerFailLowLine1RX	CR	SA	Power Fail Low LINE1RX Port	cerent15216EdfaGenericEdfa3Line1RxPwr cerent15216EdfaGenericEdfa3Line1RxPwrThFailLow
cerent15216EdfaGenericEdfa3GainDegradeHigh	MN	NSA	Gain Degrade High	cerent15216EdfaGenericEdfa3Gain cerent15216EdfaGenericEdfa3GainThDegHigh
cerent15216EdfaGenericEdfa3GainDegradeLow	MN	NSA	Gain Degrade Low	cerent15216EdfaGenericEdfa3Gain cerent15216EdfaGenericEdfa3GainThDegLow
cerent15216EdfaGenericEdfa3PowerFailLowLine1Tx	CR	SA	Power Fail Low LINE1TX Port	cerent15216EdfaGenericEdfa3Line1TxPwr cerent15216EdfaGenericEdfa3Line1TxPwrThFailLow
cerent15216EdfaGenericEdfa3PowerDegradeLowLine1Tx	MN	NSA	Power Degrade Low LINE1TX Port	cerent15216EdfaGenericEdfa3Line1TxPwr cerent15216EdfaGenericEdfa3Line1TxPwrThDegHigh
cerent15216EdfaGenericEdfa3PowerDegradeHighLine1Tx	MN	NSA	Power Degrade High LINE1TX Port	cerent15216EdfaGenericEdfa3Line1TxPwr cerent15216EdfaGenericEdfa3Line1TxPwrThDegHigh

**Table 10-16** Notification Types and the MIB Event Notification Objects (continued)

Notification Type	Priority	SA/NSA	Alarm Description	Additional Info (MIB Object)
cerent15216EdfaGenericEdfa3PwrFailLowLine2Rx	CR	SA	Power Fail Low LINE2RX Port	cerent15216EdfaGenericEdfa3Line2RxPwr cerent15216EdfaGenericEdfa3Line2RxPwrThFailLow
cerent15216EdfaGenericEdfa3VoaDegradeLow	MN	NSA	VOA Degrade Low	cerent15216EdfaGenericEdfa3VOA
cerent15216EdfaGenericEdfa3VoaDegradeHigh	MN	NSA	VOA Degrade High	cerent15216EdfaGenericEdfa3VOA
cerent15216EdfaGenericEdfa3VoaFailHigh	CR	SA	VOA Fail High	cerent15216EdfaGenericEdfa3VOA
cerent15216EdfaGenericEdfa3DataIntegrityFault	MJ	SA	Data Integrity Fault	—
cerent15216EdfaGenericBackupRestoreInProgress	MN	NSA	BackUp Restore In Progress	—

Table 10-17 shows the Notification Type and the MIB object for each alarm notification.

**Table 10-17** Notification Type and the MIB Object for Each Alarm Notification

Notification Type/Object Identity	Priority	Event Description	Additional Info
cerent15216EdfaGenericEdfa3ControlModeChanged	NA	Control Mode Changed	cerent15216EdfaGenericEdfa3ControlMode
cerent15216EdfaGenericEdfa3GainSetpointChanged	NA	Gain Setpoint Changed	cerent15216EdfaGenericEdfa3GainSetpoint
cerent15216EdfaGenericEdfa3GainDegradeLowThresholdChanged	NA	Gain Degrade Low Threshold Changed	cerent15216EdfaGenericEdfa3GainThDegLow
cerent15216EdfaGenericEdfa3GainDegradeHighThresholdChanged	NA	Gain Degrade High Threshold Changed	cerent15216EdfaGenericEdfa3GainThDegHigh
cerent15216EdfaGenericEdfa3OutputPwrOffsetChanged	NA	Output Power Offset Changed	cerent15216EdfaGenericEdfa3PwrOffset
cerent15216EdfaGenericEdfa3PwrsetpointChangedLine1Tx	NA	Power Setpoint Changed Line1 Tx	cerent15216EdfaGenericEdfa3Line1TxPwrSetpoint
cerent15216EdfaGenericEdfa3PwrDegradeLowThresholdChangedLine1Tx	NA	Power Degrade Low Threshold Changed Line1 Tx	cerent15216EdfaGenericEdfa3Line1TxPwrThDegLow
cerent15216EdfaGenericEdfa3PwrDegradeHighThresholdChangedLine1Tx	NA	Power Degrade High Threshold Changed Line1 Tx	cerent15216EdfaGenericEdfa3Line1TxPwrThDegHigh
cerent15216EdfaGenericEdfa3PwrFailLowThresholdChangedLine1Tx	NA	Power Fail Low Threshold Changed Line1 Tx	cerent15216EdfaGenericEdfa3Line1TxPwrThFailLow
cerent15216EdfaGenericEdfa3PwrFailLowThresholdChangedLine1Rx	NA	Power Fail Low Threshold Changed Line1 Rx	cerent15216EdfaGenericEdfa3Line1RxPwrThFailLow

