# Release Notes for Cisco NCS 1000 Series, IOS XR Release 7.9.1

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### NCS 1010

NCS 1010 OLS platform is an integral component of the Routed Optical Networking solution. It provides point-to-point and mesh connectivity between routers with ZR/ZR+ optics and multiplexes signals from multiple routers over a single fiber. The OLS platform supports ROADM nodes of up to 8 degrees using the NCS 1000 Breakout Patch Panel. NCS 1010 supports both C-band and L-band WDM transmission through three variants of Optical Line Terminal (OLT), such as OLT-C, OLT-R-C, and OLT-L, and four variants of In-Line Amplifier (ILA), such as ILA-C, ILA-L, ILA-R-C, ILA-2R-C.

The NCS 1010 OLS platform comprises of:

- Network Convergence System (NCS 1010) chassis—A 3RU modular chassis that has an in-built External Interface Timing Unit (EITU) and multiple field-replaceable modules.
- Cisco NCS 1000 Breakout Patch Panel—A colorless breakout patch panel that enables you to implement long-haul topologies. By using three NCS1K-BRK-24 modules, up to 72 Mux/Demux channels can be supported, and by using one NCS1K-BRK-8 module, up to eight ROADM degrees can be supported.
- Cisco NCS 1000 32-Channel Mux/Demux Patch Panels—Support colored channels that enable you to implement metro topologies, and the Routed Optical Networking solution. Each of the two Mux/Demux patch panels (NCS1K-MD-32O-C and NCS1K-MD32E-C) supports 32 channels and works as an add/drop unit for the OLT-C and OLT-R-C line cards.

### NCS 1004

The Cisco NCS 1004 chassis is a 2 RU chassis that delivers a universal transponder solution which provides excellent performance for metro, long-haul and submarine applications. The following is the list of cards supported by NCS 1004 and the corresponding PIDs:

- 1.2T C-Band line card (1.2 Tbps) - NCS1K4-1.2T-K9
- 1.2T L-Band line card (800 Gbps) - NCS1K4-1.2TL-K9
- OTN-XP card (800 Gbps) - NCS1K4-OTN-XP
- 2-QDD-C line card (800 Gbps) - NCS1K4-2-QDD-C-K9
- 3.2T QSFP-DD DCO transponder card (3.2 Tbps) - NCS1K4-QXP-K9

The 2 RU of NCS 1004 supports up to 4.8Tbps of traffic with the NCS1K4-1.2T-K9 line cards in all of its four slots. The 3.2T QXP card in each of the four slots can provide 2.4T (6x400G) and hence can support up to 9.6Tbps of traffic.

NCS 1004 has the following components:

- Removable controller
- Two replaceable power supply units
- Four line card slots
- Three replaceable fan units

**NCS 1001**

The Cisco Network Convergence System (NCS) 1001 is a 1-RU chassis that addresses the growing bandwidth needs of data center DWDM applications. It provides a DWDM line system that is optimized for data center environments and is optimized for point-to-point applications at maximum capacity. Cisco NCS 1001 supports up to three optical modules. The modules that can be hosted inside the NCS 1001 chassis are amplifiers, OTDR, or protection switching modules.

NCS 1001 has the following components:

- Four removable fans.
- Two removable AC or DC power supply modules (PSU).
- Three slots for optical modules. The Optical Amplifier Module (NCS1K-EDFA), Protection Switching Module (NCS1K-PSM), and Optical Time Domain Reflectometer Module (NCS1K-OTDR) can be inserted in these slots.

# What's New in Cisco NCS 1000 Series, IOS XR Release 7.9.1

**NCS 1010**

| Feature | Description |
|---|---|
| **Datapath Configuration** | |
| ASE Loading Enhancements | In addition to the C-band, ASE (Amplified Spontaneous Emission) loading on OLT cards is now enabled for L-band. ASE loading makes the system intrinsically stable and tolerant to power transients by populating the transmission spectrum with noise. It is done to keep the fiber activated even when provisioned optical channels are unavailable during system startup, channel failures, and channel deletion.<br><br>Also, you can now create overlapping channels (Nyquist channels) on the OLT cards. As a result, fiber utilization is considerably improved as more channels are accommodated within a single fiber. During the failure of overlapping channels, ASE loading fills the void with an overlapping ASE spectrum. |
| NCS 1010 L-Band and C+L-Band Support. | NCS 1010 now supports C+L-Band. The addition of the L-Band to the existing C-Band provides more channels increasing the data transfer capacity of the optical line system. |

| Feature | Description |
|---|---|
| OLT Based Omnidirectional Add/Drop Topology | You can now set up pure OLT-based omnidirectional add/drop topology. This topology is supported over the C+L band and scalable beyond 4-degree nodes. Dual omnidirectional add/drop can be implemented on a node to provide redundancy or increased add/drop capacity.<br>The omnidirectional setup provides the flexibility to the multidegree topology to route channels through any of the optical degrees during fiber cut without the need for physical fiber reconnections. |
| SNMP MIB support is enabled in NCS 1010 | The standard optical Simple Network Management Protocol (SNMP) Management Information Bases (MIBs) with Object Identifiers (OIDs) are now supported on the NCS 1010 platform. Also, from R7.9.1 Release onwards specific support is enabled for the OTS SNMP MIB. See Cisco SNMP MIBs for details. |
| **Optical Applications Configuration** | |
| APC enhancements | APC (Automatic Power Control) on NCS 1010 now supports C+L band networks in addition to C band only networks. Also, APC is enhanced to perform power correction even when it does not have end-to-end network visibility. This ensures that the operational section of the network always has power at the target Power Spectral Density (PSD) profile, and when the network comes up, the traffic restoration is faster. |
| Band Failure Recovery (BFR) | During the C+L band network bring up, as both the bands travel through the same fiber, optical power is transferred from higher frequency to lower frequency due to SRS (Stimulated Raman Scattering). This degrades the C-band channel power and causes the existing C-band power profile to change.<br>BFR compensates for this dynamic power change by adjusting the power profile that minimizes the impact when upgrading from C-band to the C+L band network. BFR also adjusts power during a band failure to minimize the impact on the surviving band. |
| **Hardware** | |
| NCS1K-ILA-L Line Card | The new NCS1K-ILA-L line card for the NCS 1010 optical line system amplifies L-band traffic. The ILA-L card acts as expansion equipment for the ILA-C units and connects to the L-band expansion port in the ILA-C unit. The ILA-L enables sending the low-loss L-Band through the existing ILA-C node to enhance the fiber capacity and effectively upgrade the C-band only node to a C+L band node. |
| NCS1K-OLT-L Line Card | The new NCS1K-OLT-L line card for the NCS 1010 optical line system performs the add/drop function for the L-band traffic. The OLT-L card acts as expansion equipment for the OLT-C units and connects to the L-band expansion port in the OLT-C unit. By supporting L-band traffic, the OLT-L line card improves fiber utilization by enabling the existing OLT-C node to send both C-band and L-band traffic. |

