Release Notes for Cisco NCS 1000 Series, IOS XR Release 24.3.1

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Revision history

Table 1: Revision history

Date	Notes
July 2025	Added a new caveat under the **Open caveats** section.
September 2024	This is the first release of this publication.

What's New in Cisco NCS 1000, IOS XR Release 24.3.1

Cisco is continuously enhancing the product with every release and this section covers a brief description of key features and enhancements. You can also access the links to the detailed documented features.

NCS 1020 Optical Line System

The Cisco NCS 1020 is a new Wavelength Division Multiplexing (WDM) System. Its salient features are:

- Operates as an integrated optical layer Reconfigurable Optical Add-Drop Multiplexer (ROADM) and Amplifier system to support Point-to-Point (P2P), Ring, and Mesh network architectures, complete with add/drop capabilities.
- Offers transmission versatility by supporting multiple coherent sources such as:
  - 400G digital coherent ZR/ZR+ optics (-10dBm output power)
  - DWDM optical pluggable modules such as CFP2 and ZR/ZR+.
  - DWDM Line modules such as 1.2T, 2.4T, and 2-QDD-C.
- Offers automation through IOS XR operating system that provides a rich suite of automation features including Zero Touch Provisioning (ZTP), open config YANG model support with NETCONF, and streaming telemetry.
- Allows Network Monitoring through a combination of probes based on OTDR, OSC, OCM, and telemetry data.

- Protects the installed modules and fiber connection with an optional NCS1020-DR= door kit which includes:
  - Replaceable internal air filters (NCS1020-DR-FTF=) for blocking dust and particles.
  - Hex openings for optimal airflow.
  - Fiber management brackets for proper cable routing.
  - Pull hinges for easy attachment.
  - Front door LEDs that mimic SYS and ATT LEDs of the controller for consistent monitoring.

Supported Field Replaceable Modules

Cisco NCS 1020 is a 10RU chassis that has an in-built External Interface Timing Unit (EITU) and provides slots to accommodate field-replaceable modules as mentioned.

- One Solid State Drive (SSD)
- Two controllers (active and backup)
- Two Power Supply Units (PSU)
- Eight fans (four NCS1010 fans and four NCS1020 fans)
- Ten line cards (two OLT and eight CCMD-16 line cards)

Supported Line Cards

The NCS 1020 chassis supports the following line cards:

- NCS1K-OLT-C—C-band Optical Line Terminal without Raman
- NCS1K-E-OLT-C—C-band Optical Line Terminal without Raman, Enhanced
- NCS1K14-CCMD-16-C—NCS 1000 16-port Colorless Direct attach line card with EDFA, C-band

Note Slot 0 supports only C-band OLT cards.

Slot 1 supports only Active or Passive filler based on the requirements.

Note Slots 2, 3, 4, and 5 support C-band CCMD-16 cards only.

Supported Filler Modules

The NCS 1020 chassis supports the following filler modules:

- Filler modules for slot 1
  - NCS1010-FLR-A—Active filler
  - NCS1010-FLR-P—Passive filler

- NCS1010-CTR2-FLR—Controller filler for CNTLR SLOT-1
- NCS1020-FAN-BLANK—NCS 1020 fan blank for fan slots FT4–FT7
- NCS1K14-BLANK—NCS 1014 filler card for card slots 2–9

Note In this release, CNTLR SLOT-1 hosts only the controller filler.

Software Functionalities

NCS 1020 has a robust software suite, solidifying its position as a leading optical networking platform. These functionalities are strategically organized into the following two core categories for enhanced user experience:

Data Path

NCS 1020 supports

- OTS, OTS-OCH, OSC, DFB, OCH, and OMS controllers on the NCS 1010 line cards, and OMS and OCH controllers on the CCMD-16-C and CCMD-16-L line cards.
- performance monitoring to gather, store, set thresholds for, and report performance data for early detection of network issues.

Optical Applications for Automatic Network Turn Up

- **Span Loss** - Measures span loss between two nodes for a given direction and verifies if span loss is within the configured range.
- **Gain Estimator** - Computes power that is transmitted from the upstream node, analyzes incoming span loss, sets the gain mode of the EDFA amplifier, and provides the initial target gain for the amplifier.
- **Link Tuner** - Computes and configures the target PSD (power spectral density) for each span using actual optical measurements like span loss.
- **Automatic Power Control** - Configures amplifier and attenuator setpoints to achieve target PSD across the link.
- **Automatic Network Turn Up** - Allows all the optical applications to work together and bring up the DWDM link.

