SNMP for EM316LNXNM-OT

Supplemental: Configuration and Reference

Fiber Driver Optical Multi-Service Platform

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1.1. Introduction

1.1.1. SNMP

Simple Network Management Protocol (SNMP) is an industry standard application layer protocol used for monitoring and controlling network devices. SNMP is built on the UDP transport protocol, which is efficient but does not inherrently guarantee packet delivery. However, newer SNMP v3 includes some reliable messaging with acknowlegements.

SNMP typically uses a software "agent" at each managed device to collect and share information about the device on the network. Some devices have capabilities that may also be remotely controlled through the agent software by SNMP commands. Network management systems (NMS) such as MRV's MegaVision can collect information from these standard SNMP agents throughout a network.

The Fiber Driver product line from MRV Communications uses a network management module to connect each manageable network node (chassis) to an IP network. The EM316LNXNM-OT (LNXNM-OT) is a plug-and-play management device that begins operating when the host chassis is powered on and connected to the network. It provides a command line interface (CLI) as well as SNMP support to enhance the functionality of networking modules in the host chassis. To ensure proper operation specific to your network configuration and to provide SNMP access, some initial environment-specific parameters must be configured through the CLI. Refer to LNXNM-OT documentation for setup and operation details.

The LNXNM-OT is designed specifically for the Fiber Driver product line. The module includes two SFP ports for additional network access options.

1.1.2. In This Document

This manual covers SNMP access to the LNXNM-OT management module through management information base (MIB) files. Two of these MIBs are specific to Fiber Driver and discussed in this document. The first MIB file is static, which has always been supported by MRV. The objects in the MIB file (see below) allow configuration of common features of the LNXNM-OT management module. The second "MetaMIB" file provides objects to configure the LNXNM-OT features not accessed by the MIB file objects. The main difference between static and dynamic SNMP is the number of objects returned to the user. Using static SNMP, each MIB object corresponds directly with an object in the chassis. In contrast, the MetaMIB only keeps track of hardware elements (chassis, slot, or port) that support specific objects. The MetaMIB limits excess unsupported objects returned to the user.

1.2. MIB Files

Management Information Base (MIB) structure and values are defined in files for Fiber Driver and MegaVision. The file names are shown in the table below:

	Main MIB	Meta MIB
Fiber Driver	cmmc.mib	nbs-meta.mib
MegaVision	cmmc.mib	nbs-meta.mib

The name of the MIB file is not important; all files in the MIB directory are used.

To ensure the best SNMP access, use the MIB files provided for the specific software release used in your system.

MIB files may be obtained through MRV customer support (http://service.mrv.com/support/index.cfm). Email and phone contact information is provided at http://www.mrv.com and in the product manuals.

1.3. Object Name Convention

The SNMP traps begin with the common string "nbsCmmc" for historical MRV product support. This convention is not expected to change.

1.4. SNMP Enable and Disable

Users can enable and disable SNMP v1/v2c/v3 agents using the following commands:

Enable

- "**snmp-server (v1|v2c|v3)**"

Disable

- "**no snmp-server (v1|v2c|v3)**"

For improved security, turn off SNMP v1 and v2c. Also, always change the community strings from the default values.

1.5. SNMPv1/v2c Setup

1. Set up the SNMP community strings for read and write access using the commands shown below. For security reasons, the "**show**" commands do not display the community strings. Community strings are encrypted in the "**show running-config**" command for security. The default community strings for "read" and "write" are **public** and **private**, respectively.

```
fiberdriver(config)# snmp-server community read readSecret
fiberdriver(config)# snmp-server community write writeSecret
fiberdriver(config)#
```

2. Configure the SNMP trap receiver table. Add the IP addresses of each network manager station that should receive traps from the SNMP agent.

```
fiberdriver(config)# snmp-server host 169.254.192.117
fiberdriver(config)# show snmp-server hosts
snmp-server host 169.254.192.117 public warning
fiberdriver(config)#
```

3. SNMP traps are sent to address listed in the trap receiver table. Each receiving device must include management capabilities to interpret SNMP traps. MRV recommends MegaVision, which includes special support for Fiber Driver graphical management. In MegaVision, open the trap receiver table with the "System-->IP/SNMP Configuration" menu selection. SNMP traps are sent to nework management systems (NMS) like MegaVision that support SNMP. SNMP NMS IP addresses are entered into the traps table through the "System —> IP/SNMP Configuration" windows in MegaVision.

4. Some example traps from the EM316LNXNM are listed below:
   - Chassis temperature outside pre-determined safe operational limits
   - Power supply failure
   - Fan failure (certain chassis)
   - Hardware or software malfunctions
   - Informational occurrences (module specific)
   - Change in link status (link up, link down)
   - Change in slot inventory (module removed or inserted)

- Change in port inventory (pluggable port removed or inserted)

For a complete list, see the SNMP Trap Reference section.

5. Completely disable trap generation by removing all IP addresses from the SNMP trap table:

```
fiberdriver(config)# no snmp-server host
fiberdriver(config)#
```

Selectively disable specific traps types with the "**no gen-trap**" command, found in the chassis 1 config context:

```
fiberdriver(chassis/1)# no gen-trap chassis
fiberdriver(chassis/1)# no gen-trap lin
fiberdriver(chassis/1)# no gen-trap link
fiberdriver(chassis/1)# no gen-trap loopback
fiberdriver(chassis/1)# show
        Model: EM316-16BU
         Name: EM316-16
      Temp(C): 23
  Temp Min(C): 5
Temp Limit(C): 50

PS1: DC Bad
PS2: AC Good

Fan1: good  Fan3: good
Fan2: good  Fan4: not Installed

Chassis Traps: off  Slot Change Traps: on   Module Specific Traps: on
   Port Traps: on          Link Traps: off         Loopback Traps: off
    LIN Traps: off  Port Change Traps: on        Port Diags Traps: on

Number Of Slots: 16

Slot  Model          Name
====  =============  ============================
1.3   EM316-LNXNM12  Slot 1 (EM316-LNXNM12 at 1.3)
fiberdriver(chassis/1)#
```

1.6. SNMPv3 Setup

(This section assumes familiarity with SNMPv3 concepts.)

You can create an SNMPv3 user with authentication ("auth") or athentication+privilege ("auth/priv") level security.

Use "**`snmp-server user`**" commands to create the users.

You can use MegaVision SNMPv3 features to communicate with the device. The passwords used in user creation must be at least 8 characters long. SNMPv3 passwords are stored encrypted. The LNXNM MAC address (which is different for every NM) is used to encrypt the passwords. For this reason, it is required to recreate the SNMPv3 passwords when a configuration file containing SNMPv3 passwords is moved from one NM to another NM.

Example: The following commands create some SNMPv3 users.

```
fiberdriver(config)# snmp-server user fdrNoAuth
fiberdriver(config)# snmp-server user fdrMd5Auth auth md5 open-sesame
fiberdriver(config)# snmp-server user fdrMd5Priv auth md5 open-sesame priv
des close-sesame
fiberdriver(config)# snmp-server user fdrShaAuth auth sha open-sesame
fiberdriver(config)# snmp-server user fdrShaPriv auth sha open-sesame priv
des close-sesame
fiberdriver(config)#
```

In the above commands, "*`open-sesame`*" and "*`close-sesame`*" are passwords and usernames start with "fdr".

Authentication may be set to MD5 or SHA. Privacy may be set to DES only.

1.7. SNMP Traps

The LNXNM can display log messages to a CLI terminal, send syslog messages, and send SNMP traps in response to certain conditions detected by the system. The default sensitivity levels for message logging (shown below) are sufficient for normal operation.

```
fiberdriver(config)# log level trap ?
  alarm      Set log threshold to alarm - similar to LOG_Warning (4)
  error       Set log threshold to LOG_ERR (3)
  fatal        Set log threshold to LOG_EMERG (0)
  warning   Set log threshold to LOG_WARNING (4)
fiberdriver(config)# log level trap
```

An event can cause an SNMP trap to one or more remote SNMP managers, which allows a network administrator to receive immediate error notification. To specify an SNMP trap manager address, use the "**`snmp-server host`**" command. To change the default setting for trap message level, use the "**`log level trap`**" command.

```
fiberdriver(config)# snmp-server host 169.254.1.100
fiberdriver(config)# snmp-server host 169.254.1.101
fiberdriver(config)# show snmp-server hosts
snmp-server host 169.254.1.100 public warning
snmp-server host 169.254.1.101 public warning

fiberdriver(config)# log level trap error
fiberdriver(config)# show log
 Running Level: info
 Nvram Level: disabled
 Trap Level: error
 Email Level: disabled
 Remote Server: 0.0.0.0
 Remote Level: memo
fiberdriver(config)#
```

"**`info`**" and "**`memo`**" levels are not available for traps. "**`warning`**" is the lowest priority available for traps.

1.8. SNMP and Trap Ports

The default network port for SNMP **`get`** or **`set`** is 161. The default SNMP trap port is 162. These ports may be changed to resolve system configuration conflicts or to improve security.

```
fiberdriver(config)# snmp-server port 150
fiberdriver(config)# snmp-server trap-port 140

fiberdriver(config)# show snmp-server
Administrative configuration:
 Snmp V1: disabled
 Snmp V2c: disabled
 Snmp V3: disabled
 Power Supply Traps: enabled
 Module Traps: enabled
 Snmp Port desired: 150
 Trap Port desired: 140
 SysContact:
 SysName:
 SysLocation:
Current operating configuration:
 Snmp Port: 161
 Trap Port: 162
fiberdriver(config)#
```

In the example above, note that the "Snmp Port desired" changes to the values from the commands issued a few lines above. These changes are not active until system changes are written to the configuration file.

The "Current operating configuration" values keep the previous values until the changes are saved and the system is restarted as shown below:

```
fiberdriver(config)# write file
fiberdriver(config)# exit
fiberdriver# restart warm
```

After restarting, the desired ports listed above become the active ports as shown below:

```
fiberdriver# show snmp-server
Administrative configuration:
 Snmp V1: disabled
 Snmp V2c: disabled
 Snmp V3: disabled
 Power Supply Traps: enabled
 Module Traps: enabled
 Snmp Port desired: 150
 Trap Port desired: 140
 SysContact:
 SysName:
 SysLocation:
Current operating configuration:
 Snmp Port: 150
 Trap Port: 140
fiberdriver#
```

1.9. UNIX Commands: Walk, Get, Set

The following examples illustrate the basic **get**, **set**, and **walk** commands for SNMP in the UNIX (Linux) environment. Use the MIB file appropriate to your application. (see section "MIB Files" above)

```
$ snmpget -c public -m ./cmmc.mib 192.168.14.201
nbsCmmcPortZoneIfIndexAdmin.1.2.1

NBS-CMMC-MIB::nbsCmmcPortZoneIfIndexAdmin.1.2.1 = INTEGER: 102002
```

```
$ snmpset -c private -m ./cmmc.mib 192.168.14.201
nbsCmmcPortZoneIfIndexAdmin.1.2.1 i 102003

NBS-CMMC-MIB::nbsCmmcPortZoneIfIndexAdmin.1.2.1 = INTEGER: 102003
```

```
$ snmpwalk -c public -m ./cmmc.mib 192.168.14.201 .

NBS-CMMC-MIB::nbsCmmcPortZoneIfIndexOper.1.1.1 = INTEGER: 101002
NBS-CMMC-MIB::nbsCmmcPortZoneIfIndexOper.1.1.2 = INTEGER: 101001
NBS-CMMC-MIB::nbsCmmcPortZoneIfIndexOper.1.1.3 = INTEGER: 101004
NBS-CMMC-MIB::nbsCmmcPortZoneIfIndexOper.1.1.4 = INTEGER: 101003
NBS-CMMC-MIB::nbsCmmcPortZoneIfIndexOper.1.1.5 = INTEGER: 101006
NBS-CMMC-MIB::nbsCmmcPortZoneIfIndexOper.1.1.6 = INTEGER: 101005
NBS-CMMC-MIB::nbsCmmcPortZoneIfIndexOper.1.1.7 = INTEGER: 101008
NBS-CMMC-MIB::nbsCmmcPortZoneIfIndexOper.1.1.8 = INTEGER: 101007
NBS-CMMC-MIB::nbsCmmcPortZoneIfIndexOper.1.1.9 = INTEGER: 101010
NBS-CMMC-MIB::nbsCmmcPortZoneIfIndexOper.1.1.10 = INTEGER: 101009
NBS-CMMC-MIB::nbsCmmcPortZoneIfIndexOper.1.1.11 = INTEGER: 101012
    Too much to show
```

** The output for the **walk** command above is truncated because the full display is too long for this printed format.**

1.10. Dynamic SNMP Information (MetaMIB)

The MetaMIB is an extension to the MIB architecture used by the Fiber Driver. Instead of relying on static objects, the MetaMIB dynamically builds objects for the system.