| Feature | Description |
|---|---|
| Port Status for Breakout Modules | The LEDs for optical ports (COM, TX-i-RX) in the breakout modules will now indicate port status in these colors:<br>• Red—Presence of major and critical alarms that could be traffic-impacting.<br>• Amber—Presence of minor alarm when tone generation or tone detection is initiated. Tone detection uses a specific probe signal to verify the connection between OLT line cards and the breakout modules.<br>• Green—Normal operations with no system alarms. |
| Port Status for Mux/Demux Patch Panel | In the mux/demux panel, the optical ports (COM, CH-0…CH-31) LEDs will now indicate port status in the following three colors:<br>• Red—Presence of traffic-impacting major and critical alarms.<br>• Amber—Presence of minor alarm when performing tone generation or tone detection for connection verification. Tone detection verifies the connection between OLT line cards and the mux/demux panels using a specific probe signal.<br>• Green—Patch panel is operating fine and no alarm is raised. |
| **Telemetry** | |
| Sensor Paths Supported for EDT | New native YANG model sensor paths and an OpenConfig sensor path are introduced for Event Driven Telemetry (EDT) in NCS 1010.<br>EDT streams data only when a state transition occurs and thus avoids excess data collection at the receiver.<br>EDT streams data about interface state transitions, controller shutdown, and failure, removal and insertion of the components such as power module, fan, line card, and passive modules into the NCS 1010 chassis. |
| Sensor Paths Supported for MDT | Model Driven Telemetry (MDT) is now supported by NCS 1010 for the native YANG models and OpenConfig sensor paths. MDT performs continuous data streaming and provides near real-time access to operational statistics. |

**NCS 1004**

| Feature | Description |
|---|---|
| **System Setup and Software Installation** | |
| Automatic FPD Upgrade | The automatic FPD upgrade functionality is now enabled by default. It upgrades the FPD components' firmware version to the latest version. This enhancement eliminates the need to explicitly enable the functionality using the **fpd auto-upgrade enable** command. As a result, the software upgrade is simplified, and the system always maintains the latest state of the FPD firmware version. |
| **Configuration** | |

| Feature | Description |
|---|---|
| APS Support for 100G and 200G Trunk Bandwidth on OTN XP Cards | In addition to the 400G client and trunk bandwidth, you can now configure Automatic Protection Switching (APS) for the following trunk and client bandwidth combinations:<br>• 200G DWDM and 2x100G clients<br>• 100G QSFP28 Grey with 10x10G clients |
| Encryption for 10G clients and 100GE clients on OTN-XP Card | OTN-XP card now supports AES 256-GCM authenticated OTNSec encryption for 10G and 100GE clients in the 40x10G-4x100G-MXP mode. As this authentication method uses a key size of 256 bits, it provides considerably strong cryptography acceptable by enterprise, and public sector organizations. |
| Smart Licensing Support on 2-QDD-C Card | Smart licensing is now supported on the 2-QDD-C card. Being a cloud-based software license management solution, it enables you to automate the licensing process and provides some of these functionalities:<br>• Asset management information to plan and track the licenses.<br>• License pooling across the organization, enabling them to be reused across organizational boundaries.<br>• Notifies to buy out-of-compliance licenses when the license limit exceeds the paid license limit. |

**NCS 1001**

| Feature | Description |
|---|---|
| **Data Models** | |
| New Optics Telemetry Bag | The telemetry bag, which maintains the collection of telemetry data, needs to be of an ideal size to stream the data effectively. In this release, the optical telemetry bag size has been optimized by introducing the following exclusive sensor paths for OTS and OTS-OCH controllers:<br>• Cisco-IOS-XR-controller-ncs1001-ots-och-oper:ots-och-oper/ots-och-ports/ots-och-port/ots-och-info<br>• Cisco-IOS-XR-controller-ncs1001-ots-oper:ots-oper/ots-ports/ots-port/ots-info<br>Unlike in previous release, where OTS and OTS-OCH controller's telemetry data was accessed from a single telemetry bag, it is now separated out by the respective sensor paths. The already existing optics-info sensor path now includes only the data of the OPTICS controller. The result is a smaller bag size. Two new native NETCONF yang models are introduced to support the two new sensor paths. |

**YANG Data Models Introduced and Enhanced**

We have launched the Yang Explorer tool as an easy reference to view the Data Models (Native, Unified, OpenConfig) supported in IOS XR platforms and releases. You can explore the data model definitions, locate a specific model, and view the containers and their respective lists, leaves, leaf lists, Xpaths, and much more.

As we continue to enhance the tool, we would love to hear your feedback. You are welcome to drop us a note here.

**New Alarms in NCS 1010, Release 7.9.1**

- Node Unpaired from Band Partner Node
- APC Partial Topology

# Release 7.9.1 Packages



**Warning** Downgrading your software on an NCS 1010 device from a higher version to Cisco IOS XR Release 7.7.1 is a traffic-impacting operation.

### Release 7.9.1 Packages for Cisco NCS 1010

The Cisco IOS XR chassis is composed of a base image (ISO) that provides the XR infrastructure. The ISO image is made up of a set of packages (also called RPMs). These packages are of three types:

- A mandatory package that is included in the ISO
- An optional package that is included in the ISO
- An optional package that is not included in the ISO

*Table 1: Release 7.9.1 Packages for Cisco NCS 1010*

| Feature Set | Filename | Description |
|---|---|---|
| **Composite Package** | | |
| Cisco IOS XR Core Bundle + Manageability Package | ncs1010-x64-7.9.1.iso | Contains required core packages, including operating system, Admin, Base, Forwarding, SNMP Agent, FPD, and Alarm Correlation and Netconf-yang, Telemetry, Extensible Markup Language (XML) Parser, HTTP server packages. |
| **Individually Installable Packages** | | |
| Cisco IOS XR Telnet Package | xr-telnet-7.9.1.x86_64.rpm<br>xr-telnet-ncs1010-7.9.1.x86_64.rpm | Install the xr-telnet-7.9.1.x86_64.rpm and xr-telnet-ncs1010-7.9.1.x86_64.rpm packages to support Telnet. |
| Cisco IOS XR Cisco Discovery Protocol (CDP) Package | xr-cdp-7.9.1.x86_64.rpm<br>xr-cdp-ncs1010-7.9.1.x86_64.rpm | Install the xr-cdp-7.9.1.x86_64.rpm and xr-cdp-ncs1010-7.9.1.x86_64.rpm to support CDP. |

See Install Packages and RPMs.