OTDR Auto-scan

The OTDR Auto-scan automatically triggers whenever there are events such as span fault, span restore, device power cycle, and line card cold reload occur. It allows quick identification of fiber failure type and fault location.

Telemetry

Sensor paths are supported in NCS 1020. You can stream telemetry data from NCS 1020 using sensor paths.

Smart Licensing

NCS 1020 supports Smart Licensing, a cloud-based software license management solution that automates the time-consuming tasks of manual licensing. This solution allows you to efficiently track the status of your licenses and monitor software usage trends.

Cisco NCS 1014

The following table lists the features added in the NCS 1014 guides:

Feature	Description
Hardware Installation	
Pluggables Support	This client pluggable is supported on the QXP card: • QDD-400G-LR4-S This trunk pluggable is supported on the QXP card: • QDD-400G-ZR-S These client pluggables are supported on the 2.4TX card: • QDD-2X100-CWDM4-S • QDD-2X100-LR4-S These trunk pluggables are supported on the 2.4TX card: • CIM8-CE-K9= • CIM8-LE-K9=

Feature	Description
System Setup and Software Installation	
Automatic FPD Upgrade Support for Coherent Interconnect Module 8	The Coherent Interconnect Module 8 (CIM8) FPD is automatically upgraded to the latest qualified version when the line card FPD is upgraded. This ensures that both the line card and CIM8 operate with optimized performance and improved interoperability. Supported line cards are: • NCS1K14-2.4T-X-K9 • NCS1K4-2.4T-K9
Automatic FPD Upgrade Support for Power Module	The FPD upgrade for power modules is now integrated with the NCS 1014 automatic FPD upgrade. You have the flexibility to include or exclude the power module FPD in the automatic upgrade according to your operational requirements. This option is disabled by default. Command added: • **fpd auto-upgrade {include | exclude} pm** You can also enable the automatic FPD upgrade for power modules using the OpenConfig data model Cisco-IOS-XR-openconfig-system-fpd-ext.

Feature	Description
Smart Licensing for QXP Line Card	Now the NCS1K4-QXP-L-K9 supports the smart licensing feature. It enables you to automate the time-consuming manual licensing tasks and allows you to easily track the status of your license and software usage trends.

Feature	Description
Configuration	
100GE Channel Support for the 600 and 1000G Trunk rate in NCS1K14-2.4T-X-K9 Muxponder Mode	The NCS1K14-2.4T-X-K9 line card now allows 100G breakout client support for 600G and 1000G trunk rate in muxponder mode. It features 4x100GE breakout channels in shared client ports, enabling seamless integration with existing 100G networks using QDD-4X100G-LR-S, QDD-4X100G-FR-S, and QDD-400G-DR4-S pluggable modules. These channels offer high density and bandwidth efficiency without extra costs.
Additional Muxponder Mode Trunk Rates for the NCS1K14-2.4T-X-K9 Line Card	The NCS1K14-2.4T-X-K9 line card now supports additional trunk rates of 500G and 900G in muxponder mode, enhancing flexibility and optimizing pluggable count alongside the existing 600G and 1000G rates.
Cumulative PRBS on CoherentDSP Controllers	The cumulative PRBS (Pseudo-Random Binary Sequence) on CoherentDSP controllers enhances troubleshooting capabilities between the trunk ports. The **show coherentDSP** ***rack/slot/instance/port*** **prbs-details** command output now includes the newly supported fields.

Feature	Description
Data Models	
Extending Cisco Native Models for OpenConfig Support	The OpenConfig model is completely supported on NCS 1014 chassis, by extending the existing Cisco native model configuration. It supports the Q-margin and Enhanced Q-margin parameters as part of the extended OpenConfig model.
OpenConfig Support for FEC Data	OpenConfig model support is added for Forward Error Correction (FEC) data on the NCS 1014 chassis. It helps in avoiding deviations in the **pre-fec-ber** and **post-fec-ber** leaves for transceivers.

NCS 1004

The following table lists the features added in the NCS 1004 guides:

Feature	Description
Hardware Installation	
Pluggables Support	The QDD-4X100G-FR-S pluggable is now supported on the QXP line card.