1.10.1. Usage

The Meta-MIB is not included in the standard MIB `"cmmc.mib"` file. It is in the file named `"nbs-meta.mib"`. The Meta-MIB requires that the MIB search path always includes the standard MIB.

The MetaMIB is divided into two portions. The first portion inlcudes the available features covered by the MetaMIB. The second portion includes MetaMIB usage on the Fiber Driver system in use.

1.10.2. Features Table

MetaMIB Object	Description
metaMibFeatureTableSize	Returns how many MetaMIB features are available.
metaMibFeatureID.X	Returns the ID of MetaMIB feature X.
metaMibFeatureFamily.X	Returns what family MetaMIB feature X is a part of.
metaMibFeatureName.X	Returns what name MetaMIB feature X uses.
metaMibFeatureDesc.X	Returns the full description of MetaMIB feature X.
metaMibFeatureUnits.X	Returns the type of unit MetaMIB feature X uses. (optional)
metaMibFeatureType.X	Returns the MetaMIB feature type: • Enumeration • String • Octet String • Integer • Float
metaMibFeatureOID.X	Returns a unique ID string for this feature. This remains fixed for the life of the product.

In the table above there is a variable X which refers to a specific feature. When traversing the metaMibFeature* table, you can tie together a features attributes by using the .X notation. For example to get feature #10’s name and description, use metaMibFeatureName.10 and metaMibFeatureDesc.10.

1.10.3. Dynamic Element Parameters

MetaMIB Object	Description
metaMibVariableTableSize	Returns how many MetaMIB objects currently in use on the Fiber Driver
metaMibVariableIfIndex.X.Y	Returns the interface index: X
metaMibVariableID.X.Y	Returns the MetaMIB object ID (Y) used in the features table for this variable object
metaMibVariableCaps.X.Y	Returns a list of comma separated strings that indicate the type of values this variable supports. Ranges and string lengths are expressed as a two item list: MIN, MAX. A zero length string indicates that this variable is read-only.
metaMibVariableDefault.X.Y	Returns the default value of this variable.
metaMibVariableJumper.X.Y	Returns the jumper settings of this variable. If the object does not have a jumper for this feature: • It will report 'N/A' if metaMibVariableType is string. • It will be zero length otherwise. When read, a zero length string is valid if Type is string. Note this is not used by the Media Cross Connect.
metaMibVariableOper.X.Y	Returns the current operational value for this variable. If the object cannot report the current operational value: • It will report 'N/A' if **`metaMibVariableType`** is string. • It will be zero length otherwise. • If Caps reports non-zero length, this variable is write-only due to hardware limitations. When read, a zero length string is valid if Type is string.
metaMibVariableAdmin.X.Y	Returns the current administrative value of this variable. If the Administrative value cannot be set for this variable, Caps is zero-length and it reports a zero length string. Writing zero length values is rejected unless Type is string and Caps permits it. When read, a zero length string is valid if Type is string.
metaMibVariableStatus.X.Y	Returns any messages relating to this variable.

In the preceeding table, X is the interface index of a port in the form CSSPPP. C is the chassis number, SS is the 2-digit slot number (00-10), and PPP is the 3-digit port number (000-100). To target a slot, the PPP field should be empty. To target a chassis, both the SS and the PPP fields should be empty. For example, index notation for port 1.2.3 is 102003 and slot 1.2 is 102000.

In the preceeding table, Y is the element's feature ID. For example, if the MetaMIB object ends with 102003.12 then the port 1.2.3 has feature ID #12.

1.10.4. MetaMIB Objects (MCC ONLY)

Currently the Media Cross Connect product line uses only a few MetaMIB objects.

The first set of objects are part of the "Voltage Monitor" family and have to do with voltage readings on the back plane of the new NC316-144PMC-8X chassis:

1. Voltage Slot 1 (metaMibFeatureOID = 3.1.0)
2. Voltage Backplane & Slot 2 (metaMibFeatureOID = 3.1.1)
3. Voltage Slot 3 (metaMibFeatureOID = 3.1.2)
4. Voltage Slot 4 (metaMibFeatureOID = 3.1.3)
5. Voltage NM (metaMibFeatureOID = 3.1.4)

The second set of objects are part of the "SATA/SAS Cu SFP" family for configuring the SFP-SATA-SAS-HT and SFP-SATA-SAS-DR SFPs:

1. Equalization (metaMibFeatureOID = 1.1.0)
2. De-emphasis (metaMibFeatureOID = 1.2.0)
3. Swing (metaMibFeatureOID = 1.3.0)

The third set of objects are part of the "Fiber Config on RJ45 Port" family for configuring fiber options on the EMPMC-36RJ-C blade:

1. Fiber Mode (metaMibFeatureOID = 1.5.0)
2. Fiber Speed (metaMibFeatureOID = 1.5.1)
3. Fiber Auto-Negotiation (metaMibFeatureOID = 1.5.2)

1.10.5. Example MetaMIB Session - get

First, do an SNMP walk on the entire Fiber Driver being used. From there, find the object that you wish to configure. For simplicity, use the "metaMibFeatureOID" of your target object to find the ID for configuration. For example, to find the equalization value on an SFP-SATA-SAS-HT SFP, search for "metaMibFeatureOID" that is set to 1.1.0.

Below is a truncated version of an SNMP walk on a chassis focusing on the equalization feature; other features are ignored.

```
$  snmpwalk –c public –v 1 -m ./nbs-meta.mib 192.168.14.201 metaMib
NBS-META-MIB::metaMibFeatureTableSize.0 = INTEGER: 24
NBS-META-MIB::metaMibFeatureID.11 = Gauge32: 11
NBS-META-MIB::metaMibFeatureFamily.11 = STRING: SATA/SAS Cu SFP
NBS-META-MIB::metaMibFeatureName.11 = STRING: Equalization
NBS-META-MIB::metaMibFeatureDesc.11 = STRING: Input Equalization
NBS-META-MIB::metaMibFeatureUnits.11 = STRING:
NBS-META-MIB::metaMibFeatureType.11 = INTEGER: enum(1)
NBS-META-MIB::metaMibFeatureOID.11 = STRING: 1.1.0
NBS-META-MIB::metaMibVariableTableSize.0 = INTEGER: 8
NBS-META-MIB::metaMibVariableIfIndex.104001.11 = Gauge32: 104001
NBS-META-MIB::metaMibVariableID.104001.11 = Gauge32: 11
NBS-META-MIB::metaMibVariableCaps.104001.11 = STRING: disabled,low,medium,high
NBS-META-MIB::metaMibVariableDefault.104001.11 = STRING: disabled
NBS-META-MIB::metaMibVariableJumper.104001.11 = STRING:
NBS-META-MIB::metaMibVariableOper.104001.11 = STRING:
NBS-META-MIB::metaMibVariableAdmin.104001.11 = STRING: disabled
NBS-META-MIB::metaMibVariableStatus.104001.11 = STRING:
```

The line "NBS-META-MIB::metaMibFeatureOID.11 = STRING: 1.1.0" gives us what we need. We match 1.1.0 with feature 11. Now in the metaMibVariable* section we can use CSSPPP.11 to find all of the relevant information on equalization.

To get specific information on a port, use the relevant MIB object (in the current example, we can use #11) on a port with the desired feature. For example to just get the administrative status of equalization on port 1.4.1 use the example below.

```
$  snmpget –c public –v 1 -m ./nbs-meta.mib 192.168.14.201
  metaMibVariableAdmin.104001.11
NBS-META-MIB::metaMibVariableAdmin.104001.11 = STRING: disabled
```

1.10.6. Example MetaMIB Session - set

It is suggested to follow the steps in the previous section to figure out what objects are available to be changed on the system. After figuring out which object to configure, use the MetaMIB object "metaMibVariableAdmin" to change the value.

For example using the equalization object from the previous section, we can change the value from "disabled" to "medium". We know "medium" is an available option by looking at what was returned from "metaMibVariableCaps.104001.11" and "metaMibFeatureType.11". The values returned were "disabled, low, medium and high" and "enum" respectively. This means the MetaMIB object is an enumeration with the available options: disabled, low, medium and high.

```
$  snmpset –c private –v 1 -m ./nbs-meta.mib 192.168.14.201
  metaMibVariableAdmin.104001.11 s medium
NBS-META-MIB::metaMibVariableAdmin.104001.11 = STRING: medium
```

Chapter 2. SNMP References

2.1. SNMP Trap Reference

2.1.1. nbsCmmcTrapDeviceRebooted

Sent after device boots up. The cause of the last shutdown is indicated in nbsCmmcTrapShutdownReason. This Notification should be of Severity FATAL.

Log message format: `Device Rebooted, Shutdown Reason: <ShutdownReason>`

Table 2.1. nbsCmmcTrapDeviceRebooted Enables

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.2. nbsCmmcTrapDeviceRebooted Variables

Variable	Description
TrapLastMessage	The last message sent by the system
TrapShutdownReason	The reason for the last system shutdown

2.1.2. nbsCmmcTrapDeviceOnline

Sent when device detects restoration of network communications. This Notification should be of Severity WARNING.

Log message format: `Device Online`

Table 2.3. nbsCmmcTrapDeviceOnline Enables

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.4. nbsCmmcTrapDeviceOnline Variables

Variable	Description
TrapLastMessage	The last message sent by the system

2.1.3. nbsCmmcTrapDeviceShuttingDown

Sent just before device shuts itself down. Reason for shutdown is indicated in nbsCmmcTrapShutdownReason. This Notification should be of Severity FATAL.

Log message format: `Device Shutting Down, Shutdown Reason: <ShutdownReason>`

Table 2.5. nbsCmmcTrapDeviceShuttingDown Enables

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.6. nbsCmmcTrapDeviceShuttingDown Variables

Variable	Description
TrapLastMessage	The last message sent by the system
TrapShutdownReason	The reason for the last system shutdown

2.1.4. nbsCmmcTrapPowerSupplyFailure

Unique trap for power supply failure events. This Notification should be of Severity ERROR.

Log message format: `Chassis x Power Supply Failure, Power Supply Id: <PowerSupplyId>`

Table 2.7. nbsCmmcTrapPowerSupplyFailure Enables

SNMP MIB object	Node	CLI command
ChassisEnableChassisTraps	Chassis	**gen-trap chassis**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.8. nbsCmmcTrapPowerSupplyFailure Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
TrapPowerSupplyId	ID of the power supply
ChassisName	The user assigned name for this chassis

2.1.5. nbsCmmcTrapPowerSupplyRestored

Sent when power supply starts working again. This Notification should be of Severity ERROR.

Log message format: `Chassis x Power Supply Restored, Power Supply Id: <PowerSupplyId>`

Table 2.9. nbsCmmcTrapPowerSupplyRestored Enables

SNMP MIB object	Node	CLI command
ChassisEnableChassisTraps	Chassis	**gen-trap chassis**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.10. nbsCmmcTrapPowerSupplyRestored Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.

Variable	Description
TrapPowerSupplyId	ID of the power supply
ChassisName	The user assigned name for this chassis

2.1.6. nbsCmmcTrapFanFailure

Unique trap for fan failure events. This Notification should be of Severity WARNING.

Log message format: `Chassis x Fan Failure, Fan Id: <FanId>`

Table 2.11. nbsCmmcTrapFanFailure Enables

SNMP MIB object	Node	CLI command
ChassisEnableChassisTraps	Chassis	**gen-trap chassis**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.12. nbsCmmcTrapFanFailure Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
TrapFanId	ID of the fan
ChassisName	The user assigned name for this chassis

2.1.7. nbsCmmcTrapFanRestored

Sent when fan starts working again. This Notification should be of Severity WARNING.

Log message format: `Chassis x Fan Restored, Fan Id: <FanId>`

Table 2.13. nbsCmmcTrapFanRestored Enables

SNMP MIB object	Node	CLI command
ChassisEnableChassisTraps	Chassis	**gen-trap chassis**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.14. nbsCmmcTrapFanRestored Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
TrapFanId	ID of the fan
ChassisName	The user assigned name for this chassis

2.1.8. nbsCmmcTrapChassisTooHot

Sent when temperature rises above hottest permissible temperature. This Notification should be of Severity ERROR.

