Configuring SNMP

The following MIBs are supported in NCS 1020.

SNMP MIB Name	OID
CISCO-FLASH-MIB	1.3.6.1.4.1.9.9.10
CISCO-ENHANCED-MEMPOOL-MIB	1.3.6.1.4.1.9.9.221
ENTITY-MIB	1.3.6.1.2.1.47
CISCO-ENTITY-FRU-CONTROL-MIB	1.3.6.1.4.1.9.9.117
CISCO-ENTITY-SENSOR-MIB	1.3.6.1.4.1.9.9.91
CISCO-IF-EXTENSION-MIB	1.3.6.1.4.1.9.9.27
CISCO-ENTITY-ASSET-MIB	1.3.6.1.4.1.9.9.92
CISCO-PROCESS-MIB	1.3.6.1.4.1.9.9.109
CISCO-CONFIG-MAN-MIB	1.3.6.1.4.1.9.9.43
CISCO-ENTITY-REDUNDANCY-MIB	1.3.6.1.4.1.9.9.498
CISCO-SYSTEM-MIB	1.3.6.1.4.1.9.9.131
CISCO-SYSLOG-MIB	1.3.6.1.4.1.9.9.41
RMON-MIB	1.3.6.1.2.1.16.0
CISCO-ALARM-MIB	1.3.6.1.4.1.9.9.869
EVENT-MIB	1.3.6.1.2.1.88
DISMAN-EXPRESSION-MIB	1.3.6.1.2.1.90
CISCO-FTP-CLIENT-MIB	1.3.6.1.4.1.9.9.80
NOTIFICATION-LOG-MIB	1.3.6.1.2.1.92
CISCO-RF-MIB	1.3.6.1.4.1.9.9.176

SNMP MIB Name	OID
UDP-MIB	1.3.6.1.2.1.7
CISCO-OPTICAL-MIB	1.3.6.1.4.1.9.9.828.0.1
CISCO-OPTICAL-OTS-MIB	1.3.6.1.4.1.9.9.834

For more information regarding SNMP MIBs refer to cfnng.cisco.com.

NCS 1020 SNMP OTS MIB Support

SNMP MIBS in the NCS 1020 platform support many controllers and parameters of different operational types which help in interacting with the rest of the system.

SNMP Traps

An SNMP trap refers to a type of SNMP Protocol Data Unit (PDU). An agent is able to send an unrequested message to the manager to notify about any important event with an SNMP trap, unlike other PDU types.

- Traps can be sent on SNMP version-2 (V2) or version-3 (V3) authentication.
- In version-2 (V2C) of SNMP, community public and UDP port are defined by default as 162.
- In version-3 (V3), user, group authentication methods like md5 and des56 are used and the UDP port needs to be mentioned.

Configuration on nodes is listed below.

- **Configuration of traps server as receiver**: A trap server listens only to both the protocols SNMP V3 and SNMP V2. For V3 traps, server IP, userid and UDP port are needed as in the example given below.
  - snmp-server host 10.65.41.209 traps version 3 priv nocUser1 udp-port 163

  For V2 traps, server IP, protocol 2c , community public and UDP ports are needed, as in the the example given below.
  - snmp-server host 64.104.134.47 traps version 2c public udp-port 12217
- **Configuration of user for SNMP V3 authentication**: Configure username with ID like nocUser1 and groups like nocGroup1 etc, followed by the authentication methods like md5 and privileged protocols like des56 followed by user and owner types as in the example given below.
  - snmp-server user nocUser1 nocGroup1 v3 auth md5 encrypted 0505090C145F4B1B48 priv des56 encrypted 082F434D3C0A000543 SystemOwner
- **Configuration for SNMP V3 View**: View includes the MIB starting point like given in the example below.
  - snmp-server view nocView1 1.3 included
- **Configuration for Community String**: Community string is public with read, write permission and system owner privileges like given in the example below.
  - snmp-server community public RW SystemOwner

- **Configuration for SNMP V3 Group**: Defines the group as name nocGroup1 with V3 protocol and privileges, notify view and view name as nocView1 and includes read and write operations similarly. The example is as given below.
  - snmp-server group nocGroup1 v3 priv notify nocView1 read nocView1 write nocView1
- **Configuration for Traps Requireing Customers Check**: Syslog as traps is enabled as given below.
  - snmp-server traps syslog
- **Configuration for Inventory**: For insert and remove and other control operations as given in the example below.
  - snmp-server traps fru-ctrl
- **Configuration for Traps**: For config change request use as the example given below.
  - snmp-server traps config
- **Configuration for Entity Related Update**: Use as given in the example below.
  - snmp-server traps entity
- **Configuration for System Up/Down Related Traps**: Use as per the example given below.
  - snmp-server traps system
- **Configuration for Preserving the Ifindex Over Reload**: Use as per the example given below.
  - snmp-server ifindex persist