Feature	Description
Configuration	

Feature	Description
Type 6 Password Support for Keyring Configuration in IKEv2 Encryption	The keyring configuration for IKEv2 encryption now supports the Type 6 password encryption method. This method uses AES256-GCM encryption and a user-configured primary key to encrypt the preshared key and Postquantum Preshared Keys (PPK). This Type 6 encryption enhances security by storing sensitive information, such as the preshared key and PPK, in an encoded format on the device and makes it difficult to decipher. You can enable this feature using the following commands: • **key config-key password-encryption** • **password6 aes encryption** You can verify the status the encryption using the following command: • show type6 server

Cisco Optical Site Manager

The following table lists the features added in the Cisco Optical Site Manager guide:

Feature	Description
Configuration	
Backup and Restore Database	Cisco Optical Site Manager now supports backup and restore for its database and the databases of the devices it manages. When unexpected failures occur, such as hardware malfunctions or software corruption, your data is securely backed up and easily recoverable.
Cisco Optical Site Manager Smart Licensing	Cisco Optical Site Manager now supports the smart licensing. It enables you to automate the time-consuming manual licensing tasks and allows you to easily track the status of your license and software usage trends. You can choose any of smart licensing mode based on your requirement: • Smart Transport • CSLU • Offline
Additional Card Mode and Trunk Rates for the NCS1K14-2.4T-X-K9 Card	The **Select Card Mode** page of the **Card Configuration Wizard** is updated to include the **1.2T Splitted** configuration on the **Trunk 0** port on the NCS1K14-2.4T-X-K9 Card. You can also use the wizard to configure these trunk rates on the card in the muxponder mode: • 100-GE client traffic for 600-G and 1000-G • 500-G and 900-G

Feature	Description
Support for NCS 1001 and Cards	Cisco Optical Site Manager now allows you to manage the NCS 1001 node and its cards: • NCS1K-PSM • NCS1K-EDFA
Connection Verification for NCS 1010	You can now verify the connections between OLT-C line cards and passive modules of NCS 1010 devices from the **Connection Verification** list located in the right-panel of the **Node Functional View**. You can use Connection Verification to quickly identify and troubleshoot connectivity issues.
Optical Channel Section Enhancements	The **Optical Channel** section is now updated to allow the configuration of the **Target Power** and **Fixed Ratio** parameter values.
Support for NCS 1004 Cards	The **Card Configuration Wizard** now supports configuring these card modes for the NCS1K4-OTN-XP card: • 10G-GREY-MXP • 40x10G-4x100G-MXP You can also use the wizard to configure card mode for the NCS1K4-2-QDD-C-K9 card.
Add Unmanaged Devices	The **Add Device** dialog box now includes the **unmanaged-network-element** device type option, allowing the addition of unmanaged devices. This enhancement makes it easier to add and configure passive devices on the network.

Feature	Description
System Setup and Software Installation	
Cisco Optical Site Manager High Availability	You can now configure Cisco Optical Site Manager with High Availability (HA). In this setup, if the primary device hosting Cisco Optical Site Manager fails, another device configured with HA will take over immediately, minimizing downtime and maintaining operational continuity.

Important Notes

Downgrade of the NCS 1010 software from release 7.11.1 or higher to any lower release can affect traffic.

Release Packages

Packages for CISCO NCS 1020

Table 2: Packages for Cisco NCS 1020

Feature Set	Filename	Description
Composite Package		
Cisco IOS XR Core Bundle + Manageability Packages	ncs1010-x64-24.3.1.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 Packages	xr-telnet-24.3.1.v1.0.0-1.x86_64.rpm xr-telnet-ncs1020-24.3.1.v1.0.0-1.x86_64.rpm	Install these packages to support Telnet.
Cisco IOS XR Cisco Discovery Protocol (CDP) Packages	xr-cdp-24.3.1.v1.0.0-1.x86_64.rpm xr-cdp-ncs1020-24.3.1.v1.0.0-1.x86_64	Install these packages support CDP.

Packages for CISCO NCS 1014

Note The NCS 1014 packages include Cisco Optical Site Manager Software.