Log message format: `Chassis x Too Hot, Chassis Temperature: <ChassisTemperature> Chassis Temperature Limit: <ChassisTemperatureLimit>`

Table 2.15. nbsCmmcTrapChassisTooHot Enables

SNMP MIB object	Node	CLI command
ChassisEnableChassisTraps	Chassis	**gen-trap chassis**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.16. nbsCmmcTrapChassisTooHot Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
ChassisTemperature	The temperature (degrees Celsius) of the Chassis. Not supported value: 0x80000000
ChassisTemperatureLimit	The maximum safe temperature (degrees Celsius) of the Chassis. Not supported value: 0x80000000
ChassisName	The user assigned name for this chassis

2.1.9. nbsCmmcTrapChassisTooCold

Sent when temperature falls under coldest permissible temperature. This Notification should be of Severity ERROR.

Log message format: `Chassis x Too Cold, Chassis Temperature: <ChassisTemperature> Chassis Temperature Min: <ChassisTemperatureMin>`

Table 2.17. nbsCmmcTrapChassisTooCold Enables

SNMP MIB object	Node	CLI command
ChassisEnableChassisTraps	Chassis	**gen-trap chassis**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.18. nbsCmmcTrapChassisTooCold Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
ChassisTemperature	The temperature (degrees Celsius) of the Chassis. Not supported value: 0x80000000
ChassisTemperatureMin	The minimum safe temperature (degrees Celsius) of the Chassis. Not supported value: 0x80000000
ChassisName	The user assigned name for this chassis

2.1.10. nbsCmmcTrapChassisTempOk

Sent when temperature returns to permissible range. This Notification should be of Severity ERROR.

Log message format: `Chassis x Temp Ok, Chassis Temperature: <ChassisTemperature>`

Table 2.19. nbsCmmcTrapChassisTempOk Enables

SNMP MIB object	Node	CLI command
ChassisEnableChassisTraps	Chassis	**gen-trap chassis**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.20. nbsCmmcTrapChassisTempOk Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
ChassisTemperature	The temperature (degrees Celsius) of the Chassis. Not supported value: 0x80000000
ChassisName	The user assigned name for this chassis

2.1.11. nbsCmmcTrapSlotModuleIn

Sent when card is physically inserted. This Notification should be of Severity ERROR.

Log message format: `Slot x.x Module In, Slot Type: <SlotType>`

Table 2.21. nbsCmmcTrapSlotModuleIn Enables

SNMP MIB object	Node	CLI command
ChassisEnableSlotChangeTraps	Chassis	**gen-trap slot-change**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.22. nbsCmmcTrapSlotModuleIn Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
SlotType	The type of card in the slot. If the slot is empty and the chassis' color is black, this should be 0 or 1. If the slot is empty and the chassis' color is beige or gray, this should be 2. If a module is installed that the Agent does not support, this value should be 3. Values greater than 3 are used to indicate both the front panel and the functionality of the module.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.

2.1.12. nbsCmmcTrapSlotModuleOut

Sent when card is physically removed. This Notification should be of Severity ERROR.

Log message format: `Slot x.x Module Out, Slot Type: <SlotType>`

Table 2.23. nbsCmmcTrapSlotModuleOut Enables

SNMP MIB object	Node	CLI command
ChassisEnableSlotChangeTraps	Chassis	**gen-trap slot-change**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.24. nbsCmmcTrapSlotModuleOut Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
SlotType	The type of card in the slot. If the slot is empty and the chassis' color is black, this should be 0 or 1. If the slot is empty and the chassis' color is beige or gray, this should be 2. If a module is installed that the Agent does not support, this value should be 3. Values greater than 3 are used to indicate both the front panel and the functionality of the module.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.

2.1.13. nbsCmmcTrapPortEnabled

Sent after nbsCmmcPortEnableOper changes to enable(3). This Notification should be of Severity WARNING.

Log message format: `Port x.x.x Enabled`

Table 2.25. nbsCmmcTrapPortEnabled Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortTraps	Chassis	**gen-trap port**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.26. nbsCmmcTrapPortEnabled Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.

Variable	Description
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.14. nbsCmmcTrapPortDisabled

Sent after nbsCmmcPortEnableOper changes to disable(2). This Notification should be of Severity WARNING.

Log message format: `Port x.x.x Disabled`

Table 2.27. nbsCmmcTrapPortDisabled Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortTraps	Chassis	**gen-trap port**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.28. nbsCmmcTrapPortDisabled Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.15. nbsCmmcTrapPortLinkUp

Sent when nbsCmmcPortLink transitions from noSignal(2) to a connected state. This Notification should be of Severity ERROR.

Log message format: `Port x.x.x Link Changed, <PortLink>`

Table 2.29. nbsCmmcTrapPortLinkUp Enables

SNMP MIB object	Node	CLI command
ChassisEnableLinkTraps	Chassis	**gen-trap link**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.30. nbsCmmcTrapPortLinkUp Variables

Variable	Description
TrapLastMessage	The last message sent by the system

Variable	Description
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
PortLink	The link status of the port.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.16. nbsCmmcTrapPortLinkDown

Sent when nbsCmmcPortLink transitions from a connected state to noSignal(2). This Notification should be of Severity ERROR.

Log message format: `Port x.x.x Link Down`

Table 2.31. nbsCmmcTrapPortLinkDown Enables

SNMP MIB object	Node	CLI command
ChassisEnableLinkTraps	Chassis	**gen-trap link**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.32. nbsCmmcTrapPortLinkDown Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.17. nbsCmmcTrapPortLINOn

Sent when Link Integrity Notification is turned on. This Notification should be of Severity WARNING.

Log message format: `Port x.x.x LIN On`

Table 2.33. nbsCmmcTrapPortLINOn Enables

SNMP MIB object	Node	CLI command
ChassisEnableLINTraps	Chassis	**gen-trap lin**

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.34. nbsCmmcTrapPortLINOn Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.18. nbsCmmcTrapPortLINOff

Sent when Link Integrity Notification is turned off. This Notification should be of Severity WARNING.

Log message format: `Port x.x.x LIN Off`

Table 2.35. nbsCmmcTrapPortLINOff Enables

SNMP MIB object	Node	CLI command
ChassisEnableLINTraps	Chassis	**gen-trap lin**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.36. nbsCmmcTrapPortLINOff Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.19. nbsCmmcTrapPortLoopbackOn

Sent when Port is set to a Loopback state. This Notification should be of Severity WARNING.

Log message format: `Port x.x.x Loopback On`

Table 2.37. nbsCmmcTrapPortLoopbackOn Enables

SNMP MIB object	Node	CLI command
ChassisEnableLoopbackTraps	Chassis	**gen-trap loopback**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.38. nbsCmmcTrapPortLoopbackOn Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.20. nbsCmmcTrapPortLoopbackOff

Sent when Port returns from a Loopback state. This Notification should be of Severity WARNING.

Log message format: `Port x.x.x Loopback Off`

Table 2.39. nbsCmmcTrapPortLoopbackOff Enables

SNMP MIB object	Node	CLI command
ChassisEnableLoopbackTraps	Chassis	**gen-trap loopback**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.40. nbsCmmcTrapPortLoopbackOff Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.21. nbsCmmcTrapPortMaximumExceeded

Sent when PortValue exceeds PortThreshold. This Notification should be of Severity WARNING.

Log message format: `Port x.x.x Maximum Exceeded, <PortThreshold> Port Value: <PortValue>`

Table 2.41. nbsCmmcTrapPortMaximumExceeded Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortTraps	Chassis	**gen-trap port**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.42. nbsCmmcTrapPortMaximumExceeded Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
PortThreshold	Port Threshold - usage may be different for each card. For card 197, this indicates the minimum signal strength. Value ranges from -5 to -40 decibels. For card 211, valid values are: notSupported(1), speed45Mbps(2), speed155Mbps(3), speed622Mbps(4), speed1Gbps(5) For card 375, this indicates the rate limit and is expressed in units of Mbps. For cards 376 and 379, this indicates the rate limit and is expressed in units of Kbps. Not supported value: 0x80000000
PortValue	Originally named nbsCmmcPortOpticalPower. Now usage may vary by card. For card 162, PortValue measures the Optical Power, or signal strength. For card 197, PortValue is a text string displaying signal strength in decibels. For cards 211 and 212, PortValue measures the current bandwidth level. Only one byte is used, and its value can be notSupported(1), under45Mbps(2), under155Mbps(3), under622Mbps(4), or under1Gbps(5)
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.22. nbsCmmcTrapPortRemoved

Sent when a hot-swappable port is removed. This Notification should be of Severity WARNING.

Log message format: `Port x.x.x Removed`

Table 2.43. nbsCmmcTrapPortRemoved Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortChangeTraps	Chassis	**gen-trap port-change**

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.44. nbsCmmcTrapPortRemoved Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.23. nbsCmmcTrapPortInserted

Sent when a hot-swappable port is inserted. This Notification should be of Severity WARNING.

Log message format: `Port x.x.x Inserted, <PortConnector> Port Wavelength: <PortWavelength>`

Table 2.45. nbsCmmcTrapPortInserted Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortChangeTraps	Chassis	**gen-trap port-change**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.46. nbsCmmcTrapPortInserted Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
PortConnector	The type of physical connector or jack.
PortWavelength	The output wavelength (in nanoMeters) of this transmitter. The reserved value -1 indicates that this object is not supported. This object has been superseded by nbsCmmcPortWavelengthX, which supports floating point wavelengths, and lists of wavelengths.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.24. nbsCmmcTrapPortTempTooLow

Sent when transmitter temperature is too cold. For SFF Digital Diagnostics, this corresponds to the low temperature alarm. This Notification should be of Severity ERROR.

Log message format: `Port x.x.x Temp Too Low, <PortTemperature> <PortThreshold> <PortTemperatureLevel>`

Table 2.47. nbsCmmcTrapPortTempTooLow Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortDiagsTraps	Chassis	**gen-trap port-diags**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.48. nbsCmmcTrapPortTempTooLow Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
PortTemperature	The temperature (in degrees celsius) of this trans- ceiver. Not supported value: 0x80000000
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.
PortThreshold	Port Threshold - usage may be different for each card. For card 197, this indicates the minimum signal strength. Value ranges from -5 to -40 decibels. For card 211, valid values are: notSupported(1), speed45Mbps(2), speed155Mbps(3), speed622Mbps(4), speed1Gbps(5) For card 375, this indicates the rate limit and is expressed in units of Mbps. For cards 376 and 379, this indicates the rate limit and is expressed in units of Kbps. Not supported value: 0x80000000
PortTemperatureLevel	This object indicates whether this port has a temperature problem. If this port does not support SFF-8472 Digital Diagnostics, this value should be notSupported(1). If Digital Diagnostics indicate temperature is below the low Alarm Threshold, this value should be lowAlarm(2). If Digital Diagnostics indicate temperature is above the low Alarm Threshold but below the low Warning threshold, this value should be lowWarning(3). If Digital Diagnostics indicate this port is within the recommended operating range, value is ok(4). If Digital Diagnostics indicate temperature is higher than the high Warning threshold, but has not crossed the Alarm threshold, this value should be highWarning (5),. If Digital Diagnostics indicate this port has crossed the high Alarm threshold, this value should be highAlarm(6). The related

Variable	Description
	object nbsCmmcPortTemperature indicates what the current temperature is.

2.1.25. nbsCmmcTrapPortTempTooHigh

Sent when transmitter temperature is too hot. For SFF Digital Diagnostics, this corresponds to the high temperature alarm. This Notification should be of Severity ERROR.

Log message format: `Port x.x.x Temp Too High, <PortTemperature> <PortThreshold> <PortTemperatureLevel>`

Table 2.49. nbsCmmcTrapPortTempTooHigh Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortDiagsTraps	Chassis	**gen-trap port-diags**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.50. nbsCmmcTrapPortTempTooHigh Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
PortTemperature	The temperature (in degrees celsius) of this trans- ceiver. Not supported value: 0x80000000
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.
PortThreshold	Port Threshold - usage may be different for each card. For card 197, this indicates the minimum signal strength. Value ranges from -5 to -40 decibels. For card 211, valid values are: notSupported(1), speed45Mbps(2), speed155Mbps(3), speed622Mbps(4), speed1Gbps(5) For card 375, this indicates the rate limit and is expressed in units of Mbps. For cards 376 and 379, this indicates the rate limit and is expressed in units of Kbps. Not supported value: 0x80000000
PortTemperatureLevel	This object indicates whether this port has a temperature problem. If this port does not support SFF-8472 Digital Diagnostics, this value should be notSupported(1). If Digital Diagnostics indicate temperature is below the low Alarm Threshold, this value should be lowAlarm(2). If Digital Diagnostics indicate temperature is above the low Alarm Threshold but below the low Warning threshold, this value should be lowWarning(3). If Digital Diagnostics indicate this port is within the recommended operating range, value is

Variable	Description
	ok(4). If Digital Diagnostics indicate temperature is higher than the high Warning threshold, but has not crossed the Alarm threshold, this value should be highWarning (5),. If Digital Diagnostics indicate this port has crossed the high Alarm threshold, this value should be highAlarm(6). The related object nbsCmmcPortTemperature indicates what the current temperature is.