*Table 2: Release 7.9.1 Packages for Cisco NCS 1004*

| Feature Set | Filename | Description |
|---|---|---|

| **Composite Package** | | |
|---|---|---|
| Cisco IOS XR Core Bundle + Manageability Package | ncs1004-iosxr-px-k9-7.9.1.tar | Contains required core packages, including operating system, Admin, Base, Forwarding, SNMP Agent, FPD, and Alarm Correlation and Netconf-yang, Telemetry, Extensible Markup Language (XML) Parser, HTTP server packages. |
| **Individually Installable Packages** | | |
| Cisco IOS XR Security Package | ncs1004-k9sec-1.0.0.0-r791.x86_64.rpm | Support for Encryption, Decryption, IP Security (IPsec), Secure Socket Layer (SSL), and Public-key infrastructure (PKI). |
| Cisco IOS XR OTN-XP DP Package | ncs1004-sysadmin-otn-xp-dp-7.9.1-r791.x86_64.rpm<br>(part of ncs1004-iosxr-px-k9-7.9.1.tar) | Install the ncs1004-sysadmin-otn-xp-dp-7.9.1-r791.x86_64.rpm data path FPD package on the OTN-XP card. This package is mandatory for datapath bring up. |
| OpenROADM | ncs1004-tp-sw-1.0.0.0-r791.x86_64.rpm | Install the ncs1004-tp-sw-1.0.0.0-r791.x86_64.rpm package for OpenROADM configuration. |
| **Optional Packages** | | |
| Cisco IOS XR MPLS Package | ncs1004-mpls-1.0.0.0-r791.x86_64.rpm | Install the ncs1004-mpls-1.0.0.0-r791.x86_64.rpm for Multiprotocol Label Switching (MPLS) configuration |
| Cisco IOS XR MPLS RSVP TE package | ncs1004-mpls-te-rsvp-1.0.0.0-r791.x86_64.rpm | Install the ncs1004-mpls-te-rsvp-1.0.0.0-r791.x86_64.rpm for MPLS RSVP-TE (Resource Reservation Protocol with Traffic Engineering extensions) configuration |
| Pre and Post-Upgrade Installation Health Checks | ncs1004-healthcheck-1.0.0.0-r791.x86_64.rpm | Install the ncsncs1004-healthcheck-1.0.0.0-r791.x86_64.rpm package for Pre and Post-Upgrade Installation Health Checks configuration |

See Install Packages.

***Table 3: Release 7.9.1 Packages for Cisco NCS 1001***

| Feature Set | Filename | Description |
|---|---|---|
| **Composite Package** | | |

| | | |
|---|---|---|
| Cisco IOS XR Core Bundle + Manageability Package | ncs1001-iosxr-px-k9-7.9.1.tar | Contains required core packages, including operating system, Admin, Base, Forwarding, SNMP Agent, FPD, and Alarm Correlation and Netconf-yang, Telemetry, Extensible Markup Language (XML) Parser, HTTP server packages. |
| **Individually Installable Optional Packages** | | |
| Cisco IOS XR Security Package | ncs1001-k9sec-1.0.0.0-r791.x86_64.rpm (part of ncs1k-iosxr-px-k9-7.9.1.tar) | Support for Encryption, Decryption, IP Security (IPsec), Secure Socket Layer (SSL), and Public-key infrastructure (PKI). |

See Install Packages.

# Caveats

## Open Caveats

### NCS 1010

The following table lists the open caveats for NCS 1010:

| Identifier | Headline |
|---|---|
| CSCwd24898 | NCS1010 - Rx-LOC alarm should not flap on near end node on uni-directional fiber cut |
| CSCwd28885 | NCS1010: GigabitEthernet0/0/0/0 link flapped in an IDLE L band system and eventually restored |
| CSCwd44667 | OBFL errors seen during FPD force upgrade |
| CSCwd66333 | OOB power should be integrated on OMS and OTS port to enable to measure patch loss |
| CSCwd93115 | BFR support for ROADM node |
| CSCwd95713 | OTDR not functional in ELEAF with RAMAN due to FWM |
| CSCwe04797 | NCS1010-BFR: Enhancement required in BFR to support High BR events which leads to APR condition |
| CSCwe29370 | [EDVT-NCS1010 C-band]: interface GE stuck in down state after cold reload of the module |
| CSCwe36493 | C band BFR recovery completes while L band topology is not discovered |

| Identifier | Headline |
|---|---|
| CSCwe64486 | [EDVT-NCS 1010 C-band]: GE interface stuck in down state after reload location 0/Rack |

**NCS 1004**

The following table lists the open caveats for NCS 1004:

| Identifier | Headline |
|---|---|
| CSCwd02808 | Lockout of Protection state in odu-grp cmd should not clear after cold reboot |
| CSCwe79414 | [otn_protection] Controller name details are not properly observing under protection details |
| CSCwd91756 | no configuration model is present for protection-group creation and deletion |
| CSCwe15890 | NCS1004 OC Regen config getting pushed to node but the LC card is not provisioning |
| CSCwe24914 | NCS1004: Client optics showing TX power -40dBm with optics loop during bring up. |
| CSCwe82788 | observed bh_cardmgr crash after SU from 781 CCO to 791 |

**NCS 1001**

The following table lists the open caveats for NCS 1001:

| Identifier | Headline |
|---|---|
| CSCwd23699 | [ncs1001] show telemetry output with wrong indication of "no data instances"(OC chan mon SP) |
| CSCwe27750 | [ncs1001] Event Driven Telemetry not implemented for new SP (OTS and OTS-OCH) |
| CSCwe40180 | [ncs1001] Not retrieving "Cisco-IOS-XR-ncs1001-ots-cfg:" model in get-config over GRPC and NETCONF |

## Bug Search Tool

Cisco Bug Search Tool (BST) is a web-based tool that acts as a gateway to the Cisco bug tracking system that maintains a comprehensive list of defects and vulnerabilities in Cisco products and software. BST provides you with detailed defect information about your products and software.

## Using Bug Search Tool

You can use the Cisco Bug Search Tool to search for a specific bug or to search for all bugs in a release.

**Procedure**

**Step 1** Go to the https://bst.cloudapps.cisco.com/bugsearch.

**Step 2** Log in using your registered Cisco.com username and password.

The Bug Search page opens.

**Step 3** Use any of these options to search for bugs, and then press Enter (Return) to initiate the search:

- To search for a specific bug, enter the bug ID in the Search For field.
- To search for bugs based on specific criteria, enter search criteria, such as a problem description, a feature, or a product name, in the Search For field.
- To search for bugs based on products, enter or select a product from the Product list. For example, if you enter "WAE," you get several options from which to choose.
- To search for bugs based on releases, in the Releases list select whether to search for bugs affecting a specific release, bugs that were fixed in a specific release, or both. Then enter one or more release numbers in the Releases field.