Table 3: Packages for Cisco NCS 1014

Feature Set	Filename	Description
Composite Package		
Cisco IOS XR Core Bundle + Manageability Packages	ncs1010-x64-24.3.1.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 Packages	xr-telnet-24.3.1v1.0.0-1.x86_64.rpm xr-telnet-ncs1014-24.3.1v1.0.0-1.x86_64.rpm	Install these packages to support Telnet.
Cisco IOS XR Cisco Discovery Protocol (CDP) Packages	xr-cdp-24.3.1v1.0.0-1.x86_64.rpm xr-cdp-ncs1014-24.3.1v1.0.0-1.x86_64.rpm	Install these packages to support CDP.
COSM Packages		

Cisco Optical Site Manager Packages	xr-cosm-24.3.1v1.0.0-1.x86_64.rpm xr-cosm-ncs1014-24.3.1v1.0.0-1.x86_64.rpm xr-cosm-82eb6a4d2fa15d0e-24.3.1v1.0.0-1.x86_64.rpm	Install these packages to enable Cisco Optical Site Manager.

Packages for CISCO NCS 1010

Note The NCS 1010 packages include Cisco Optical Site Manager Software.

Table 4: Packages for Cisco NCS 1010

Feature Set	Filename	Description
Composite Package		
Cisco IOS XR Core Bundle + Manageability Packages	ncs1010-x64-24.3.1.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 Packages	xr-telnet-24.3.1v1.0.0-1.x86_64.rpm xr-telnet-ncs1010-24.3.1v1.0.0-1.x86_64.rpm	Install these packages to support Telnet.
Cisco IOS XR Cisco Discovery Protocol (CDP) Packages	xr-cdp-24.3.1v1.0.0-1.x86_64.rpm xr-cdp-ncs1010-24.3.1v1.0.0-1.x86_64.rpm	Install these packages to support CDP.

Packages for Cisco NCS 1004

Table 5: Packages for Cisco NCS 1004

Feature Set	Filename	Description
Composite Package		
Cisco IOS XR Core Bundle + Manageability Package	NCS1004-iosxr-px-k9-24.3.1.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-r2431.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 -24.3.1-r2411.x86_64.rpm (part of ncs1004-iosxr-px-k9-24.3.1.tar)	Install this data path FPD packages on the OTN-XP card. This package is mandatory for datapath bring up.

Caveats

Open Caveats

NCS 1020

There are no open caveats for NCS 1020.

NCS 1014

The table lists the open caveats for NCS 1014:

Bug ID	Headline
CSCwk64963	NCS1014-"Failed to connect to LC software" alarm reported for LC warm reboot
CSCwk65757	Continuous ssh authentication XR syslogs while COSM managing it
CSCwk73534	OC terminal-device target-output-power units/definition interpretation is wrong
CSCwk74541	config went to pre-config state after LC Warm followed by power cycle

NCS 1010

The table lists the open caveats for NCS 1010:

Bug ID	Headline
CSCwk65757	Continuous ssh authentication XR syslogs while COSM managing it
CSCwk83924	NCS1010:Line Card is struck in 'platform init' state upon software upgrade

NCS 1004

The table lists the open caveats for NCS 1004:

Bug ID	Headline
CSCwk80675	2431-NCS1004-OTN-XP Card PSM switching for OTU2 client time exceeds the standard
CSCwk73534	OC terminal-device target-output-power units/definition interpretation is wrong

Cisco Optical Site Manager

The table lists the open caveats for Cisco Optical Site Manager:

Identifier	Headline
CSCwj87619	[COSM]: After successful restore on aggregator, we don't have component status on show backuprestore
CSCwk02526	[COSM-ncs1kned] - "Attention LED" is not working for NCS1K_1001 Chassis
CSCwk12288	[COSM]: restore on device A with stop-on-mismatch as true fails when added device B after backup
CSCwk35582	[COSM]: Revert of software upgrade with scope "All-Parallel" should revert subtended device first
CSCwk46449	[COSM] Smart licensing is not behaving as expected in HA setup
CSCwk60955	COSM] upgrade 7.11.2 to 24.3.1, device with degree unmanage by COSM due to config inconistency in XR
CSCwk79537	[COSM]:NE-NOT-AUTH-ACCESS not clearing if there is extra syslog/telemetry config on device
CSCwm05065	[COSM]: log messages in netconf ncs_events for DB backup and restore is not coming correctly
CSCwm06822	[COSM-webui] - 'OCM' is not working for EDFA+FLD_OSC in ILA node type
CSCwm12431	[COSM]: Unable to perform Software upgrade from UI, when having unmanaged device on HA
CSCwm27010	COSM FLT: Eqpt state not updated/Improper removal alarm not cleared sometimes post reload
CSCwm29656	[COSM]: SU Activation procedure should be denied when XR is waiting for commit
CSCwq32902	COSM HA fails despite its redundancy peer network configuration being operational