2.1.26. nbsCmmcTrapPortRxPowerTooLow

Sent when received signal is too weak. For SFF Digital Diagnostics, this corresponds to the low RX power alarm. This Notification should be of Severity ERROR.

Log message format: `Port x.x.x Rx Power Too Low, <PortRxPower> <PortThreshold> <PortRxPowerLevel>`

Table 2.51. nbsCmmcTrapPortRxPowerTooLow Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortDiagsTraps	Chassis	**gen-trap port-diags**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.52. nbsCmmcTrapPortRxPowerTooLow Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
PortRxPower	The received optical power (in milli dBm) of this receiver. Not supported value: 0x80000000
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.
PortThreshold	Port Threshold - usage may be different for each card. For card 197, this indicates the minimum signal strength. Value ranges from -5 to -40 decibels. For card 211, valid values are: notSupported(1), speed45Mbps(2), speed155Mbps(3), speed622Mbps(4), speed1Gbps(5) For card 375, this indicates the rate limit and is expressed in units of Mbps. For cards 376 and 379, this indicates the rate limit and is expressed in units of Kbps. Not supported value: 0x80000000
PortRxPowerLevel	This object indicates whether this port has a problem with the power of its received signal. If this port does not support SFF-8472 Digital Diagnostics, this value should be notSupported(1). If Digital Diagnostics indicate RxPower

Variable	Description
	is below the low Alarm Threshold, this value should be lowAlarm(2). If Digital Diagnostics indicate RxPower is above the low Alarm Threshold but below the low Warning threshold, this value should be lowWarning(3). If Digital Diagnostics indicate this port is within the recommended operating range, value is ok(4). If Digital Diagnostics indicate RxPower is higher than the high Warning threshold, but has not crossed the Alarm threshold, this value should be highWarning (5),. If Digital Diagnostics indicate this port has crossed the high Alarm threshold, this value should be highAlarm(6). The related object nbsCmmcPortRxPower indicates what the current RxPower is.

2.1.27. nbsCmmcTrapPortRxPowerTooHigh

Sent when received signal is too powerful. For SFF Digital Diagnostics, this corresponds to the high RX power alarm. This Notification should be of Severity ERROR.

Log message format: `Port x.x.x Rx Power Too High, <PortRxPower> <PortThreshold> <PortRxPowerLevel>`

Table 2.53. nbsCmmcTrapPortRxPowerTooHigh Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortDiagsTraps	Chassis	**gen-trap port-diags**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.54. nbsCmmcTrapPortRxPowerTooHigh Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
PortRxPower	The received optical power (in milli dBm) of this receiver. Not supported value: 0x80000000
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.
PortThreshold	Port Threshold - usage may be different for each card. For card 197, this indicates the minimum signal strength. Value ranges from -5 to -40 decibels. For card 211, valid values are: notSupported(1), speed45Mbps(2), speed155Mbps(3), speed622Mbps(4), speed1Gbps(5) For card 375, this indicates the rate limit and is expressed in units of Mbps. For cards 376 and 379, this indicates the rate limit and is expressed in units of Kbps. Not supported value: 0x80000000

Variable	Description
PortRxPowerLevel	This object indicates whether this port has a problem with the power of its received signal. If this port does not support SFF-8472 Digital Diagnostics, this value should be notSupported(1). If Digital Diagnostics indicate RxPower is below the low Alarm Threshold, this value should be lowAlarm(2). If Digital Diagnostics indicate RxPower is above the low Alarm Threshold but below the low Warning threshold, this value should be lowWarning(3). If Digital Diagnostics indicate this port is within the recommended operating range, value is ok(4). If Digital Diagnostics indicate RxPower is higher than the high Warning threshold, but has not crossed the Alarm threshold, this value should be highWarning (5),. If Digital Diagnostics indicate this port has crossed the high Alarm threshold, this value should be highAlarm(6). The related object nbsCmmcPortRxPower indicates what the current RxPower is.

2.1.28. nbsCmmcTrapPortTxPowerTooLow

Sent when transmitter power is too weak. For SFF Digital Diagnostics, this corresponds to the low TX power alarm. This Notification should be of Severity ERROR.

Log message format: `Port x.x.x Tx Power Too Low, <PortTxPower> <PortThreshold> <PortTxPowerLevel>`

Table 2.55. nbsCmmcTrapPortTxPowerTooLow Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortDiagsTraps	Chassis	**gen-trap port-diags**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.56. nbsCmmcTrapPortTxPowerTooLow Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
PortTxPower	The output power (in milli dBm) of this transmitter. Not supported value: 0x80000000
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.
PortThreshold	Port Threshold - usage may be different for each card. For card 197, this indicates the minimum signal strength. Value ranges from -5 to -40 decibels. For card 211, valid values are: notSupported(1), speed45Mbps(2), speed155Mbps(3),

Variable	Description
	speed622Mbps(4), speed1Gbps(5) For card 375, this indicates the rate limit and is expressed in units of Mbps. For cards 376 and 379, this indicates the rate limit and is expressed in units of Kbps. Not supported value: 0x80000000
PortTxPowerLevel	This object indicates whether this port has a problem with its transmitter power. If this port does not support SFF-8472 Digital Diagnostics, this value should be notSupported(1). If Digital Diagnostics indicate TxPower is below the low Alarm Threshold, this value should be lowAlarm(2). If Digital Diagnostics indicate TxPower is above the low Alarm Threshold but below the low Warning threshold, this value should be lowWarning(3). If Digital Diagnostics indicate this port is within the recommended operating range, value is ok(4). If Digital Diagnostics indicate TxPower is higher than the high Warning threshold, but has not crossed the Alarm threshold, this value should be highWarning (5),. If Digital Diagnostics indicate this port has crossed the high Alarm threshold, this value should be highAlarm(6). The related object nbsCmmcPortTxPower indicates what the current TxPower is.

2.1.29. nbsCmmcTrapPortTxPowerTooHigh

Sent when transmitter power is too strong. For SFF Digital Diagnostics, this corresponds to the high TX power alarm. This Notification should be of Severity ERROR.

Log message format: `Port x.x.x Tx Power Too High, <PortTxPower> <PortThreshold> <PortTxPowerLevel>`

Table 2.57. nbsCmmcTrapPortTxPowerTooHigh Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortDiagsTraps	Chassis	**gen-trap port-diags**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.58. nbsCmmcTrapPortTxPowerTooHigh Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
PortTxPower	The output power (in milli dBm) of this transmitter. Not supported value: 0x80000000
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

Variable	Description
PortThreshold	Port Threshold - usage may be different for each card. For card 197, this indicates the minimum signal strength. Value ranges from -5 to -40 decibels. For card 211, valid values are: notSupported(1), speed45Mbps(2), speed155Mbps(3), speed622Mbps(4), speed1Gbps(5) For card 375, this indicates the rate limit and is expressed in units of Mbps. For cards 376 and 379, this indicates the rate limit and is expressed in units of Kbps. Not supported value: 0x80000000
PortTxPowerLevel	This object indicates whether this port has a problem with its transmitter power. If this port does not support SFF-8472 Digital Diagnostics, this value should be notSupported(1). If Digital Diagnostics indicate TxPower is below the low Alarm Threshold, this value should be lowAlarm(2). If Digital Diagnostics indicate TxPower is above the low Alarm Threshold but below the low Warning threshold, this value should be lowWarning(3). If Digital Diagnostics indicate this port is within the recommended operating range, value is ok(4). If Digital Diagnostics indicate TxPower is higher than the high Warning threshold, but has not crossed the Alarm threshold, this value should be highWarning (5),. If Digital Diagnostics indicate this port has crossed the high Alarm threshold, this value should be highAlarm(6). The related object nbsCmmcPortTxPower indicates what the current TxPower is.

2.1.30. nbsCmmcTrapPortAmpsTooLow

Sent when bias current is too small. For SFF Digital Diagnostics, this corresponds to the low bias current alarm. This Notification should be of Severity ERROR.

Log message format:
```
Port x.x.x Amps Too Low, <PortBiasAmps>
<PortThreshold> <PortBiasAmpsLevel>
```

Table 2.59. nbsCmmcTrapPortAmpsTooLow Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortDiagsTraps	Chassis	**gen-trap port-diags**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.60. nbsCmmcTrapPortAmpsTooLow Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
PortBiasAmps	The bias current (in microAmps) of this transmitter. The reserved value -1 indicates that this object is not supported.
ChassisName	The user assigned name for this chassis

Variable	Description
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.
PortThreshold	Port Threshold - usage may be different for each card. For card 197, this indicates the minimum signal strength. Value ranges from -5 to -40 decibels. For card 211, valid values are: notSupported(1), speed45Mbps(2), speed155Mbps(3), speed622Mbps(4), speed1Gbps(5) For card 375, this indicates the rate limit and is expressed in units of Mbps. For cards 376 and 379, this indicates the rate limit and is expressed in units of Kbps. Not supported value: 0x80000000
PortBiasAmpsLevel	This object indicates whether this port has a problem with the electric current going through the port. If this port does not support SFF-8472 Digital Diagnostics, this value should be notSupported(1). If Digital Diagnostics indicate BiasAmps is below the low Alarm Threshold, this value should be lowAlarm(2). If Digital Diagnostics indicate BiasAmps is above the low Alarm Threshold but below the low Warning threshold, this value should be lowWarning(3). If Digital Diagnostics indicate this port is within the recommended operating range, value is ok(4). If Digital Diagnostics indicate BiasAmps is higher than the high Warning threshold, but has not crossed the Alarm threshold, this value should be highWarning (5),. If Digital Diagnostics indicate this port has crossed the high Alarm threshold, this value should be highAlarm(6). The related object nbsCmmcPortBiasAmps indicates what the current amperage is.

2.1.31. nbsCmmcTrapPortAmpsTooHigh

Sent when bias current is too large. For SFF Digital Diagnostics, this corresponds to the high bias current alarm. This Notification should be of Severity ERROR.

Log message format:
```
Port x.x.x Amps Too High, <PortBiasAmps>
<PortThreshold> <PortBiasAmpsLevel>
```

Table 2.61. nbsCmmcTrapPortAmpsTooHigh Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortDiagsTraps	Chassis	**gen-trap port-diags**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.62. nbsCmmcTrapPortAmpsTooHigh Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.

Variable	Description
PortBiasAmps	The bias current (in microAmps) of this transmitter. The reserved value -1 indicates that this object is not supported.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.
PortThreshold	Port Threshold - usage may be different for each card. For card 197, this indicates the minimum signal strength. Value ranges from -5 to -40 decibels. For card 211, valid values are: notSupported(1), speed45Mbps(2), speed155Mbps(3), speed622Mbps(4), speed1Gbps(5) For card 375, this indicates the rate limit and is expressed in units of Mbps. For cards 376 and 379, this indicates the rate limit and is expressed in units of Kbps. Not supported value: 0x80000000
PortBiasAmpsLevel	This object indicates whether this port has a problem with the electric current going through the port. If this port does not support SFF-8472 Digital Diagnostics, this value should be notSupported(1). If Digital Diagnostics indicate BiasAmps is below the low Alarm Threshold, this value should be lowAlarm(2). If Digital Diagnostics indicate BiasAmps is above the low Alarm Threshold but below the low Warning threshold, this value should be lowWarning(3). If Digital Diagnostics indicate this port is within the recommended operating range, value is ok(4). If Digital Diagnostics indicate BiasAmps is higher than the high Warning threshold, but has not crossed the Alarm threshold, this value should be highWarning (5),. If Digital Diagnostics indicate this port has crossed the high Alarm threshold, this value should be highAlarm(6). The related object nbsCmmcPortBiasAmps indicates what the current amperage is.

2.1.32. nbsCmmcTrapPortVoltsTooLow

Sent when transceiver supply voltage is too low. For SFF Digital Diagnostics, this corresponds to the low supply voltage alarm. This Notification should be of Severity ERROR.