**Table 10-17 Notification Type and the MIB Object for Each Alarm Notification (continued)**

Notification Type/Object Identity	Priority	Event Description	Additional Info
cerent15216EdfaGenericEdfa3PwrFailLowThresholdChangedLine2Rx	NA	Power Fail Low Threshold Changed Line2 Rx	cerent15216EdfaGenericEdfa3Line2RxPwrThFailLow
cerent15216EdfaGenericEdfa3TiltSetpointChanged	NA	Tilt Setpoint Changed	cerent15216EdfaGenericEdfa3TiltSetpoint
cerent15216EdfaGenericEdfa3TiltOffsetChanged	NA	Tilt Offset Changed	cerent15216EdfaGenericEdfa3TiltOffset
cerent15216EdfaGenericEdfa3LaserStatusChanged	NA	Laser Status Changed	cerent15216EdfaGenericEdfa3AmpLaserStatus
cerent15216EdfaGenericEdfa3OsriChanged	NA	OSRI Changed	cerent15216EdfaGenericEdfa3Osri
cerent15216EdfaGenericResetAfterCutover	NA	Reset After Cutover	—
cerent15216EdfaGenericSoftwareReset	NA	Software Reset	—
cerent15216EdfaGenericSoftwareDownloadInProgress	NA	Download in Progress	—
cerent15216EdfaGenericSoftwareDownloadComplete	NA	Download Completed	—
cerent15216EdfaGenericSoftwareDownloadFailed	NA	Download Failure	—
cerent15216EdfaGenericEventProfileChanged	NA	Severity Changed	cerent15216EdfaGenericEventProfileEvent, cerent15216EdfaGenericEventProfileState
cerent15216EdfaGenericEdfa3PwrBusVoltageMaxChanged	NA	Power Bus Max (voltage) Changed	cerent15216EdfaGenericEdfa3PwrBusVoltageMax
cerent15216EdfaGenericEdfa3PwrBusVoltageMinChanged	NA	Power Bus Min (voltage) Changed	cerent15216EdfaGenericEdfa3PwrBusVoltageMin
cerent15216EdfaGenericEdfa3CaseTempMaxChanged	NA	Max Case Temperature Changed	cerent15216EdfaGenericEdfa3CaseTempMax
cerent15216EdfaGenericEdfa3CaseTempMinChanged	NA	Min Case Temperature Changed	cerent15216EdfaGenericEdfa3CaseTempMin

Each SNMP trap contains eleven variable bindings listed in [Table 10-18](#) and [Table 10-19](#) for the ONS 15216 EDFA3.

**Table 10-18 Standard SNMP Trap Variable Bindings for ONS 15216 EDFA3**

Trap	From RFC# MIB	Description
coldStart	RFC1907-MIB	Agent up, cold start <sup>1</sup>
warmStart	RFC1907-MIB	Agent up, warm start

**Table 10-18 Standard SNMP Trap Variable Bindings for ONS 15216 EDFA3 (continued)**

Trap	From RFC# MIB	Description
authenticationFailure	RFC1907-MIB	Community string does not match
entConfigChange	RFC2737/ENTITY-MIB	The entLastChangeTime value has changed