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 http://tools.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

NCS1020

Log into NCS 1020 node and enter the **show version** command.

```
RP/0/RP0/CPU0:ios#show version
Fri Aug 30 07:14:16.476 UTC
Cisco IOS XR Software, Version 24.3.1 LNT
Copyright (c) 2013-2024 by Cisco Systems, Inc.

Build Information:
 Built By     : cisco
 Built On     : Thu Aug 29 17:07:57 UTC 2024
 Build Host   : iox-ucs-069
 Workspace    : /auto/srcarchive11/prod/24.3.1/ncs1010/ws/
 Version      : 24.3.1
 Label        : 24.3.1

cisco NCS1010 (C3758R @ 2.40GHz)
cisco NCS1020-SA (C3758R @ 2.40GHz) processor with 32GB of memory
ios uptime is 42 minutes
NCS 1020 Chassis
```

NCS 1014

Log into NCS 1014 node and enter the **show version** command.

```
RP/0/RP0/CPU0:ios#show version
Fri Aug 30 11:03:57.578 IST
Cisco IOS XR Software, Version 24.3.1 LNT
Copyright (c) 2013-2024 by Cisco Systems, Inc.

Build Information:
 Built By     : cisco
 Built On     : Thu Aug 29 17:07:57 UTC 2024
 Build Host   : iox-ucs-069
 Workspace    : /auto/srcarchive11/prod/24.3.1/ncs1010/ws/
 Version      : 24.3.1
 Label        : 24.3.1

cisco NCS1010 (C3758R @ 2.40GHz)
cisco NCS1014 (C3758R @ 2.40GHz) processor with 32GB of memory
ios uptime is 42 minutes
NCS 1014 - Chassis
```

NCS 1010

Log into NCS 1010 node and enter the **show version** command.

```
RP/0/RP0/CPU0:ios#show version
Fri Aug 30 15:03:18.271 IST
Cisco IOS XR Software, Version 24.3.1 LNT
Copyright (c) 2013-2024 by Cisco Systems, Inc.

Build Information:
 Built By     : cisco
 Built On     : Thu Aug 29 17:07:57 UTC 2024
 Build Host   : iox-ucs-069
 Workspace    : /auto/srcarchive11/prod/24.3.1/ncs1010/ws/
 Version      : 24.3.1
 Label        : 24.3.1

cisco NCS1010 (C3758 @ 2.20GHz)
cisco NCS1010-SA (C3758 @ 2.20GHz) processor with 32GB of memory
ios uptime is 11 minutes
NCS 1010 - Chassis
```

NCS 1004

Log into the NCS 1004 node and enter the **show version** command.

```
RP/0/RP0/CPU0:ios#show version
Fri Aug 30 12:46:55.697 UTC
Cisco IOS XR Software, Version 24.3.1
Copyright (c) 2013-2024 by Cisco Systems, Inc.

Build Information:
 Built By     : swtools
 Built On     : Thu Aug 29 11:58:32 PDT 2024
 Built Host   : iox-lnx-039
 Workspace    : /auto/srcarchive11/prod/24.3.1/ncs1004/ws
 Version      : 24.3.1
 Location     : /opt/cisco/XR/packages/
 Label        : 24.3.1

cisco NCS-1004 () processor
System uptime is 2 minutes
```

```
RP/0/RP0/CPU0:ios#
```