**Step 4** When the search results are displayed, use the filter tools to narrow the results. You can filter the bugs by status, severity, and so on.

To export the results to a spreadsheet, click **Export Results to Excel**.

# Determine Software Version

### NCS 1010

Log in to NCS 1010 and enter the **show version** command

```
RP/0/RP0/CPU0:ios#show version
Tue Apr  4 13:11:59.596 IST
Cisco IOS XR Software, Version 7.9.1
Copyright (c) 2013-2023 by Cisco Systems, Inc.

Build Information:
 Built By     : ingunawa
 Built On     : Sun Apr 02 06:50:19 UTC 2023
 Build Host   : iox-ucs-063
 Workspace    : /auto/srcarchive15/prod/7.9.1/ncs1010/ws
 Version      : 7.9.1
 Label        : 7.9.1

cisco NCS1010 (C3758 @ 2.20GHz)
cisco NCS1010-SA (C3758 @ 2.20GHz) processor with 32GB of memory
System uptime is 1 hour, 43 minutes
NCS 1010 - Chassis
```

### NCS 1004

Log in to NCS 1004 and enter the **show version** command

```
RP/0/RP0/CPU0:ios#show version
Tue Apr  4 06:30:58.289 UTC
Cisco IOS XR Software, Version 7.9.1
Copyright (c) 2013-2023 by Cisco Systems, Inc.

Build Information:
```

```
 Built By     : ingunawa
 Built On     : Sun Apr  2 00:48:17 PDT 2023
 Built Host   : iox-ucs-065
 Workspace    : /auto/srcarchive15/prod/7.9.1/ncs1004/ws
 Version      : 7.9.1
 Location     : /opt/cisco/XR/packages/
 Label        : 7.9.1

cisco NCS-1004 () processor
System uptime is 4 minutes
```

### NCS 1001

Log in to NCS 1001 and enter the **show version** command

```
RP/0/RP0/CPU0:ios#show version
Wed Apr  5 11:35:08.395 CEST
Cisco IOS XR Software, Version 7.9.1
Copyright (c) 2013-2023 by Cisco Systems, Inc.

Build Information:
 Built By     : ingunawa
 Built On     : Sun Apr  2 00:49:33 PDT 2023
 Built Host   : iox-ucs-076
 Workspace    : /auto/srcarchive15/prod/7.9.1/ncs1001/ws
 Version      : 7.9.1
 Location     : /opt/cisco/XR/packages/
 Label        : 7.9.1

cisco NCS-1001 () processor
System uptime is 10 minutes
```

# Determine Firmware Support

Use the **show hw-module fpd** command in EXEC mode to view the hardware components with their current FPD version and status. The status of the hardware must be CURRENT; The Running and Programed version must be the same.

### NCS 1010

Log in to OLT-C-R node and enter the **show hw-module fpd** command:

```
RP/0/RP0/CPU0:ios#show hw-module fpd
Sat Mar 25 11:38:26.221 IST

Auto-upgrade:Enabled
Attribute codes: B golden, P protect, S secure, A Anti Theft aware
                                                                                FPD Versions
                                                                               ==============
Location   Card type             HWver FPD device       ATR Status   Running Programd
Reload Loc
-------------------------------------------------------------------------------------------
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   ADMConfig            CURRENT    3.40    3.40
NOT REQ
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   BIOS             S   CURRENT    4.20    4.20
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   BIOS-Golden      BS  CURRENT            4.10
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   CpuFpga          S   CURRENT    1.11    1.11
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   CpuFpgaGolden    BS  CURRENT            1.01
```

```
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   SsdIntelS4510    S   CURRENT   11.32   11.32
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   TamFw            S   CURRENT    6.13    6.13
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   TamFwGolden      BS  CURRENT            6.11
  0/RP0
0/PM0      NCS1010-AC-PSU        0.0   AP-PriMCU            CURRENT    1.03    1.03
NOT REQ
0/PM0      NCS1010-AC-PSU        0.0   AP-SecMCU            CURRENT    2.01    2.01
NOT REQ
0/PM1      NCS1010-AC-PSU        0.0   AP-PriMCU            CURRENT    1.03    1.03
NOT REQ
0/PM1      NCS1010-AC-PSU        0.0   AP-SecMCU            CURRENT    2.01    2.01
NOT REQ
0/0/NXR0   NCS1K-OLT-R-C         1.0   OLT              S   CURRENT    1.12    1.12
NOT REQ
0/0/NXR0   NCS1K-OLT-R-C         1.0   Raman-1          S   CURRENT    1.04    1.04
NOT REQ
0/Rack     NCS1010-SA            1.0   EITU-ADMConfig       CURRENT    2.10    2.10
NOT REQ
0/Rack     NCS1010-SA            1.0   IoFpga           S   CURRENT    1.12    1.12
NOT REQ
0/Rack     NCS1010-SA            1.0   IoFpgaGolden     BS  CURRENT            1.01
NOT REQ
0/Rack     NCS1010-SA            1.0   SsdIntelS4510    S   CURRENT   11.32   11.32
 0/Rack
```

Log in to ILA-C-2R node and enter the **show hw-module fpd** command:

```
RP/0/RP0/CPU0:ios#show hw-module fpd
Sat Mar 25 11:36:24.313 IST

Auto-upgrade:Enabled
Attribute codes: B golden, P protect, S secure, A Anti Theft aware
                                                                          FPD Versions
                                                                         ==============
Location   Card type             HWver FPD device       ATR Status   Running Programd
Reload Loc
-----------------------------------------------------------------------------------------------
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   ADMConfig            CURRENT    3.40    3.40
NOT REQ
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   BIOS             S   CURRENT    4.20    4.20
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   BIOS-Golden      BS  NEED UPGD          2.10
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   CpuFpga          S   CURRENT    1.11    1.11
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   CpuFpgaGolden    BS  CURRENT            1.01
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   SsdIntelS4510    S   CURRENT   11.32   11.32
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   TamFw            S   CURRENT    6.13    6.13
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   TamFwGolden      BS  CURRENT            6.11
  0/RP0
0/PM0      NCS1010-AC-PSU        0.0   AP-PriMCU            CURRENT    1.03    1.03
NOT REQ
0/PM0      NCS1010-AC-PSU        0.0   AP-SecMCU            CURRENT    2.01    2.01
NOT REQ
0/PM1      NCS1010-AC-PSU        0.0   AP-PriMCU            CURRENT    1.03    1.03
NOT REQ
0/PM1      NCS1010-AC-PSU        0.0   AP-SecMCU            CURRENT    2.01    2.01
NOT REQ
```

```
0/0/NXR0   NCS1K-ILA-2R-C        0.1   ILA              S   CURRENT    1.12    1.12
NOT REQ
0/0/NXR0   NCS1K-ILA-2R-C        0.1   Raman-1          S   CURRENT    1.04    1.04
NOT REQ
0/0/NXR0   NCS1K-ILA-2R-C        0.1   Raman-2          S   CURRENT    1.04    1.04
NOT REQ
0/Rack     NCS1010-SA            1.0   EITU-ADMConfig       CURRENT    2.10    2.10
NOT REQ
0/Rack     NCS1010-SA            1.0   IoFpga           S   CURRENT    1.12    1.12
NOT REQ
0/Rack     NCS1010-SA            1.0   IoFpgaGolden     BS  CURRENT            1.01
NOT REQ
0/Rack     NCS1010-SA            1.0   SsdIntelS4510    S   CURRENT   11.32   11.32
 0/Rack
```