1. A cold start should occur only after the router has become active.

**Table 10-19 TL1 (Other Management) and SNMP Trap Variable Bindings for ONS 15216 EDFA3**

TL1 Condition	SNMP Trap
PWRBUSA	cerent15216EdfaGenericEdfa3PwrAlarmBusA
PWRBUSB	cerent15216EdfaGenericEdfa3PwrAlarmBusB
MEMLOW	cerent15216EdfaGenericEdfa3FreeMemoryOnSystemVeryLow
FFSFULL	cerent15216EdfaGenericEdfa3FFSCapacityVeryLow
EQPT	cerent15216EdfaGenericEdfa3EqptFailure
COMFAIL	cerent15216EdfaGenericEdfa3ModuleCommFailure
CTMP	cerent15216EdfaGenericEdfa3CaseTempOutOfRange
FTMP	cerent15216EdfaGenericEdfa3FiberTempOutOfRange
L1TMP	cerent15216EdfaGenericEdfa3ExcessivePumpOneTemperature
L1BIASD	cerent15216EdfaGenericEdfa3LaserBiasOneDegrade
L1BIASF	cerent15216EdfaGenericEdfa3LaserBiasOneFail
L2TMP	cerent15216EdfaGenericEdfa3ExcessivePumpTwoTemperature
L2BIASD	cerent15216EdfaGenericEdfa3LaserBiasTwoDegrade
L2BIASF	cerent15216EdfaGenericEdfa3LaserBiasTwoFail
LINE1RXPWRFL	cerent15216EdfaGenericEdfa3PwrFailureLowLine1Rx
GAINDH	cerent15216EdfaGenericEdfa3GainDegradeHigh
GAINDL	cerent15216EdfaGenericEdfa3GainDegradeLow
LINE1TXPWRFL	cerent15216EdfaGenericEdfa3PwrFailLowLine1Tx
LINE1TXPWRDH	cerent15216EdfaGenericEdfa3PwrDegradeHighLine1Tx
LINE1TXPWRDL	cerent15216EdfaGenericEdfa3PwrDegradeLowLine1Tx
LINE2RXPWRFL	cerent15216EdfaGenericEdfa3PwrFailLowLine2Rx
VOADH	cerent15216EdfaGenericEdfa3VoaDegradeHigh
VOADL	cerent15216EdfaGenericEdfa3VoaDegradeLow
VOAFH	cerent15216EdfaGenericEdfa3VoaFailHigh
DATAFLT	cerent15216EdfaGenericEdfa3DataIntegrityFault

Table 10-20 reports the mapping between the TL1 and SNMP events.

**Table 10-20 TL1 (other management) and SNMP Events Variable Bindings for ONS 15216 EDFA3**

TL1 Conditions	SNMP Traps
CTRLMODE	cerent15216EdfaGenericEdfa3ControlModeChanged
GAINCHGD	cerent15216EdfaGenericEdfa3GainSetpointChanged
GAINTHDLCHGD	cerent15216EdfaGenericEdfa3GainDegradeLowThresholdChanged
GAINTHDHCHGD	cerent15216EdfaGenericEdfa3GainDegradeHighThresholdChanged
OPOFFSET	cerent15216EdfaGenericEdfa3OutputPwrOffsetChanged
LINE1TXPWRCHGD	cerent15216EdfaGenericEdfa3PwrsetpointChangedLine1Tx
LINE1TXPWRTHDLCHGD	cerent15216EdfaGenericEdfa3PwrDegradeLowThresholdChangedLine1Tx
LINE1TXPWRTHDHCHGD	cerent15216EdfaGenericEdfa3PwrDegradeHighThresholdChangedLine1Tx
LINE1TXPWRTHFLCHGD	cerent15216EdfaGenericEdfa3PwrFailLowThresholdChangedLine1Tx
LINE1RX PWRTHFLCHGD	cerent15216EdfaGenericEdfa3PwrFailLowThresholdChangedLine1Rx
LINE2RX PWRTHFLCHGD	cerent15216EdfaGenericEdfa3PwrFailLowThresholdChangedLine2Rx
TILTCHGD	cerent15216EdfaGenericEdfa3TiltSetpointChanged
TILTOFFSETCHGD	cerent15216EdfaGenericEdfa3TiltOffsetChanged
LASERCHGD	cerent15216EdfaGenericEdfa3LaserStatusChanged
OSRICHGD	cerent15216EdfaGenericEdfa3OsriChanged
CUTOVERRESET	cerent15216EdfaGenericResetAfterCutover
SOFTWARERESET	cerent15216EdfaGenericSoftwareReset
IP (File Transfer Status)	cerent15216EdfaGenericSoftwareDownloadInProgress
COMPLD (File Transfer Status) SUCCES (File Transfer Result)	cerent15216EdfaGenericSoftwareDownloadComplete
COMPLD (File Transfer Status) FAILURE (File Transfer Result)	cerent15216EdfaGenericSoftwareDownloadFailed

All sent traps are saved to the log file for operator viewing. The log file stores up to 1024 traps and events. The SNMP agent will save or clear some important traps and event statuses for the manager of system operations.