Log message format:
```
Port x.x.x Volts Too Low, <PortSupplyVolts>
<PortThreshold> <PortSupplyVoltsLevel>
```

Table 2.63. nbsCmmcTrapPortVoltsTooLow Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortDiagsTraps	Chassis	**gen-trap port-diags**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.64. nbsCmmcTrapPortVoltsTooLow Variables

Variable	Description
TrapLastMessage	The last message sent by the system

Variable	Description
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
PortSupplyVolts	The supply voltage (in milliVolts) of this transmitter. The reserved value -1 indicates that this object is not supported.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.
PortThreshold	Port Threshold - usage may be different for each card. For card 197, this indicates the minimum signal strength. Value ranges from -5 to -40 decibels. For card 211, valid values are: notSupported(1), speed45Mbps(2), speed155Mbps(3), speed622Mbps(4), speed1Gbps(5) For card 375, this indicates the rate limit and is expressed in units of Mbps. For cards 376 and 379, this indicates the rate limit and is expressed in units of Kbps. Not supported value: 0x80000000
PortSupplyVoltsLevel	This object indicates whether this port has a problem with the electric voltage across the port. If this port does not support SFF-8472 Digital Diagnostics, this value should be notSupported(1). If Digital Diagnostics indicate SupplyVolts is below the low Alarm Threshold, this value should be lowAlarm(2). If Digital Diagnostics indicate SupplyVolts is above the low Alarm Threshold but below the low Warning threshold, this value should be lowWarning(3). If Digital Diagnostics indicate this port is within the recommended operating range, value is ok(4). If Digital Diagnostics indicate SupplyVolts is higher than the high Warning threshold, but has not crossed the Alarm threshold, this value should be highWarning (5),. If Digital Diagnostics indicate this port has crossed the high Alarm threshold, this value should be highAlarm(6). The related object nbsCmmcPortSupplyVolts indicates what the current supply voltage is.

2.1.33. nbsCmmcTrapPortVoltsTooHigh

Sent when transceiver supply voltage is too high. For SFF Digital Diagnostics, this corresponds to the high supply voltage alarm. This Notification should be of Severity ERROR.

Log message format:
```
Port x.x.x Volts Too High, <PortSupplyVolts>
<PortThreshold> <PortSupplyVoltsLevel>
```

Table 2.65. nbsCmmcTrapPortVoltsTooHigh Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortDiagsTraps	Chassis	**gen-trap port-diags**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.66. nbsCmmcTrapPortVoltsTooHigh Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
PortSupplyVolts	The supply voltage (in milliVolts) of this transmitter. The reserved value -1 indicates that this object is not supported.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.
PortThreshold	Port Threshold - usage may be different for each card. For card 197, this indicates the minimum signal strength. Value ranges from -5 to -40 decibels. For card 211, valid values are: notSupported(1), speed45Mbps(2), speed155Mbps(3), speed622Mbps(4), speed1Gbps(5) For card 375, this indicates the rate limit and is expressed in units of Mbps. For cards 376 and 379, this indicates the rate limit and is expressed in units of Kbps. Not supported value: 0x80000000
PortSupplyVoltsLevel	This object indicates whether this port has a problem with the electric voltage across the port. If this port does not support SFF-8472 Digital Diagnostics, this value should be notSupported(1). If Digital Diagnostics indicate SupplyVolts is below the low Alarm Threshold, this value should be lowAlarm(2). If Digital Diagnostics indicate SupplyVolts is above the low Alarm Threshold but below the low Warning threshold, this value should be lowWarning(3). If Digital Diagnostics indicate this port is within the recommended operating range, value is ok(4). If Digital Diagnostics indicate SupplyVolts is higher than the high Warning threshold, but has not crossed the Alarm threshold, this value should be highWarning (5),. If Digital Diagnostics indicate this port has crossed the high Alarm threshold, this value should be highAlarm(6). The related object nbsCmmcPortSupplyVolts indicates what the current supply voltage is.

2.1.34. nbsCmmcTrapSwitchover

Sent when a self-healing (redundant ports) card switches traffic from an active port to a standby port. This Notification should be of Severity WARNING. The VARIABLE TrapLastMessage should specify the cause of the switchover, the PortName of the new Active port, and the PortName of the new Standby (formerely Active) port. The ChassisIndex and SlotIndex indicate the card that performed the switchover. The first PortIndex is the new Active port. The last PortIndex is the new Standby port. This trap should be accompanied by link up/down traps.

Log message format: `Port x.x.x.x Switchover, Trap Port Name: <TrapPortName>`

Table 2.67. nbsCmmcTrapSwitchover Enables

SNMP MIB object	Node	CLI command
ChassisEnableSwitchoverTraps	Chassis	**gen-trap switchover**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.68. nbsCmmcTrapSwitchover Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
TrapPortIndex	Index of the Port
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.
TrapPortName	Name of the Port

2.1.35. nbsCmmcTrapSlotShuttingDown

Sent when the slot/card is shutting down. This Notification should be of Severity WARNING if the shutdown is deliberate, or ERROR if shutdown because of module failure, i.e. last gasp. The VARIABLE nbsCmmcTrapShutdownReason should specify the reason the card is shutting down. To enable/disable this notification, use the object nbsCmmcChassisEnableModuleSpecificTraps.

Log message format: `Slot x.x Shutting Down, Shutdown Reason: <ShutdownReason>`

Table 2.69. nbsCmmcTrapSlotShuttingDown Enables

SNMP MIB object	Node	CLI command
ChassisEnableModuleSpecificTraps	Chassis	**gen-trap module-specific**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.70. nbsCmmcTrapSlotShuttingDown Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
TrapShutdownReason	The reason for the last system shutdown
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.

2.1.36. nbsCmmcTrapPortCrcError

Sent when CRC Error is received on this port. This Notification should be of Severity WARNING.

Log message format: `Port x.x.x Crc Error`

Table 2.71. nbsCmmcTrapPortCrcError Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortTraps	Chassis	**gen-trap port**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.72. nbsCmmcTrapPortCrcError Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.37. nbsCmmcTrapCpeInManagedChassis

Sent when a module configured for customer premises is detected in a managed (central office) chassis. This Notification should be of Severity WARNING. To enable/disable this notification, use the object nbsCmmcChassisEnableModuleSpecificTraps.

Log message format: `Slot x.x Cpe In Managed Chassis`

Table 2.73. nbsCmmcTrapCpeInManagedChassis Enables

SNMP MIB object	Node	CLI command
ChassisEnableModuleSpecificTraps	Chassis	**gen-trap module-specific**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.74. nbsCmmcTrapCpeInManagedChassis Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
ChassisName	The user assigned name for this chassis

Variable	Description
SlotName	The user assigned name for this slot.

2.1.38. nbsCmmcTrapCoWithoutCpe

Sent when a central office module has no link to a CPE module. This Notification should be of Severity WARNING. To enable/disable this notification, use the object nbsCmmcChassisEnableModuleSpecificTraps.

Log message format: `Slot x.x Co Without Cpe`

Table 2.75. nbsCmmcTrapCoWithoutCpe Enables

SNMP MIB object	Node	CLI command
ChassisEnableModuleSpecificTraps	Chassis	**gen-trap module-specific**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.76. nbsCmmcTrapCoWithoutCpe Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.

2.1.39. nbsCmmcTrapCoTakesControl

Sent when a central office module begins active management of a dual-homed CPE module. This Notification should be of Severity WARNING. To enable/disable this notification, use the object nbsCmmcChassisEnableModuleSpecificTraps.

Log message format: `Slot x.x Co Takes Control`

Table 2.77. nbsCmmcTrapCoTakesControl Enables

SNMP MIB object	Node	CLI command
ChassisEnableModuleSpecificTraps	Chassis	**gen-trap module-specific**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.78. nbsCmmcTrapCoTakesControl Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.

2.1.40. nbsCmmcTrapCoYieldsControl

Sent when a central office module ceases active management of a dual-homed CPE module. This Notification should be of Severity WARNING. To enable/disable this notification, use the object nbsCmmcChassisEnableModuleSpecificTraps.

Log message format: `Slot x.x Co Yields Control`

Table 2.79. nbsCmmcTrapCoYieldsControl Enables

SNMP MIB object	Node	CLI command
ChassisEnableModuleSpecificTraps	Chassis	**gen-trap module-specific**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.80. nbsCmmcTrapCoYieldsControl Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.

2.1.41. nbsCmmcTrapCoLinkedToCo

Sent when one central office module is connected to another central office module. This Notification should be of Severity ERROR. To enable/disable this notification, use the object nbsCmmcChassisEnableModuleSpecificTraps.

Log message format: `Slot x.x Co Linked To Co`

Table 2.81. nbsCmmcTrapCoLinkedToCo Enables

SNMP MIB object	Node	CLI command
ChassisEnableModuleSpecificTraps	Chassis	**gen-trap module-specific**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.82. nbsCmmcTrapCoLinkedToCo Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.

2.1.42. nbsCmmcTrapCpeFound

Sent when a remote CPE module is detected. This Notification should be of Severity WARNING. To enable/disable this notification, use the object nbsCmmcChassisEnableModuleSpecificTraps.

Log message format: `Slot x.x Cpe Found`

Table 2.83. nbsCmmcTrapCpeFound Enables

SNMP MIB object	Node	CLI command
ChassisEnableModuleSpecificTraps	Chassis	**gen-trap module-specific**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.84. nbsCmmcTrapCpeFound Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.

2.1.43. nbsCmmcTrapPortReflectionDetected

Sent when SingleFiber port detects its own signal reflecting back on itself. This Notification should be of Severity WARNING.

Log message format: `Port x.x.x Reflection Detected`

Table 2.85. nbsCmmcTrapPortReflectionDetected Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortTraps	Chassis	**gen-trap port**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.86. nbsCmmcTrapPortReflectionDetected Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.44. nbsCmmcTrapPortReflectionCeased

Sent when SingleFiber port no longer detects its own signal returning. This Notification should be of Severity WARNING.

Log message format: `Port x.x.x Reflection Ceased`

Table 2.87. nbsCmmcTrapPortReflectionCeased Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortTraps	Chassis	**gen-trap port**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.88. nbsCmmcTrapPortReflectionCeased Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.45. nbsCmmcTrapPortTempOk

Sent when transmitter temperature returns to normal. For Agent's internal severity-based filtering. The severity of this NOTIFICATION must match the severity of the nbsCmmcTrapPortTempTooLow or nbsCmmcTrapPortTempTooHigh NOTIFICATION that this overrides.

Log message format: `Port x.x.x Temp Ok, <PortTemperature>`

Table 2.89. nbsCmmcTrapPortTempOk Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortDiagsTraps	Chassis	**gen-trap port-diags**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.90. nbsCmmcTrapPortTempOk Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
PortTemperature	The temperature (in degrees celsius) of this trans- ceiver. Not supported value: 0x80000000
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.46. nbsCmmcTrapPortRxPowerOk

Sent when received signal returns to normal. For Agent's internal severity-based filtering. The severity of this NOTIFICATION must match the severity of the nbsCmmcTrapPortRxPowerTooLow or nbsCmmcTrapPortRxPowerTooHigh NOTIFICATION that this overrides.

Log message format: `Port x.x.x Rx Power Ok, <PortRxPower>`

Table 2.91. nbsCmmcTrapPortRxPowerOk Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortDiagsTraps	Chassis	**gen-trap port-diags**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.92. nbsCmmcTrapPortRxPowerOk Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
PortRxPower	The received optical power (in milli dBm) of this receiver. Not supported value: 0x80000000
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.47. nbsCmmcTrapPortTxPowerOk

Sent when transmitter power returns to normal. For Agent's internal severity-based filtering. The severity of this NOTIFICATION must match the severity of the nbsCmmcTrapPortTxPowerTooLow or nbsCmmcTrapPortTxPowerTooHigh NOTIFICATION that this overrides.

Log message format: `Port x.x.x Tx Power Ok, <PortTxPower>`

Table 2.93. nbsCmmcTrapPortTxPowerOk Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortDiagsTraps	Chassis	**gen-trap port-diags**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.94. nbsCmmcTrapPortTxPowerOk Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.

Variable	Description
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
PortTxPower	The output power (in milli dBm) of this transmitter. Not supported value: 0x80000000
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.48. nbsCmmcTrapPortAmpsOk

Sent when bias current returns to normal. For Agent's internal severity-based filtering. The severity of this NOTIFICATION must match the severity of the nbsCmmcTrapPortAmpsTooLow or bsCmmcTrapPortAmpsTooHigh NOTIFICATION that this overrides.

Log message format: `Port x.x.x Amps Ok, <PortBiasAmps>`

Table 2.95. nbsCmmcTrapPortAmpsOk Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortDiagsTraps	Chassis	**gen-trap port-diags**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.96. nbsCmmcTrapPortAmpsOk Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
PortBiasAmps	The bias current (in microAmps) of this transmitter. The reserved value -1 indicates that this object is not supported.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.49. nbsCmmcTrapPortVoltsOk

Sent when transceiver supply voltage returns to normal. For Agent's internal severity-based filtering. The severity of this NOTIFICATION must match the severity of the nbsCmmcTrapPortVoltsTooLow or nbsCmmcTrapPortVoltsTooHigh NOTIFICATION that this overrides.