Log in to ILA-C-R node and enter the **show hw-module fpd** command:

```
RP/0/RP0/CPU0:ios#show hw-module fpd
Sat Mar 25 11:40:09.956 IST

Auto-upgrade:Enabled
Attribute codes: B golden, P protect, S secure, A Anti Theft aware
                                                                          FPD Versions
                                                                         ==============
Location   Card type             HWver FPD device       ATR Status   Running Programd
Reload Loc
-----------------------------------------------------------------------------------------
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   ADMConfig            CURRENT    3.40    3.40
NOT REQ
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   BIOS             S   CURRENT    4.20    4.20
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   BIOS-Golden      BS  NEED UPGD          2.10
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   CpuFpga          S   CURRENT    1.11    1.11
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   CpuFpgaGolden    BS  CURRENT            1.01
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   SsdIntelS4510    S   CURRENT   11.32   11.32
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   TamFw            S   CURRENT    6.13    6.13
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   TamFwGolden      BS  CURRENT            6.11
  0/RP0
0/PM0      NCS1010-AC-PSU        0.0   AP-PriMCU            CURRENT    1.03    1.03
NOT REQ
0/PM0      NCS1010-AC-PSU        0.0   AP-SecMCU            CURRENT    2.01    2.01
NOT REQ
0/PM1      NCS1010-AC-PSU        0.0   AP-PriMCU            CURRENT    1.03    1.03
NOT REQ
0/PM1      NCS1010-AC-PSU        0.0   AP-SecMCU            CURRENT    2.01    2.01
NOT REQ
0/0/NXR0   NCS1K-ILA-R-C         1.0   ILA              S   CURRENT    1.12    1.12
NOT REQ
0/0/NXR0   NCS1K-ILA-R-C         1.0   Raman-1          S   CURRENT    1.04    1.04
NOT REQ
0/Rack     NCS1010-SA            1.0   EITU-ADMConfig       CURRENT    2.10    2.10
NOT REQ
0/Rack     NCS1010-SA            1.0   IoFpga           S   CURRENT    1.12    1.12
NOT REQ
0/Rack     NCS1010-SA            1.0   IoFpgaGolden     BS  CURRENT            1.01
NOT REQ
0/Rack     NCS1010-SA            1.0   SsdIntelS4510    S   CURRENT   11.32   11.32
 0/Rack
RP/0/RP0/CPU0:ios#
```

Log in to ILA-C node and enter the **show hw-module fpd** command:

```
RP/0/RP0/CPU0:ios#show hw-module fpd
Sat Mar 25 11:40:24.679 IST

Auto-upgrade:Enabled
Attribute codes: B golden, P protect, S secure, A Anti Theft aware
                                                                                FPD Versions
                                                                               ==============
Location   Card type             HWver FPD device       ATR Status   Running Programd
Reload Loc
-----------------------------------------------------------------------------------------------
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   ADMConfig            CURRENT    3.40    3.40
NOT REQ
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   BIOS             S   CURRENT    4.20    4.20
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   BIOS-Golden      BS  NEED UPGD          2.10
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   CpuFpga          S   CURRENT    1.11    1.11
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   CpuFpgaGolden    BS  CURRENT            1.01
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   SsdIntelS4510    S   CURRENT   11.32   11.32
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   TamFw            S   CURRENT    6.13    6.13
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.0   TamFwGolden      BS  CURRENT            6.11
  0/RP0
0/PM0      NCS1010-AC-PSU        0.0   AP-PriMCU            CURRENT    1.03    1.03
NOT REQ
0/PM0      NCS1010-AC-PSU        0.0   AP-SecMCU            CURRENT    2.01    2.01
NOT REQ
0/PM1      NCS1010-AC-PSU        0.0   AP-PriMCU            CURRENT    1.03    1.03
NOT REQ
0/PM1      NCS1010-AC-PSU        0.0   AP-SecMCU            CURRENT    2.01    2.01
NOT REQ
0/0/NXR0   NCS1K-ILA-C           0.1   ILA              S   CURRENT    1.12    1.12
NOT REQ
0/Rack     NCS1010-SA            1.0   EITU-ADMConfig       CURRENT    2.10    2.10
NOT REQ
0/Rack     NCS1010-SA            1.0   IoFpga           S   CURRENT    1.12    1.12
NOT REQ
0/Rack     NCS1010-SA            1.0   IoFpgaGolden     BS  CURRENT            1.01
NOT REQ
0/Rack     NCS1010-SA            1.0   SsdIntelS4510    S   CURRENT   11.32   11.32
 0/Rack
RP/0/RP0/CPU0:ios#
```