Determine Firmware Version

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 1020

Log into the node and enter the **show hw-module fpd** command.

```
RP/0/RP0/CPU0:ios#show hw-module fpd
Thu Aug 29 07:54:47.160 UTC

Auto-upgrade:Enabled,PM excluded
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-CTR2-B-K9     0.1   ADMCONFIG            CURRENT    1.00    1.00
NOT REQ
0/RP0/CPU0 NCS1010-CTR2-B-K9     0.1   BIOS             S   CURRENT    5.20    5.20
  0/RP0
0/RP0/CPU0 NCS1010-CTR2-B-K9     0.1   BIOS-Golden      BS  CURRENT            1.90
  0/RP0
0/RP0/CPU0 NCS1010-CTR2-B-K9     0.1   CpuFpga          S   CURRENT    1.10    1.10
  0/RP0
0/RP0/CPU0 NCS1010-CTR2-B-K9     0.1   CpuFpgaGolden    BS  CURRENT            1.02
  0/RP0
0/RP0/CPU0 NCS1010-CTR2-B-K9     0.1   SsdMicron5300    S   CURRENT    0.01    0.01
  0/RP0
0/RP0/CPU0 NCS1010-CTR2-B-K9     0.1   TamFw            S   CURRENT    9.07    9.07
  0/RP0
0/RP0/CPU0 NCS1010-CTR2-B-K9     0.1   TamFwGolden      BS  CURRENT            9.07
 0/RP0
0/PM0      NCS1K4-AC-PSU-2       1.0   PO-PriMCU            CURRENT    1.03    1.03
NOT REQ
0/PM0      NCS1K4-AC-PSU-2       1.0   PO-SecMCU            CURRENT    1.05    1.05
NOT REQ
0/PM1      NCS1K4-AC-PSU-2       1.0   PO-PriMCU            CURRENT    1.03    1.03
NOT REQ
0/PM1      NCS1K4-AC-PSU-2       1.0   PO-SecMCU            CURRENT    1.05    1.05
NOT REQ
0/0/NXR0   NCS1K-E-OLT-R-C       1.0   OLT              S   CURRENT    3.16   3.16
NOT REQ
0/0/NXR0   NCS1K-E-OLT-R-C       1.0   Raman-1          S   CURRENT    3.16   3.16
NOT REQ
0/2/NXR0   NCS1K14-CCMD-16-C     0.2   CpuModFw         S   CURRENT  243.10  243.10
NOT REQ
0/2/NXR0   NCS1K14-CCMD-16-C     0.2   OptModFw         S   CURRENT   20.02   20.02
NOT REQ
0/3/NXR0   NCS1K14-CCMD-16-C     0.2   CpuModFw         S   CURRENT  243.10  243.10
NOT REQ
0/3/NXR0   NCS1K14-CCMD-16-C     0.2   OptModFw         S   CURRENT   20.02   20.02
NOT REQ
0/Rack     NCS1020-SA            0.1   ADMCONFIG            CURRENT    1.00    1.00
NOT REQ
```

```
0/Rack     NCS1020-SA            0.1   IoFpgaLow        S   CURRENT    1.12    1.12
NOT REQ
0/Rack     NCS1020-SA            0.1   IoFpgaLowGolden  BS  CURRENT            0.07
NOT REQ
0/Rack     NCS1020-SA            0.1   IoFpgaUp         S   CURRENT    1.10    1.10
NOT REQ
0/Rack     NCS1020-SA            0.1   IoFpgaUpGolden   BS  CURRENT            0.06
NOT REQ
0/Rack     NCS1020-SA            0.1   SsdIntelSC2KB    S   CURRENT    1.20    1.20
 0/Rack
RP/0/RP0/CPU0:ios#
```

NCS 1014

Log into the node and enter the **show hw-module fpd** command.

2.4T and 2.4T-X Cards

```
RP/0/RP0/CPU0:ios#show hw-module fpd
Fri Aug 30 11:04:02.782 IST

Auto-upgrade:Enabled,PM excluded
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 NCS1K14-CNTLR-K9      0.2   ADM-DB               CURRENT    2.10    2.10
NOT REQ
0/RP0/CPU0 NCS1K14-CNTLR-K9      0.2   ADM-MB               CURRENT    2.30    2.30
NOT REQ
0/RP0/CPU0 NCS1K14-CNTLR-K9      0.2   BIOS             S   CURRENT    4.80    4.80
  0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9      0.2   BIOS-Golden      BS  CURRENT            4.50
  0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9      0.2   CpuFpga          S   CURRENT    1.17    1.17
  0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9      0.2   CpuFpgaGolden    BS  CURRENT            1.03
  0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9      0.2   SsdIntelS4510    S   CURRENT   11.51   11.51
  0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9      0.2   TamFw            S   CURRENT    9.04    9.04
  0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9      0.2   TamFwGolden      BS  CURRENT            9.04
  0/RP0
0/PM1      NCS1K4-AC-PSU         0.1   PO-PriMCU            CURRENT    2.04    2.04
NOT REQ
0/PM1      NCS1K4-AC-PSU         0.1   PO-SecMCU            CURRENT    2.06    2.06
NOT REQ
0/0/NXR0   NCS1K14-2.4T-K9       0.1   CpuModFw         S   CURRENT  243.10  243.10
NOT REQ
0/2/NXR0   NCS1K14-2.4T-K9       0.1   CpuModFw         S   CURRENT  243.10  243.10
NOT REQ
0/3/NXR0   NCS1K14-2.4T-X-K9     1.0   CpuModFw         S   CURRENT  243.10  243.10
NOT REQ
0/Rack     NCS1014               0.1   ADM-CHASSIS          CURRENT    0.21    0.21
NOT REQ
0/Rack     NCS1014               0.1   IoFpga           S   CURRENT    1.19    1.19
NOT REQ
0/Rack     NCS1014               0.1   IoFpgaGolden     BS  CURRENT            1.05
NOT REQ
0/Rack     NCS1014               0.1   SsdIntelSC2KB    S   CURRENT    1.20    1.20
 0/Rack
```