## 10.6 SNMP Generic Objects

The SNMP agent provides the following functionality:

- Retrieve and configure ONS 15216 EDFA3 parameters ([Table 10-21](#))
- Retrieve inventory parameter ([Table 10-22](#))



**Table 10-21 Retrieve and Configure Parameters**

Parameter Default Value	Access	Description	Notes
0.0.0.0	RW	IP Address	—
255.255.255.255	RW	IP Mask	—
0.0.0.0	RW	Default Gateway	—
—	R	Mac Address	—
Null string	RW	Host Name <sup>1</sup>	According to sysName (RFC1213) size.
Null string	R	Description	According to sysDescr (RFC1213). The default value is ONS 15216 EDFA3.
Null string	RW	Latitude	A string with a maximum length of 15 characters.
Null string	RW	Longitude	A string with a maximum length of 15 characters.

1. The SNMP parameter Host Name corresponds to the TL1 NAME parameter (the system sid/tid name). The TL1 NAME parameter only shows the first 20 characters.

**Table 10-22 ONS 15216 EDFA3 Inventory Parameters**

Parameter Default Value	Access	Description	Notes
Null string	R	CLEI code	A string with a maximum length of 10 characters.
Null string	R	Hardware revision number	A string with a maximum length of 10 characters.
Null string	R	Firmware revision number	A string with a maximum length of 10 characters.
Null string	R	Software revision number	A string with a maximum length of 10 characters.
Null string	R	Software update date	A string with a maximum length of 20 characters. The format is <date> <time> (for example, 2003-03-13 05:44:06).
Null string	R	System serial number	A string with a maximum length of 20 characters.
Null string	R	Manufacturer name	A string with a maximum length of 15 characters.
Null string	R	Model name	A string with a maximum length of 15 characters.

## 10.7 SNMP Specific Objects

The following objects are used to configure the ONS 15216 EDFA3 optical and the Power Bus Voltage parameters.

- [10.7.1 OpticalParamCfgGroup](#), page 10-26
- [10.7.2 ControlModeCfgGroup](#), page 10-26
- [10.7.3 ALSCfgGroup](#), page 10-28
- [10.7.4 PwrBusVoltageCfgGroup](#), page 10-28

## 10.7.1 OpticalParamCfgGroup

The OpticalParamCfgGroup (Table 10-23) is used to retrieve and configure the optical parameters.

**Table 10-23** OpticalParamCfgGroup

Optical Parameter Object	Range Value	Default Value	Access	Description
LINE1RXPwr	-60 to 25dBm	—	R	Amplifier input power value related to the LINE1RX Port.
LINE1RXPwrTHFailLow	-49 to 13dBm	10 dBm	RW	Fail low threshold associated with the input power value related to the LINE1RX port.
LINE2TXPwr	-60 to 25dBm	—	R	Mid-stage access output power value related to the LINE2TX port.
LINE2RXPwr	-60 to 25dBm	—	R	Mid-stage access input power value related to the LINE2RX port.
LINE2RXPwrTHFailLow	-49 to 15dBm	-33 dBm	RW	Fail low threshold associated with the mid-stage access input power related to the LINE2RX port.
Tilt	-15 to 15dB	—	R	Tilt value.
TiltSetpoint	-15 to 15dB	0 dB	RW	Tilt setpoint.
TiltOffset	-20 to 20dB	0 dB	RW	Tilt offset, used to compensate for possible wavelength dependency of optical component placed at the output of the amplifier.
DCULoss	0 to 20dB	—	R	Measures the insertion loss of the DCU inserted in the mid-stage.

## 10.7.2 ControlModeCfgGroup

The ControlModeCfgGroup (Table 10-24) is used to retrieve and configure the EDFA3 operational mode:

- Constant Output Power mode: The EDFA3 LINE1TXPwrSetpoint can be set.
- Constant Gain mode: The gain setpoint of the entire amplifier can be set.

The internal optical module firmware sets the gain of the two stages separately.