Log in to OLT-L node and enter the **show hw-module fpd** command:

```
RP/0/RP0/CPU0:ios#show hw-module fpd
Sat Mar 25 11:38:17.924 IST

Auto-upgrade:Enabled
Attribute codes: B golden, P protect, S secure, A Anti Theft aware
                                                                                FPD Versions
                                                                               ==============
Location   Card type             HWver FPD device       ATR Status   Running Programd
Reload Loc
-----------------------------------------------------------------------------------------------
0/RP0/CPU0 NCS1010-CNTLR-K9      1.11  ADMConfig            CURRENT    3.40    3.40
NOT REQ
0/RP0/CPU0 NCS1010-CNTLR-K9      1.11  BIOS             S   CURRENT    4.20    4.20
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.11  BIOS-Golden      BS  CURRENT            4.10
```

```
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.11  CpuFpga          S   CURRENT    1.11    1.11
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.11  CpuFpgaGolden    BS  CURRENT            1.01
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.11  SsdIntelS4510    S   CURRENT   11.32   11.32
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.11  TamFw            S   CURRENT    6.13    6.13
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.11  TamFwGolden      BS  CURRENT            6.11
  0/RP0
0/PM0      NCS1010-AC-PSU        0.0   AP-PriMCU            CURRENT    1.03    1.03
NOT REQ
0/PM0      NCS1010-AC-PSU        0.0   AP-SecMCU            CURRENT    2.01    2.01
NOT REQ
0/PM1      NCS1010-AC-PSU        0.0   AP-PriMCU            CURRENT    1.03    1.03
NOT REQ
0/PM1      NCS1010-AC-PSU        0.0   AP-SecMCU            CURRENT    2.01    2.01
NOT REQ
0/0/NXR0   NCS1K-OLT-L           1.0   OLT              S   CURRENT    1.02    1.02
NOT REQ
0/Rack     NCS1010-SA            2.1   EITU-ADMConfig       CURRENT    2.10    2.10
NOT REQ
0/Rack     NCS1010-SA            2.1   IoFpga           S   CURRENT    1.12    1.12
NOT REQ
0/Rack     NCS1010-SA            2.1   IoFpgaGolden     BS  CURRENT            1.01
NOT REQ
0/Rack     NCS1010-SA            2.1   SsdIntelS4510    S   CURRENT   11.32   11.32
 0/Rack
```

Log in to ILA-L node and enter the **show hw-module fpd** command:

```
RP/0/RP0/CPU0:ios#show hw-module fpd
Sat Mar 25 11:38:17.649 IST

Auto-upgrade:Enabled
Attribute codes: B golden, P protect, S secure, A Anti Theft aware
                                                                          FPD Versions
                                                                         ==============
Location   Card type             HWver FPD device       ATR Status   Running Programd
Reload Loc
-----------------------------------------------------------------------------------------
0/RP0/CPU0 NCS1010-CNTLR-K9      1.11  ADMConfig            CURRENT    3.40    3.40
NOT REQ
0/RP0/CPU0 NCS1010-CNTLR-K9      1.11  BIOS             S   CURRENT    4.20    4.20
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.11  BIOS-Golden      BS  CURRENT            4.10
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.11  CpuFpga          S   CURRENT    1.11    1.11
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.11  CpuFpgaGolden    BS  CURRENT            1.01
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.11  SsdIntelS4510    S   CURRENT   11.32   11.32
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.11  TamFw            S   CURRENT    6.13    6.13
  0/RP0
0/RP0/CPU0 NCS1010-CNTLR-K9      1.11  TamFwGolden      BS  CURRENT            6.11
  0/RP0
0/PM0      NCS1010-AC-PSU        0.0   AP-PriMCU            CURRENT    1.03    1.03
NOT REQ
0/PM0      NCS1010-AC-PSU        0.0   AP-SecMCU            CURRENT    2.01    2.01
NOT REQ
0/PM1      NCS1010-AC-PSU        0.0   AP-PriMCU            CURRENT    1.03    1.03
NOT REQ
```

```
0/PM1      NCS1010-AC-PSU        0.0   AP-SecMCU            CURRENT    2.01    2.01
NOT REQ
0/0/NXR0   NCS1K-ILA-L           1.0   ILA              S   CURRENT    1.00    1.00
NOT REQ
0/Rack     NCS1010-SA            2.1   EITU-ADMConfig       CURRENT    2.10    2.10
NOT REQ
0/Rack     NCS1010-SA            2.1   IoFpga           S   CURRENT    1.12    1.12
NOT REQ
0/Rack     NCS1010-SA            2.1   IoFpgaGolden     BS  CURRENT            1.01
NOT REQ
0/Rack     NCS1010-SA            2.1   SsdIntelS4510    S   CURRENT   11.32   11.32
 0/Rack
RP/0/RP0/CPU0:ILA-L-1#
```