Log message format: `Port x.x.x Volts Ok, <PortSupplyVolts>`

Table 2.97. nbsCmmcTrapPortVoltsOk Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortDiagsTraps	Chassis	**gen-trap port-diags**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.98. nbsCmmcTrapPortVoltsOk Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
PortSupplyVolts	The supply voltage (in milliVolts) of this transmitter. The reserved value -1 indicates that this object is not supported.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.50. nbsCmmcTrapSlotTempTooLow

Sent when slot temperature is too cold. This Notification should be of Severity ERROR.

Log message format: `Slot x.x Temp Too Low, Slot Temperature: <SlotTemperature>`

Table 2.99. nbsCmmcTrapSlotTempTooLow Enables

SNMP MIB object	Node	CLI command
ChassisEnableSlotChangeTraps	Chassis	**gen-trap slot-change**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.100. nbsCmmcTrapSlotTempTooLow Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
SlotTemperature	The temperature (in degrees celsius) of this slot. Not supported value: 0x80000000
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.

2.1.51. nbsCmmcTrapSlotTempTooHigh

Sent when slot temperature is too hot. temperature alarm. This Notification should be of Severity ERROR.

Log message format: `Slot x.x Temp Too High, Slot Temperature: <SlotTemperature>`

Table 2.101. nbsCmmcTrapSlotTempTooHigh Enables

SNMP MIB object	Node	CLI command
ChassisEnableSlotChangeTraps	Chassis	**gen-trap slot-change**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.102. nbsCmmcTrapSlotTempTooHigh Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
SlotTemperature	The temperature (in degrees celsius) of this slot. Not supported value: 0x80000000
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.

2.1.52. nbsCmmcTrapSlotTempOk

Sent when slot temperature returns to normal. This Notification should be of Severity ERROR.

Log message format: `Slot x.x Temp Ok, Slot Temperature: <SlotTemperature>`

Table 2.103. nbsCmmcTrapSlotTempOk Enables

SNMP MIB object	Node	CLI command
ChassisEnableSlotChangeTraps	Chassis	**gen-trap slot-change**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.104. nbsCmmcTrapSlotTempOk Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
SlotTemperature	The temperature (in degrees celsius) of this slot. Not supported value: 0x80000000
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.

2.1.53. nbsCmmcTrapPortErrorsDetected

Sent when nbsCmmcPortErrorActivity changes to on(3). This Notification should be of Severity WARNING.

Log message format: `Port x.x.x Errors Detected, Error Info: <ErrorInfo>`

Table 2.105. nbsCmmcTrapPortErrorsDetected Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortTraps	Chassis	**gen-trap port**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.106. nbsCmmcTrapPortErrorsDetected Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
TrapErrorInfo	Brief explanation of the cause or nature of errors that triggered an nbsCmmcTrapPortErrorsDetected trap.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.54. nbsCmmcTrapPortErrorsStopped

Sent when nbsCmmcPortErrorActivity changes to off(2). This Notification should be of Severity WARNING.

Log message format: `Port x.x.x Errors Stopped`

Table 2.107. nbsCmmcTrapPortErrorsStopped Enables

SNMP MIB object	Node	CLI command
ChassisEnablePortTraps	Chassis	**gen-trap port**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.108. nbsCmmcTrapPortErrorsStopped Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.

Variable	Description
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.55. nbsCmmcTrapChassisInsufficientPower

Sent when power on chassis changed to insufficient. This Notification should be of Severity ERROR.

Log message format: `Chassis x Insufficient Power`

Table 2.109. nbsCmmcTrapChassisInsufficientPower Enables

SNMP MIB object	Node	CLI command
ChassisEnableChassisTraps	Chassis	**gen-trap chassis**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.110. nbsCmmcTrapChassisInsufficientPower Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
ChassisName	The user assigned name for this chassis

2.1.56. nbsCmmcTrapChassisSufficientPower

Sent when power on chassis changed to sufficient. This Notification should be of Severity ERROR.

Log message format: `Chassis x Sufficient Power`

Table 2.111. nbsCmmcTrapChassisSufficientPower Enables

SNMP MIB object	Node	CLI command
ChassisEnableChassisTraps	Chassis	**gen-trap chassis**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.112. nbsCmmcTrapChassisSufficientPower Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
ChassisName	The user assigned name for this chassis

2.1.57. nbsCmmcTrapSlotModuleLocked

Sent when nbsCmmcSysLockTypes is enabled(3) and a card incompatible with a slot's locked configuration is inserted. This Notification should be of Severity ERROR.

Log message format: `Slot x.x Module Locked, Slot Type: <SlotType>`

Table 2.113. nbsCmmcTrapSlotModuleLocked Enables

SNMP MIB object	Node	CLI command
ChassisEnableSlotChangeTraps	Chassis	**gen-trap slot-change**
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.114. nbsCmmcTrapSlotModuleLocked Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
SlotType	The type of card in the slot. If the slot is empty and the chassis' color is black, this should be 0 or 1. If the slot is empty and the chassis' color is beige or gray, this should be 2. If a module is installed that the Agent does not support, this value should be 3. Values greater than 3 are used to indicate both the front panel and the functionality of the module.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.

2.1.58. nbsCmmcTrapSelectLinkChanged

Sent when a redundant port in a self-healing card switches between active and standby. The last varbind, nbsCmmcPortSelectLink, indicates this port's new state. This notification should come in a pair -- one trap for the new active port, another for the new standby port. This Notification should be of Severity WARNING.

Log message format: `Port x.x.x Select Link Changed, <PortSelectLink>`

Table 2.115. nbsCmmcTrapSelectLinkChanged Enables

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.116. nbsCmmcTrapSelectLinkChanged Variables

Variable	Description
TrapLastMessage	The last message sent by the system
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
ChassisName	The user assigned name for this chassis
SlotName	The user assigned name for this slot.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

Variable	Description
PortSelectLink	For ports in self-healing redundant groups, this object describes this port's redundant state. The value notSupported(1) indicates this object is unused for this port. The value standby(2) indicates that traffic is not currently routed through this port. The value active(3) indicates that this port is the selected channel for passing data traffic. This object may be used to choose which port in a redundant group is active. That selection may be overridden by the system as appropriate, such as the link going down, or a preferred port coming up. The values (4) through (6) are deprecated. They will no longer be reported by the Agent, and attempts to set them should be rejected with the SNMP error badValue(3).

2.1.59. nbsOsaTrapPortChannelAdded

Sent when optical spectrum analyser first detects a channel. This Notification should be of Severity ERROR.

Log message format:

```
osa Port Channel Added, <ChannelBand> Channel
Number: <ChannelNumber> Channel Frequency
Nominal: <ChannelFrequencyNominal>
```

Table 2.117. nbsOsaTrapPortChannelAdded Enables

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.118. nbsOsaTrapPortChannelAdded Variables

Variable	Description
nbsOsaChannelIfIndex	The Mib2 ifIndex of the optical spectrum analyzer port
ifAlias	Name of the Port
nbsOsaChannelBand	The ITU grid labels DWDM channels with a letter 'band' and a numeric channel. Within this mib, the band is indicated by this object, and the channel number is shown in the object nbsOsaChannelNumber. Frequencies of at least 180100 GHz but less than 190100 GHz are considered the L spectrum, and frequencies of at least 190100 but less than 200100 GHz are considered the C spectrum. Frequencies evenly divisible by 100 GHz are designated with a 'C' or 'L' prepended to the channel number. Frequencies that are offset by 50 GHz are designated 'H' within the C spectrum, and 'Q' within the L spectrum.
nbsOsaChannelNumber	The channel number can be derived by extracting the two middle digits from the six digit frequency in GHz.
nbsOsaChannelFrequencyNominal	The nominal frequency, in MHz, of this channel.

2.1.60. nbsOsaTrapPortChannelDropped

Sent when optical spectrum analyser stops detecting a channel. This Notification should be of Severity ERROR.

Log message format: `osa Port Channel Dropped, <ChannelBand> Channel Number: <ChannelNumber> Channel Frequency Nominal: <ChannelFrequencyNominal>`

Table 2.119. nbsOsaTrapPortChannelDropped Enables

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.120. nbsOsaTrapPortChannelDropped Variables

Variable	Description
nbsOsaChannelIfIndex	The Mib2 ifIndex of the optical spectrum analyzer port
ifAlias	Name of the Port
nbsOsaChannelBand	The ITU grid labels DWDM channels with a letter 'band' and a numeric channel. Within this mib, the band is indicated by this object, and the channel number is shown in the object nbsOsaChannelNumber. Frequencies of at least 180100 GHz but less than 190100 GHz are considered the L spectrum, and frequencies of at least 190100 but less than 200100 GHz are considered the C spectrum. Frequencies evenly divisible by 100 GHz are designated with a 'C' or 'L' prepended to the channel number. Frequencies that are offset by 50 GHz are designated 'H' within the C spectrum, and 'Q' within the L spectrum.
nbsOsaChannelNumber	The channel number can be derived by extracting the two middle digits from the six digit frequency in GHz.
nbsOsaChannelFrequencyNominal	The nominal frequency, in MHz, of this channel.

2.1.61. nbsOsaTrapPortRxPowerTooLow

Sent when RxPower is lower then the configured threshold. This Notification should be of Severity ERROR.

Log message format: `osa Port Rx Power Too Low, <ChannelBand> Channel Number: <ChannelNumber> Channel Rx Power Min: <ChannelRxPowerMin> Channel Rx Power Oper: <ChannelRxPowerOper>`

Table 2.121. nbsOsaTrapPortRxPowerTooLow Enables

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.122. nbsOsaTrapPortRxPowerTooLow Variables

Variable	Description
nbsOsaChannelIfIndex	The Mib2 ifIndex of the optical spectrum analyzer port
ifAlias	Name of the Port
nbsOsaChannelBand	The ITU grid labels DWDM channels with a letter 'band' and a numeric channel. Within this mib, the band is indicated by

Variable	Description
	this object, and the channel number is shown in the object nbsOsaChannelNumber. Frequencies of at least 180100 GHz but less than 190100 GHz are considered the L spectrum, and frequencies of at least 190100 but less than 200100 GHz are considered the C spectrum. Frequencies evenly divisible by 100 GHz are designated with a 'C' or 'L' prepended to the channel number. Frequencies that are offset by 50 GHz are designated 'H' within the C spectrum, and 'Q' within the L spectrum.
nbsOsaChannelNumber	The channel number can be derived by extracting the two middle digits from the six digit frequency in GHz.
nbsOsaChannelRxPowerMin	The user-specified minimum signal strength, in millidecibels (mdBm), of this channel.
nbsOsaChannelRxPowerOper	The last known signal strength, in millidecibels (mdBm), of this channel.

2.1.62. nbsOsaTrapPortRxPowerOK

Sent when RxPower is OK. This Notification should be of Severity ERROR.

Log message format: `osa Port Rx Power OK, <ChannelBand> Channel Number: <ChannelNumber> Channel Rx Power Oper: <ChannelRxPowerOper>`

Table 2.123. nbsOsaTrapPortRxPowerOK Enables

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.124. nbsOsaTrapPortRxPowerOK Variables

Variable	Description
nbsOsaChannelIfIndex	The Mib2 ifIndex of the optical spectrum analyzer port
ifAlias	Name of the Port
nbsOsaChannelBand	The ITU grid labels DWDM channels with a letter 'band' and a numeric channel. Within this mib, the band is indicated by this object, and the channel number is shown in the object nbsOsaChannelNumber. Frequencies of at least 180100 GHz but less than 190100 GHz are considered the L spectrum, and frequencies of at least 190100 but less than 200100 GHz are considered the C spectrum. Frequencies evenly divisible by 100 GHz are designated with a 'C' or 'L' prepended to the channel number. Frequencies that are offset by 50 GHz are designated 'H' within the C spectrum, and 'Q' within the L spectrum.
nbsOsaChannelNumber	The channel number can be derived by extracting the two middle digits from the six digit frequency in GHz.
nbsOsaChannelRxPowerOper	The last known signal strength, in millidecibels (mdBm), of this channel.

2.1.63. nbsOsaTrapPortRxPowerTooHigh

Sent when RxPower is higher then the configured threshold. This Notification should be of Severity ERROR.