**Table 10-24** ControlModeCfgGroup

Control Mode Object	Range Value	Default Value	Access	Description
ControlMode	Constant Output Power, Constant Gain	Constant Gain	RW	Amplifier control mode.
LINE1TXPwr	-60 to 25 dBm	—	R	Amplifier output power value related to the LINE1TX port.

Table 10-24 ControlModeCfgGroup (continued)

Control Mode Object	Range Value	Default Value	Access	Description
LINE1TXPwrSetpoint	-7 to 17 dBm	10 dBm	RW	Amplifier output power setpoint value related to the LINE1TX port. The setpoint object is only valid when the amplifier is used in Constant Output Power mode of operation. The LINE1TXPwrSetpoint must also be set to be compatible with the setting of the LINE1TXPwrTHFailLow threshold in accordance with the following relationship: $(\text{LINE1TXPwrTHFailLow} + 3\text{dBm}) \leq \text{LINE1TXPwrSetpoint} \leq (+17\text{dBm})$ . This means that the LINE1TXPwrSetpoint must always be set at least 3dBm above the value set for the LINE1TXPwrTHFailLow threshold.(but not above +17dBm)
LINE1TXPwrTHDegHigh	-5 to 19 dBm	LINE1TXPwrSetpoint + 2 dB	RW	Degrade high threshold value associated with the amplifier output power value related to the LINE1TX port. The threshold is only valid when the amplifier is used in Constant Output Power mode of operation.
LINE1TXPwrTHDegLow	-9 to 15 dBm	LINE1TXPwrSetpoint - 2 dB	RW	Degrade low threshold associated with the amplifier output power value related to the LINE1TX port. The threshold is only valid when the amplifier is used in Constant Output Power mode of operation.
LINE1TXPwrTHFailLow	-10 to 14 dBm	-6	RW	Fail low threshold associated with the output power value related to the LINE1TX port. The acceptable setting range for the LINE1TXPwrTHFailLow threshold varies as a function of the LINE1TXPwrSetpoint with the following relationship: $(-10\text{dBm}) \leq \text{LINE1TXPwrTHFailLow} \leq (\text{LINE1TXPwrSetpoint} - 3\text{dBm})$ . Therefore the LINE1TXPwrTHFailLow threshold must always be set at least 3dBm below the set point of LINE1TXPwrSetpoint (but not below -10dBm). For example, the maximum 14dBm LINE1TXPwrTHFailLow threshold can only be set when the set point for LINE1TXPwrSetpoint is also set to it's maximum value of 17dBm.
PowerOffset	-20 to 20 dB	0	RW	Output power offset is the difference between the output power measured at output photodiode and the output power in the fiber. The power offset includes power losses due to cabling or inserted attenuators.
Gain	0 to 40 dB	—	R	Gain value.

Table 10-24 ControlModeCfgGroup (continued)

Control Mode Object	Range Value	Default Value	Access	Description
GainSetpoint	5 to 38.5 dB	21 dB	RW	Gain setpoint. The setpoint object is valid only when the amplifier is used in Constant Gain mode of operation.
GainTHDegHigh	0 to 40 dB	GainSetpoint + 2dB	RW	Degrade high threshold associated with the amplifier gain. The threshold is only valid when the amplifier is used in Constant Gain mode of operation.
GainTHDegLow	0 to 40 dB	GainSetpoint – 2dB	RW	Degrade low threshold associated to the amplifier gain. The threshold is only valid when the amplifier is used in Constant Gain mode of operation.

## 10.7.3 ALSCfgGroup

The ALSCfgGroup (Table 10-25) is used to configure the ALS parameter.

Table 10-25 ALSCfgGroup

Configuration Object	Range Value	Default Value	Access	Description
LaserStatus3	On, APR, Off	Off	R	ALS. There are three possible states. <ul style="list-style-type: none"> <li>On: The two EDFA3 lasers are on.</li> <li>APR: The two lasers are in the Automatic Power Reduction state.</li> <li>Off: The two lasers are off.</li> </ul>
OSRI	On, Off	Off	RW	OSRI. There are two possible states. <ul style="list-style-type: none"> <li>On: The lasers remain off (that is, the laser switch is locked on).</li> <li>Off: Default. No lock.</li> </ul>

## 10.7.4 PwrBusVoltageCfgGroup

The PwrBusVoltageCfgGroup is used to configure the power bus parameter.


**Note**

If both PWRA and PWRB are active, it is not possible to change from duplex to simplex mode.