### NCS 1004

Log in to NCS 1004 and enter the **show hw-module fpd** command:

```
RP/0/RP0/CPU0:ios#show hw-module fpd
Sat Mar 25 23:57:41.703 IST

Auto-upgrade:Enabled

                                                                      FPD Versions
                                                                     ==============
Location   Card type             HWver FPD device       ATR Status    Running   Programd
-------------------------------------------------------------------------------------------
0/0        NCS1K4-OTN-XP         1.0   LC_CFP2_PORT_0       CURRENT    38.27397  38.27397
0/0        NCS1K4-OTN-XP         3.0   LC_CFP2_PORT_1       CURRENT     1.40      1.40
0/0        NCS1K4-OTN-XP         3.0   LC_CPU_MOD_FW        CURRENT    79.10     79.10
0/0        NCS1K4-OTN-XP         3.0   LC_DP_MOD_FW         CURRENT    12.10     12.10
0/1        NCS1K4-OTN-XP         3.0   LC_CFP2_PORT_0       CURRENT     1.40      1.40
0/1        NCS1K4-OTN-XP         3.0   LC_CFP2_PORT_1       CURRENT     1.40      1.40
0/1        NCS1K4-OTN-XP         3.0   LC_CPU_MOD_FW        CURRENT    79.10     79.10
0/1        NCS1K4-OTN-XP         2.0   LC_DP_MOD_FW         CURRENT    12.10     12.10
0/2        NCS1K4-OTN-XP         3.0   LC_CPU_MOD_FW        CURRENT    79.10    79.10
0/2        NCS1K4-OTN-XP         7.0   LC_DP_MOD_FW         CURRENT    3.10      3.10
0/2        NCS1K4-OTN-XP         2.0   LC_QSFPDD_PORT_9     CURRENT    61.2332   61.2332
0/2        NCS1K4-OTN-XP         2.0   LC_QSFPDD_PORT_11    CURRENT    61.2332   61.2332

0/RP0      NCS1K4-CNTLR-K9       7.0   CSB_IMG           S  CURRENT     0.200     0.200
0/RP0      NCS1K4-CNTLR-K9       7.0   TAM_FW               CURRENT    36.08     36.08
0/RP0      NCS1K4-CNTLR-K9       1.14  BIOS              S  CURRENT     5.80      5.80
0/RP0      NCS1K4-CNTLR-K9       5.4   BP_SSD               CURRENT    75.00     75.00
0/RP0      NCS1K4-CNTLR-K9       7.0   CPU_FPGA             CURRENT     1.14      1.14
0/RP0      NCS1K4-CNTLR-K9       5.4   CPU_SSD              CURRENT    75.00     75.00
0/RP0      NCS1K4-CNTLR-K9       3.18  POWMAN_CFG           CURRENT     3.40      3.40
0/PM1      NCS1K4-AC-PSU         0.1   PO-PriMCU            CURRENT     2.70      2.70
0/SC0      NCS1004               2.0   BP_FPGA              CURRENT     1.25      1.25
0/SC0      NCS1004               2.0   XGE_FLASH            CURRENT    18.04     18.04
```

```
RP/0/RP0/CPU0:ios#show hw-module fpd
Sat Mar 25 23:57:41.703 IST

Auto-upgrade:Enabled

                                                                      FPD Versions
                                                                     ==============
Location   Card type             HWver FPD device       ATR Status      Running   Programd

-------------------------------------------------------------------------------------------
0/0        NCS1K4-QXP-K9         1.0   LC_CPU_MOD_FW          CURRENT    79.10     79.10

0/0        NCS1K4-QXP-K9         2.0   LC_QSFPDD_PORT_0       CURRENT    61.2332   61.2332

0/0        NCS1K4-QXP-K9         2.0   LC_QSFPDD_PORT_10      CURRENT    61.2332   61.2332
```

```
0/0         NCS1K4-QXP-K9          2.0   LC_QSFPDD_PORT_2       CURRENT    61.2332   61.2332

0/0         NCS1K4-QXP-K9          2.0   LC_QSFPDD_PORT_4       CURRENT    61.2332   61.2332

0/0         NCS1K4-QXP-K9          2.0   LC_QSFPDD_PORT_6       CURRENT    61.2332   61.2332
0/0         NCS1K4-QXP-K9          2.0   LC_QSFPDD_PORT_8       CURRENT    61.2332   61.2332
0/1         NCS1K4-1.2T-K9         2.0   LC_CPU_MOD_FW          CURRENT    79.10     79.10
0/1         NCS1K4-1.2T-K9         2.0   LC_OPT_MOD_FW          CURRENT     1.36      1.36
0/2         NCS1K4-1.2TL-K9        3.0   LC_CPU_MOD_FW          CURRENT    79.10     79.10
0/2         NCS1K4-1.2TL-K9        1.0   LC_OPT_MOD_FW          CURRENT     1.36      1.36
0/3         NCS1K4-2-QDD-C-K9      0.0   LC_CPU_MOD_FW          CURRENT    79.10     79.10
0/3         NCS1K4-2-QDD-C-K9      1.0   LC_OPT_MOD_FW          CURRENT     1.36      1.36
0/RP0       NCS1K4-CNTLR-K9        7.0   CSB_IMG             S  CURRENT     0.200     0.200

0/RP0       NCS1K4-CNTLR-K9        7.0   TAM_FW                 CURRENT    36.08     36.08

0/RP0       NCS1K4-CNTLR-K9        1.14  BIOS                S  CURRENT     5.80      5.80

0/RP0       NCS1K4-CNTLR-K9        5.4   BP_SSD                 CURRENT    75.00     75.00

0/RP0       NCS1K4-CNTLR-K9        7.0   CPU_FPGA               CURRENT     1.14      1.14

0/RP0       NCS1K4-CNTLR-K9        5.4   CPU_SSD                CURRENT    75.00     75.00

0/RP0       NCS1K4-CNTLR-K9        3.18  POWMAN_CFG             CURRENT     3.40      3.40

0/PM1       NCS1K4-AC-PSU          0.1   PO-PriMCU              CURRENT     2.70      2.70

0/SC0       NCS1004                2.0   BP_FPGA                CURRENT     1.25      1.25

0/SC0       NCS1004                2.0   XGE_FLASH              CURRENT    18.04     18.04
```

### NCS 1001

Log in to NCS 1001 and enter the **show hw-module fpd** command:

The following shows the output of show hw-module fpd command for NCS 1001 with PSMv1 in slot 2 EDFA v2 in slot 1 and slot 3.

```
RP/0/RP0/CPU0:ios#show hw-module fpd all
Tue Oct 25 15:01:40.230 CEST

Auto-upgrade:Disabled
                                                                          FPD Versions
                                                                          ==============
Location   Card type             HWver FPD device       ATR Status    Running   Programd
-------------------------------------------------------------------------------------------
0/0        NCS1001-K9            0.1   Control_BKP      B   CURRENT               1.10
0/0        NCS1001-K9            0.1   Control_FPGA         CURRENT     1.10      1.10
0/1        NCS1K-EDFA            0.0   FW_EDFAv2            CURRENT     0.45      0.45
0/2        NCS1K-PSM             0.0   FW_PSMv1             CURRENT     1.51      1.51
0/3        NCS1K-EDFA            0.0   FW_EDFAv1            CURRENT     0.45      0.45
0/RP0      NCS1K-CNTLR2          0.1   BIOS_Backup      BS  CURRENT              15.10
0/RP0      NCS1K-CNTLR2          0.1   BIOS_Primary      S  CURRENT    15.10     15.10
0/RP0      NCS1K-CNTLR2          0.1   Daisy_Duke_BKP   BS  CURRENT               0.20
0/RP0      NCS1K-CNTLR2          0.1   Daisy_Duke_FPGA   S  CURRENT     0.20      0.20
```

The following shows the output of show hw-module fpd command for NCS 1001 with PSMV2 in slot 2 and EDFAv1 in slot 1 and slot 3.

```
RP/0/RP0/CPU0:ios#show hw-module fpd all
Tue Oct 25 15:03:08.681 CEST

Auto-upgrade:Disabled
                                                                                FPD Versions
                                                                                ==============
Location   Card type             HWver FPD device       ATR Status    Running   Programd
-------------------------------------------------------------------------------------------
0/0        NCS1001-K9            0.1   Control_BKP      B   CURRENT             1.10
0/0        NCS1001-K9            0.1   Control_FPGA         CURRENT     1.10      1.10
0/1        NCS1K-EDFA            0.0   FW_EDFAv1            CURRENT     1.61      1.61
0/2        NCS1K-PSM             0.0   FW_PSMv2             CURRENT     0.16      0.16
0/3        NCS1K-EDFA            0.0   FW_EDFAv1            CURRENT     1.61      1.61
0/RP0      NCS1K-CNTLR2          0.1   BIOS_Backup      BS  CURRENT            15.10
0/RP0      NCS1K-CNTLR2          0.1   BIOS_Primary      S  CURRENT    15.10    15.10
0/RP0      NCS1K-CNTLR2          0.1   Daisy_Duke_BKP   BS  CURRENT             0.20
0/RP0      NCS1K-CNTLR2          0.1   Daisy_Duke_FPGA   S  CURRENT     0.20      0.20
```