Log message format: `osa Port Rx Power Too High, <ChannelBand> Channel Number: <ChannelNumber> Channel Rx Power Max: <ChannelRxPowerMax> Channel Rx Power Oper: <ChannelRxPowerOper>`

Table 2.125. nbsOsaTrapPortRxPowerTooHigh Enables

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.126. nbsOsaTrapPortRxPowerTooHigh Variables

Variable	Description
nbsOsaChannelIfIndex	The Mib2 ifIndex of the optical spectrum analyzer port
ifAlias	Name of the Port
nbsOsaChannelBand	The ITU grid labels DWDM channels with a letter 'band' and a numeric channel. Within this mib, the band is indicated by this object, and the channel number is shown in the object nbsOsaChannelNumber. Frequencies of at least 180100 GHz but less than 190100 GHz are considered the L spectrum, and frequencies of at least 190100 but less than 200100 GHz are considered the C spectrum. Frequencies evenly divisible by 100 GHz are designated with a 'C' or 'L' prepended to the channel number. Frequencies that are offset by 50 GHz are designated 'H' within the C spectrum, and 'Q' within the L spectrum.
nbsOsaChannelNumber	The channel number can be derived by extracting the two middle digits from the six digit frequency in GHz.
nbsOsaChannelRxPowerMax	The user-specified maximum signal strength, in millidecibels (mdBm), of this channel.
nbsOsaChannelRxPowerOper	The last known signal strength, in millidecibels (mdBm), of this channel.

2.1.64. nbsOsaTrapPortOSNRTooLow

Sent when OSNR is lower then the configured threshold. This Notification should be of Severity ERROR.

Log message format: `osa Port OSNR Too Low, <ChannelBand> Channel Number: <ChannelNumber> Channel OSNR Min: <ChannelOSNRMin> Channel OSNR Oper: <ChannelOSNROper>`

Table 2.127. nbsOsaTrapPortOSNRTooLow Enables

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.128. nbsOsaTrapPortOSNRTooLow Variables

Variable	Description
nbsOsaChannelIfIndex	The Mib2 ifIndex of the optical spectrum analyzer port
ifAlias	Name of the Port
nbsOsaChannelBand	The ITU grid labels DWDM channels with a letter 'band' and a numeric channel. Within this mib, the band is indicated by this object, and the channel number is shown in the object nbsOsaChannelNumber. Frequencies of at least 180100 GHz but less than 190100 GHz are considered the L spectrum, and frequencies of at least 190100 but less than 200100 GHz are considered the C spectrum. Frequencies evenly divisible by 100 GHz are designated with a 'C' or 'L' prepended to the channel number. Frequencies that are offset by 50 GHz are designated 'H' within the C spectrum, and 'Q' within the L spectrum.
nbsOsaChannelNumber	The channel number can be derived by extracting the two middle digits from the six digit frequency in GHz.
nbsOsaChannelOSNRMin	The user-specified minimum OSNR of this channel
nbsOsaChannelOSNROper	The last known OSNR, in permil, of this channel.

2.1.65. nbsOsaTrapPortOSNROK

Sent when OSNR is ok. This Notification should be of Severity ERROR.

Log message format: `osa Port OSNROK, <ChannelBand> Channel Number: <ChannelNumber> Channel OSNR Oper: <ChannelOSNROper>`

Table 2.129. nbsOsaTrapPortOSNROK Enables

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.130. nbsOsaTrapPortOSNROK Variables

Variable	Description
nbsOsaChannelIfIndex	The Mib2 ifIndex of the optical spectrum analyzer port
ifAlias	Name of the Port
nbsOsaChannelBand	The ITU grid labels DWDM channels with a letter 'band' and a numeric channel. Within this mib, the band is indicated by this object, and the channel number is shown in the object nbsOsaChannelNumber. Frequencies of at least 180100 GHz but less than 190100 GHz are considered the L spectrum, and frequencies of at least 190100 but less than 200100 GHz are considered the C spectrum. Frequencies evenly divisible by 100 GHz are designated with a 'C' or 'L' prepended to the channel number. Frequencies that are offset by 50 GHz are designated 'H' within the C spectrum, and 'Q' within the L spectrum.

Variable	Description
nbsOsaChannelNumber	The channel number can be derived by extracting the two middle digits from the six digit frequency in GHz.
nbsOsaChannelOSNROper	The last known OSNR, in permil, of this channel.

2.1.66. nbsOsaTrapPortOSNRTooHigh

Sent when OSNR is higher then the configured threshold. This Notification should be of Severity ERROR.

Log message format: `osa Port OSNR Too High, <ChannelBand> Channel Number: <ChannelNumber> Channel OSNR Max: <ChannelOSNRMax> Channel OSNR Oper: <ChannelOSNROper>`

Table 2.131. nbsOsaTrapPortOSNRTooHigh Enables

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.132. nbsOsaTrapPortOSNRTooHigh Variables

Variable	Description
nbsOsaChannelIfIndex	The Mib2 ifIndex of the optical spectrum analyzer port
ifAlias	Name of the Port
nbsOsaChannelBand	The ITU grid labels DWDM channels with a letter 'band' and a numeric channel. Within this mib, the band is indicated by this object, and the channel number is shown in the object nbsOsaChannelNumber. Frequencies of at least 180100 GHz but less than 190100 GHz are considered the L spectrum, and frequencies of at least 190100 but less than 200100 GHz are considered the C spectrum. Frequencies evenly divisible by 100 GHz are designated with a 'C' or 'L' prepended to the channel number. Frequencies that are offset by 50 GHz are designated 'H' within the C spectrum, and 'Q' within the L spectrum.
nbsOsaChannelNumber	The channel number can be derived by extracting the two middle digits from the six digit frequency in GHz.
nbsOsaChannelOSNRMax	The user-specified maximum OSNR of this channel
nbsOsaChannelOSNROper	The last known OSNR, in permil, of this channel.

2.1.67. nbsMccLinkToggleTrapStart

Sent when nbsMccLinkToggleGroupStatus changes to running(3).

Log message format: `toggle group Start`

Table 2.133. nbsMccLinkToggleTrapStart Enables

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.134. nbsMccLinkToggleTrapStart Variables

Variable	Description
nbsMccLinkToggleGroupSlot	The Mib2-like ifIndex, in ccss000 format, of the slot whose ports are to be toggled,
ifAlias	Name of the Port

2.1.68. nbsMccLinkToggleTrapStop

Sent when a toggle session terminates and nbsMccLinkToggleGroupStatus changes to idle(2).

Log message format: `toggle group Stop`

Table 2.135. nbsMccLinkToggleTrapStop Enables

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.136. nbsMccLinkToggleTrapStop Variables

Variable	Description
nbsMccLinkToggleGroupSlot	The Mib2-like ifIndex, in ccss000 format, of the slot whose ports are to be toggled,
ifAlias	Name of the Port

2.1.69. nbsPrbsTrapGeneratorStarted

Sent when nbsPrbsGenStatus transitions to generating(4). This Notification should be of Severity INFO.

Log message format: `Port x.x.x prbs Generator Started`

Table 2.137. nbsPrbsTrapGeneratorStarted Enables

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.138. nbsPrbsTrapGeneratorStarted Variables

Variable	Description
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.70. nbsPrbsTrapGeneratorStopped

Sent when nbsPrbsGenStatus transitions from generating(4). This Notification should be of Severity INFO.

Log message format: `Port x.x.x prbs Generator Stopped`

Table 2.139. nbsPrbsTrapGeneratorStopped Enables

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.140. nbsPrbsTrapGeneratorStopped Variables

Variable	Description
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.71. nbsPrbsTrapCheckerStarted

Sent when an interface begins checking for a bitstream. This Notification should be of Severity INFO.

Log message format: `Port x.x.x prbs Checker Started`

Table 2.141. nbsPrbsTrapCheckerStarted Enables

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.142. nbsPrbsTrapCheckerStarted Variables

Variable	Description
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.72. nbsPrbsTrapCheckerStopped

Sent when an interface stops checking for a bitstream. This Notification should be of Severity INFO.

Log message format: `Port x.x.x prbs Checker Stopped, <CheckStatus>`

Table 2.143. nbsPrbsTrapCheckerStopped Enables

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.144. nbsPrbsTrapCheckerStopped Variables

Variable	Description
ChassisIndex	The index of the Chassis.

Variable	Description
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.
nbsPrbsCheckStatus	Indicates whether this port is checking a bitstream. If notSupported(1), this port cannot check a test bitstream. If idle(2), this port is currently not checking a test bitstream. If syncIn(3), this port currently is checking a bitstream and is synchronized with the pattern specified in nbsPrbsCheckPatternIndex. If syncOut(4), this port currently is checking a bitstream and is out of synchronization with the pattern specified in nbsPrbsCheckPatternIndex. If error(5), this port currently is checking a bitstream and an unspecified error occured in the checker. If errOverflow(6), the Error Counter reached its maximum and checking has been suspended. To clear this condition, user should set nbsPrbsCheckAction to stop(2). If gaveUp(7), the pattern checker was unable to synchronize and aborted.

2.1.73. nbsPrbsTrapCheckerOverflowed

Sent when nbsPrbsCheckStatus transitions to errOverflow(6). This event indicates that the checker was unable to continue and is now in a suspended state which requires a user to manually stop the checker. This Notification should be of Severity ERROR.

Log message format: `Port x.x.x prbs Checker Overflowed`

Table 2.145. nbsPrbsTrapCheckerOverflowed Enables

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**`snmp-server traps module`**

Table 2.146. nbsPrbsTrapCheckerOverflowed Variables

Variable	Description
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.

2.1.74. nbsPrbsTrapCheckerErrorDetected

Sent when nbsPrbsCheckErrors transitions from zero (0). This event indicates the first error was detected in the incoming bitstream. This Notification should be of Severity ERROR.

Log message format: `Port x.x.x prbs Checker Error Detected, <CheckStatus>`

Table 2.147. nbsPrbsTrapCheckerErrorDetected Enables

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.148. nbsPrbsTrapCheckerErrorDetected Variables

Variable	Description
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.
nbsPrbsCheckStatus	Indicates whether this port is checking a bitstream. If notSupported(1), this port cannot check a test bitstream. If idle(2), this port is currently not checking a test bitstream. If syncIn(3), this port currently is checking a bitstream and is synchronized with the pattern specified in nbsPrbsCheckPatternIndex. If syncOut(4), this port currently is checking a bitstream and is out of synchronization with the pattern specified in nbsPrbsCheckPatternIndex. If error(5), this port currently is checking a bitstream and an unspecified error occured in the checker. If errOverflow(6), the Error Counter reached its maximum and checking has been suspended. To clear this condition, user should set nbsPrbsCheckAction to stop(2). If gaveUp(7), the pattern checker was unable to synchronize and aborted.

2.1.75. nbsPrbsTrapCheckerStatusUpdate

This Notification periodically reports the status, error counts, and running time of the Checker process. This Notification should be of Severity INFO.

Log message format:

```
Port x.x.x prbs Checker Status Update,
<CheckStatus> Check Errors: <CheckErrors> Check
Progress: <CheckProgress>
```

Table 2.149. nbsPrbsTrapCheckerStatusUpdate Enables

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.150. nbsPrbsTrapCheckerStatusUpdate Variables

Variable	Description
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.

Variable	Description
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.
nbsPrbsCheckStatus	Indicates whether this port is checking a bitstream. If notSupported(1), this port cannot check a test bitstream. If idle(2), this port is currently not checking a test bitstream. If syncIn(3), this port currently is checking a bitstream and is synchronized with the pattern specified in nbsPrbsCheckPatternIndex. If syncOut(4), this port currently is checking a bitstream and is out of synchronization with the pattern specified in nbsPrbsCheckPatternIndex. If error(5), this port currently is checking a bitstream and an unspecified error occured in the checker. If errOverflow(6), the Error Counter reached its maximum and checking has been suspended. To clear this condition, user should set nbsPrbsCheckAction to stop(2). If gaveUp(7), the pattern checker was unable to synchronize and aborted.
nbsPrbsCheckErrors	Indicates how many errors were detected during the last pattern checking session. The Agent should clear this counter to zero(0) when nbsPrbsCheckStatus changes from idle(2). While pattern checking, Agent may increase this counter as errors occur. Once nbsPrbsCheckStatus changes to idle(2), this counter should report the final error count. If errors were detected but the count is unknown, Agent should report the number 1.
nbsPrbsCheckProgress	Indicates how long, in seconds, the port has been checking a bitstream. When nbsPrbsCheckStatus changes to idle(2), this.counter should be cleared to zero(0) and then increment once each second. When nbsPrbsCheckStatus changes to syncIn(3) or syncOut(4), this.counter should be frozen at its then current value.

2.1.76. nbsPrbsTrapCheckerSyncIn

Sent when a checker port synchronizes with a bitstream. This Notification should be of Severity ERROR.

Log message format: `Port x.x.x prbs Checker Sync In, <CheckStatus>`

Table 2.151. nbsPrbsTrapCheckerSyncIn Enables

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.152. nbsPrbsTrapCheckerSyncIn Variables

Variable	Description
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.