A few examples of SNMP traps are added below.

```
Received SNMPv2c Trap:
Community: public
From: 10.127.60.241
sysUpTimeInstance = 00:07:05.93
snmpTrapOID.0 = cefcFanTrayStatusChange
cefcFanTrayOperStatus.4097 = up(2)
entPhysicalDescr.4097 = NCS1010 - Shelf Fan
entPhysicalName.4097 = 0/FT0

Received SNMPv2c Trap:
Community: public
From: 10.127.60.241
sysUpTimeInstance = 00:07:05.86
snmpTrapOID.0 = clogMessageGenerated
clogHistFacility.1 = MGBL-exec
clogHistSeverity.1 = error(4)
clogHistMsgName.1 = LOGIN_AUTHEN
clogHistMsgText.1 = Login Authentication failed. Exiting...
clogHistTimestamp.1 = 00:50:36.81
Received
```

Supporting Controllers of SNMP MIBs in NCS 1020

The following controllers support the various operational parameters of the NCS 1020 SNMP MIBs.

Table 1: Supporting Controllers of SNMP MIBs in NCS 1020

SNMP MIB	Controllers
CISCO-OPTICAL-OTS-MIB	• OTS • OTS-OCH • OMS • OCH • DFB • OSC

NCS 1020 SNMP MIB Controller Parameters

The controller specific parameters for NCS 1020 controllers are given below.

Table 2: NCS 1020 SNMP MIB Controller Parameters

SNMP MIB	Controller Parameters
CISCO-OPTICAL-OTS-MIB	• RxSpanLoss • TxSpanLoss • TxSignalPower • RxSignalPower • TxVoaAttenuation • ControllerState • TransportAdminState • TotalTxPower • TotalRxPower • IngressAmpliGain • IngressAmpliTilt • IngressAmpliGainRange • EgressAmpliGain • EgressAmpliTilt • EgressAmpliGainRange • IngressAmpliOsri • EgressAmpliOsri • IngressAmpliSafetyControlMode • EgressAmpliSafetyControlMode • TotalLCTxPower • TotalLCRxPower • IngressAmpliForceApr • EgressAmpliForceApr • BrPower • LedState • SpectrumInfo • OtsControllerPortType • LineTxBrRatio

NCS 1020 SNMP MIB Performance Monitoring Parameters

The NCS 1020 SNMP MIB performance monitoring parameters are given below.

Table 3: NCS 1020 SNMP MIB Performance Monitoring Parameters

SNMP MIB	Performance Monitoring Parameters
CISCO-OPTICAL-OTS-MIB	• Tx Power(min, max, avg) • Rx Power(min, max, avg) • Ingress Ampli Gain(min, max, avg) • Ingress Ampli Tilt(min, max, avg) • Egress Ampli Gain(min, max, avg) • Egress Ampli Tilt(min, max, avg) • Tx Power(C+L)(min, max, avg) • Rx Power(C+L)(min, max, avg) • Tx Power[S](min, max, avg) • Rx Power[S](min, max, avg) • Opbr (min, max, avg)

NCS 1020 SNMP MIB Raman Parameters

The NCS 1020 OTS raman parameters are given below.

Table 4: NCS 1020 SNMP MIB Raman Parameters

SNMP MIB	Raman Parameters
CISCO-OPTICAL-OTS-MIB	• Raman-1 Power • Raman-1 Wavelength • Raman-2 Power • Raman-2 Wavelength • Raman-3 Power • Raman-3 Wavelength • Raman-4 Power • Raman-4 Wavelength • Raman-5 Power • Raman-5 Wavelength • Raman Osri • Raman Safety Control Mode • Raman Force Apr • Raman Br Power • Composite Raman Power • Raman Br Ratio

NCS 1020 SNMP MIB Supported Operations

NCS 1020 SNMP MIB Supported Operations are given below.

Table 5: NCS 1020 SNMP MIB Supported Operations

SNMP MIB	SNMP Operation
CISCO-OPTICAL-OTS-MIB	• snmpwalk • Get Exact • Get One • Get Many

Note

- Both version-2 (V2) and version-3 (V3) SNMP operations are supported in NCS 1020.
- The transmit VOA attenuation value is measured in 1/100 dB and 1/10 dB on line systems devices in NCS 1020.