The following shows the output of show hw-module fpd command for NCS 1001 with OTDR in slot 2.

```
RP/0/RP0/CPU0:ios#show hw-module fpd all
Tue Oct 25 15:04:12.208 CEST

Auto-upgrade:Disabled
                                                                                FPD Versions
                                                                                ==============
Location   Card type             HWver FPD device       ATR Status    Running   Programd
-------------------------------------------------------------------------------------------
0/0        NCS1001-K9            0.1   Control_BKP      B   CURRENT             1.10
0/0        NCS1001-K9            0.1   Control_FPGA         CURRENT     1.10      1.10
0/1        NCS1K-EDFA            0.0   FW_EDFAv1            CURRENT     1.61      1.61
0/2        NCS1K-OTDR            0.0   FW_OTDR_p            CURRENT     6.03      6.03
0/2        NCS1K-OTDR            0.0   FW_OTDR_s            CURRENT     1.51      1.51
0/3        NCS1K-EDFA            0.0   FW_EDFAv1            CURRENT     1.61      1.61
0/RP0      NCS1K-CNTLR2          0.1   BIOS_Backup      BS  CURRENT            15.10
0/RP0      NCS1K-CNTLR2          0.1   BIOS_Primary      S  CURRENT    15.10    15.10
0/RP0      NCS1K-CNTLR2          0.1   Daisy_Duke_BKP   BS  CURRENT             0.20
0/RP0      NCS1K-CNTLR2          0.1   Daisy_Duke_FPGA   S  CURRENT     0.20      0.20
RP/0/RP0/CPU0:ios#
```

The following shows the output of show hw-module fpd command for NCS 1001 with AC Power Module.

```
sysadmin-vm:0_RP0#show hw-module fpd
Tue Oct  25 14:03:46.799 UTC+00:00
                                                                                FPD Versions
                                                                                ==============
Location  Card type          HWver FPD device       ATR Status      Run      Programd
-------------------------------------------------------------------------------------
0/0       NCS1001-K9         0.1   Control_BKP      B   CURRENT               1.10
0/0       NCS1001-K9         0.1   Control_FPGA         CURRENT      1.10      1.10
0/RP0     NCS1K-CNTLR2       0.1   BIOS_Backup      BS  CURRENT              15.10
0/RP0     NCS1K-CNTLR2       0.1   BIOS_Primary      S  CURRENT     15.10    15.10
0/RP0     NCS1K-CNTLR2       0.1   Daisy_Duke_BKP   BS  CURRENT               0.20
0/RP0     NCS1K-CNTLR2       0.1   Daisy_Duke_FPGA   S  CURRENT      0.20      0.20
0/PM0     NCS1K-2KW-AC2      0.0   PO-PriMCU            CURRENT      4.00      4.00
0/PM1     NCS1K-2KW-AC2      0.0   PO-PriMCU            CURRENT      4.00      4.00
```

The following shows the output of show hw-module fpd command for NCS 1001 with DC Power Module.

```
ysadmin-vm:0_RP0#show hw-module fpd
Tue Oct  25 13:53:59.265 UTC+00:00
                                                                                FPD Versions
                                                                                ==============
Location  Card type          HWver FPD device       ATR Status      Run      Programd
-------------------------------------------------------------------------------------
```

```
0/0       NCS1001-K9        0.1   Control_BKP      B   CURRENT              1.10
0/0       NCS1001-K9        0.1   Control_FPGA         CURRENT     1.10     1.10
0/RP0     NCS1K-CNTLR2      0.1   BIOS_Backup      BS  CURRENT              15.10
0/RP0     NCS1K-CNTLR2      0.1   BIOS_Primary      S  CURRENT    15.10     15.10
0/RP0     NCS1K-CNTLR2      0.1   Daisy_Duke_BKP   BS  CURRENT              0.20
0/RP0     NCS1K-CNTLR2      0.1   Daisy_Duke_FPGA   S  CURRENT     0.20     0.20
0/PM0     NCS1K-2KW-DC      0.2   PO-PriMCU            CURRENT     2.01     2.01
0/PM1     NCS1K-2KW-DC      0.2   PO-PriMCU            CURRENT     2.01     2.01
```

The preceding show output lists the hardware components that the current release supports with their status. The status of the hardware must be CURRENT; Running and Program version must be similar.

# Supported MIBs

The following table lists the MIBs supported by NCS 1001, NCS 1004, and NCS 1010.

**Note** NCS 1010 MIBs can be accessed from the MIB Locator tool on Cisco Feature Navigator (CFN).

| MIB | NCS 1010 | NCS 1004 | NCS 1001 |
|---|---|---|---|
| CISCO-FLASH-MIB | Yes | Yes | Yes |
| CISCO-ENHANCED-MEMPOOL-MIB | Yes | Yes | Yes |
| ENTITY-MIB | Yes | Yes | Yes |
| CISCO-ENTITY-FRU-CONTROL-MIB | Yes | Yes | Yes |
| CISCO-IF-EXTENSION-MIB | Yes | Yes | Yes |
| CISCO-ENTITY-ASSET-MIB | Yes | Yes | Yes |
| CISCO-CONFIG-MAN-MIB | Yes | Yes | Yes |
| CISCO-ENTITY-REDUNDANCY-MIB | Yes | Yes | Yes |
| CISCO-SYSTEM-MIB | Yes | Yes | Yes |
| CISCO-SYSLOG-MIB | Yes | Yes | Yes |
| CISCO-ENTITY-SENSOR-MIB | Yes | Yes | Yes |
| CISCO-PROCESS-MIB | Yes | Yes | Yes |
| RMON-MIB | Yes | Yes | Yes |
| CISCO-ALARM-MIB | Yes | Yes | No |
| CISCO-AM-SNMP-MIB | No | Yes | No |
| EVENT-MIB | Yes | Yes | Yes |
| DISMAN-EXPRESSION-MIB | Yes | Yes | Yes |

| MIB | NCS 1010 | NCS 1004 | NCS 1001 |
|---|---|---|---|
| CISCO-FTP-CLIENT-MIB | Yes | Yes | Yes |
| NOTIFICATION-LOG-MIB | Yes | Yes | Yes |
| CISCO-RF-MIB | Yes | Yes | Yes |
| RADIUS-AUTH-CLIENT-MIB | No | Yes | No |
| RADIUS-ACC-CLIENT-MIB | No | Yes | No |
| IEEE8023-LAG-MIB | No | Yes | No |
| CISCO-TCP-MIB | Yes | Yes | Yes |
| UDP-MIB | Yes | Yes | Yes |
| CISCO-BULK-FILE-MIB | No | Yes | No |
| CISCO-CONTEXT-MAPPING-MIB | No | Yes | No |
| CISCO-OTN-IF-MIB | Yes | Yes | Yes |
| HC-RMON-MIB | No | Yes | No |
| CISCO-OPTICAL-MIB | Yes | Yes | Yes |
| LLDP-MIB | No | Yes | No |
| CISCO-OPTICAL-OTS-MIB | Yes* | No | Yes |

**Note** * New SNMP MIB added as part of R7.9.1 release in NCS 1010.

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