Variable	Description
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.
nbsPrbsCheckStatus	Indicates whether this port is checking a bitstream. If notSupported(1), this port cannot check a test bitstream. If idle(2), this port is currently not checking a test bitstream. If syncIn(3), this port currently is checking a bitstream and is synchronized with the pattern specified in nbsPrbsCheckPatternIndex. If syncOut(4), this port currently is checking a bitstream and is out of synchronization with the pattern specified in nbsPrbsCheckPatternIndex. If error(5), this port currently is checking a bitstream and an unspecified error occured in the checker. If errOverflow(6), the Error Counter reached its maximum and checking has been suspended. To clear this condition, user should set nbsPrbsCheckAction to stop(2). If gaveUp(7), the pattern checker was unable to synchronize and aborted.

2.1.77. nbsPrbsTrapCheckerSyncOut

Sent when a checker port loses synchronization with a bitstream. This Notification should be of Severity ERROR.

Log message format: `Port x.x.x prbs Checker Sync Out, <CheckStatus>`

Table 2.153. nbsPrbsTrapCheckerSyncOut Enables

SNMP MIB object	Node	CLI command
SysEnableModuleTraps	Config	**snmp-server traps module**

Table 2.154. nbsPrbsTrapCheckerSyncOut Variables

Variable	Description
ChassisIndex	The index of the Chassis.
SlotIndex	The slot index.
PortIndex	The index of the Port in the Slot in the Chassis to which this port is connected.
PortName	The user assigned name for this port. This object is also used for the MIB2 object ifAlias.
nbsPrbsCheckStatus	Indicates whether this port is checking a bitstream. If notSupported(1), this port cannot check a test bitstream. If idle(2), this port is currently not checking a test bitstream. If syncIn(3), this port currently is checking a bitstream and is synchronized with the pattern specified in nbsPrbsCheckPatternIndex. If syncOut(4), this port currently is checking a bitstream and is out of synchronization with the pattern specified in nbsPrbsCheckPatternIndex. If error(5), this port currently is checking a bitstream and an unspecified error occured in the checker. If errOverflow(6), the Error Counter reached its maximum and checking has been suspended. To clear this condition, user should set nbsPrbsCheckAction to

Variable	Description
	stop(2). If gaveUp(7), the pattern checker was unable to synchronize and aborted.

2.2. SNMP Set Reference

2.2.1. Configuration SNMP MIB Object CLI Reference

Table 2.155. Configuration Table

SNMP MIB object	CLI Command
SysAPIAgent	**sys api-agent**
SysAdminBootpState	**ip interface dhcp**
SysAuditLog	**sys audit-log**
SysCountersState	**sys clear-counters**
SysDefaultGateway	**ip default-gateway**
SysDiscovery	**sys discovery**
SysEnableModuleTraps	**snmp-server traps module**
SysEnablePowerSupplyTraps	**snmp-server traps power-supply**
SysGratuitousArp	**ip gratuitous-arp**
SysGuiDebugLog	**sys gui-server debug-log**
SysGuiServer	**sys gui-server**
SysGuiServerPort	**sys gui-server port**
SysGuiVerboseWarnings	**sys gui-server verbose-warnings**
SysIpAddr	**ip interface**
SysLmp	**sys lmp**
SysLockTypes	**sys lock-types**
SysLogDebugMessages	**log debug**
SysLogNvLevel	**log level nvram**
SysLogNvSize	**log size nvram**
SysLogRunningLevel	**log level running**
SysLogTrapLevel	**log level trap**
SysLoginIdleTimeout	**sys idle-timeout**
SysPasswordStrengthChecking	**sys password-strength-checking**
SysScpServer	**ip scp-server**
SysSerialBaudRate	**sys serial baudrate**
SysSerialTerminalType	**sys serial terminal-type**
SysSnmpPortAdmin	**snmp-server port**
SysSnmpV1	**snmp-server v1**
SysSnmpV2c	**snmp-server v2c**
SysSnmpV3	**snmp-server v3**
SysSshPort	**ip ssh-server port**
SysSshServer	**ip ssh-server**

SNMP MIB object	CLI Command
SysTelnetPort	**ip telnet-server port**
SysTelnetServer	**ip telnet-server**
SysTftpHostIP	**sys tftp-host-ip**
SysTimeServer	**sys rdate-server**
SysTrapEntry	**snmp-server host**
SysVlanIDAdmin	**ip interface vlan-id**
SysWarnNonMrvPluggable	**sys warn-non-mrv-pluggable**
SysWebPort	**ip web-server port**
SysWebServer	**ip web-server**
nbsNtpEnable	**ntp**
nbsNtpServerEntry	**ntp-server host**
nbsRemoteAAAAcct	**aaa accounting**
nbsRemoteAAAAuthen	**aaa authentication**
nbsRemoteAAAProtocol	**aaa protocol**
nbsSyslogServerEntry	**log remote-server host**
sysContact	**snmp-server sys contact**
sysLocation	**snmp-server sys location**

2.2.2. Chassis SNMP MIB Object CLI Reference

Table 2.156. Chassis Table

SNMP MIB object	CLI Command
ChassisCountersState	**clear-counters**
ChassisEnableChassisTraps	**gen-trap chassis**
ChassisEnableLINTraps	**gen-trap lin**
ChassisEnableLinkTraps	**gen-trap link**
ChassisEnableLoopbackTraps	**gen-trap loopback**
ChassisEnableModuleSpecificTraps	**gen-trap module-specific**
ChassisEnablePortChangeTraps	**gen-trap port-change**
ChassisEnablePortDiagsTraps	**gen-trap port-diags**
ChassisEnablePortTraps	**gen-trap port**
ChassisEnableSlotChangeTraps	**gen-trap slot-change**
ChassisEnableSwitchoverTraps	**gen-trap switchover**
ChassisLoopbackTimeout	**loopback-timeout**
ChassisName	**description**
ChassisTemperatureLimit	**temperature-limit**
ChassisTemperatureMin	**temperature-min**

2.2.3. Slot SNMP MIB Object CLI Reference

Table 2.157. Slot Table

SNMP MIB object	CLI Command
SlotCountersState	**clear-counters**
SlotDebugCli	**debug-cli**
SlotDefGateway	**ip default-gateway**
SlotHoming	**homing**
SlotIPAddress	**ip interface**
SlotName	**description**
SlotOperationType	**operation-type**
SlotRedundancyAdmin	**redundancy**
SlotRefresh	**refresh**
SlotReset	**reset**
SlotRmTrace	**rm-trace**
SlotToggleRate	**toggle-rate**
nbsEusmSlotAccControlActionTag	**default acc-control tagged**
nbsEusmSlotAccControlActionUntag	**acc-control untag**
nbsEusmSlotCoSMode	**cos**
nbsEusmSlotDscpEgressMode	**dscp egress-mode**
nbsEusmSlotDscpIngressAf	**dscp ingress af**
nbsEusmSlotDscpIngressAllOther	**dscp ingress all-other**
nbsEusmSlotDscpIngressCs	**dscp ingress cs**
nbsEusmSlotDscpIngressEf	**dscp ingress ef**
nbsEusmSlotDscpIngressZeroDscp	**dscp ingress zero-dscp**
nbsEusmSlotDscpRemark	**dscp remark**
nbsEusmSlotIometrix	**iometrix**
nbsEusmSlotLgaAction	**lga stop**
nbsEusmSlotLinkAggrAdmin	**link-aggregation**
nbsEusmSlotManagementVid	**management-vid**
nbsEusmSlotPmAction	**pm stop**
nbsEusmSlotStormControlBroadcast	**storm-control broadcast**
nbsEusmSlotStormControlMulticast	**storm-control multicast**
nbsEusmSlotStormControlUnicast	**storm-control unicast**
nbsEusmSlotUserPortIRAdmin	**user-port-limit**
nbsMccLinkToggleGroupAction	**link-toggle-action**
nbsMccLinkToggleGroupCycles	**link-toggle-cycles**
nbsMccLinkToggleGroupDnRate	**link-toggle-down-rate**
nbsMccLinkToggleGroupUpRate	**link-toggle-up-rate**

SNMP MIB object	CLI Command
nbsMccLinkToggleTrapStartEmit	**link-toggle-trap-start-emit**
nbsMccLinkToggleTrapStopEmit	**link-toggle-trap-stop-emit**
nbsVlanControlMgmtVid	**mgmt-vid**
nbsVlanSlotMapsHeartbeat	**maps heartbeat**
nbsVlanSlotMapsMode	**maps-mode**
nbsVlanSlotMapsRxTimer	**maps rx-timer**
nbsVlanSlotMapsTxTimer	**maps tx-timer**
nbsVlanSlotMapsVid	**maps vid**

2.2.4. Port SNMP MIB Object CLI Reference

Table 2.158. Port Table

SNMP MIB object	CLI Command
mrvEfmOamAdminState	**oam**
PortAging	**aging**
PortAmpOutputPwrAdmin	**amplifier output-power**
PortAutoNegAd	**auto-neg-adv hex**
PortAutoNegWait	**auto-neg-wait**
PortAutoNegotiation	**auto-negotiation**
PortCableLen	**cable-len**
PortCountersState	**clear-counters**
PortDuplex	**duplex**
PortEnableAdmin	**shutdown**
PortErrorSelect	**error-select**
PortFCRecvAdmin	**flow-control receive**
PortFCSendAdmin	**flow-control send**
PortFlowControl	**flow-control**
PortI2CSpeed	**i2c-speed**
PortLIN	**lin**
PortLinkMatch	**link-match**
PortLoopback	**loopback**
PortMDIPinoutAdmin	**mdi-pinout**
PortMappingType	**mapping-type**
PortName	**description**
PortNominalBitRate	**nominal-bit-rate**
PortPreambleLen	**preamble-len**
PortPreferred	**preferred**
PortRMChassis	**rm-chassis**
PortRMPort	**rm-port**

SNMP MIB object	CLI Command
PortRMSlot	**rm-slot**
PortRedundantTxMode	**redundant-tx-mode**
PortRefresh	**refresh**
PortRemoteLoopback	**loopback internal**
PortSelectLink	**select-link**
PortSniffer	**sniffer**
PortSpeed	**speed**
PortTermination	**termination**
PortThreshold	**threshold**
PortThresholdAction	**threshold-action**
PortToggleMode	**toggle-mode**
PortTransmitUnmapped	**shutdown-unmapped**
nbsEusmCableTestStatus	**cable-test**
nbsEusmPortSmartLoopbackAction	**loopback off**
nbsEusmPortVlanTagAction	**default vlan-tag**
nbsEusmTgaAction	**traffic-gen action**
nbsEusmTgaDaType	**default traffic-gen da**
nbsEusmTgaFrameCountType	**default traffic-gen frame-count**
nbsEusmTgaFrameSizeType	**default traffic-gen frame-size**
nbsEusmTgaInterPacketGap	**traffic-gen inter-packet-gap**
nbsEusmTgaPatternType	**default traffic-gen pattern**
nbsEusmTgaSaType	**default traffic-gen sa**
nbsEusmTgaTagType	**default traffic-gen tag**
nbsPrbsCheckAction	**pattern-check stop**
nbsPrbsCheckDuration	**pattern-check duration**
nbsPrbsCheckUpdateFreq	**pattern-check update-freq**
nbsPrbsGenAction	**pattern-gen stop**
nbsPrbsGenDuration	**pattern-gen duration**
nbsSffMsxHasSgmiiPhy	**sgmii**
nbsSigCondRamanPumpPwrAdmin	**pump-pwr**
nbsSlaLossGainAction	**lga stop**
nbsSlaPerfMonAction	**pm stop**
nbsSlaTrafficGenAction	**traffic-gen-10 action**
nbsSlaTrafficGenDaType	**default traffic-gen-10 da**
nbsSlaTrafficGenFrameCountType	**default traffic-gen-10 frame-count**
nbsSlaTrafficGenFrameSizeType	**default traffic-gen-10 frame-size**
nbsSlaTrafficGenInterPacketGap	**traffic-gen-10 inter-packet-gap**
nbsSlaTrafficGenPatternType	**default traffic-gen-10 pattern**

SNMP MIB object	CLI Command
nbsSlaTrafficGenSaType	**default traffic-gen-10 sa**
nbsSlaTrafficGenTagType	**default traffic-gen-10 tag**
nbsVlanFwdEgressTagAction	**egress-tag-action**
nbsVlanFwdIngressTagAction	**ingress-tag-action**
nbsVlanFwdPriority	**priority**
nbsVlanFwdVid	**vid**
nbsVlanFwdVidList	**vid-list**
nbsVlanPortAccControlActionTag	**default acc-control tagged**
nbsVlanPortAccControlActionUntag	**acc-control untag**

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