QXP Card

```
RP/0/RP0/CPU0:ios#show hw-module fpd
Fri Aug 30 09:24:55.766 UTC

Auto-upgrade:Enabled,PM excluded
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 NCS1K14-CNTLR-K9      0.2   ADM-DB               CURRENT    2.10    2.10
NOT REQ
0/RP0/CPU0 NCS1K14-CNTLR-K9      0.2   ADM-MB               CURRENT    2.30    2.30
NOT REQ
0/RP0/CPU0 NCS1K14-CNTLR-K9      0.2   BIOS             S   CURRENT    4.80    4.80
  0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9      0.2   BIOS-Golden      BS  CURRENT            1.72
  0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9      0.2   CpuFpga          S   CURRENT    1.17    1.17
  0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9      0.2   CpuFpgaGolden    BS  CURRENT            0.27
  0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9      0.2   SsdMicron5300    S   CURRENT    0.01    0.01
  0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9      0.2   TamFw            S   CURRENT    9.04    9.04
  0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9      0.2   TamFwGolden      BS  CURRENT            9.04
  0/RP0
0/PM1      NCS1K4-AC-PSU         0.1   PO-PriMCU            CURRENT    2.04    2.04
NOT REQ
0/PM1      NCS1K4-AC-PSU         0.1   PO-SecMCU            CURRENT    2.06    2.06
NOT REQ
0/0/NXR0   NCS1K4-QXP-K9         0.2   CpuModFw         S   CURRENT  243.10  243.10
NOT REQ
0/1/NXR0   NCS1K4-QXP-L-K9       0.2   CpuModFw         S   CURRENT  243.10  243.10
NOT REQ
0/Rack     NCS1014               0.1   ADM-CHASSIS          CURRENT    0.21    0.21
NOT REQ
0/Rack     NCS1014               0.1   IoFpga           S   CURRENT    1.19    1.19
NOT REQ
0/Rack     NCS1014               0.1   IoFpgaGolden     BS  CURRENT            1.05
NOT REQ
0/Rack     NCS1014               0.1   SsdIntelSC2KB    S   CURRENT    1.20    1.20
 0/Rack
```

1.2T Card

```
RP/0/RP0/CPU0:ios#sh hw-module fpd
Auto-upgrade:Enabled,PM excluded
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 NCS1K14-CNTLR-K9      0.2   ADM-DB               CURRENT    2.10    2.10
NOT REQ
0/RP0/CPU0 NCS1K14-CNTLR-K9      0.2   ADM-MB               CURRENT    2.30    2.30
NOT REQ
0/RP0/CPU0 NCS1K14-CNTLR-K9      0.2   BIOS             S   CURRENT    4.80    4.80
  0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9      0.2   BIOS-Golden      BS  CURRENT            4.70
  0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9      0.2   CpuFpga          S   CURRENT    1.17    1.17
```

```
  0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9      0.2   CpuFpgaGolden    BS  CURRENT           1.09
  0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9      0.2   SsdMicron5300    S   CURRENT    0.01   0.01
  0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9      0.2   TamFw            S   CURRENT    9.04   9.04
  0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9      0.2   TamFwGolden      BS  CURRENT           9.04
  0/RP0
0/PM0      NCS1K4-AC-PSU         0.1   PO-PriMCU            CURRENT    2.04   2.04
NOT REQ
0/PM0      NCS1K4-AC-PSU         0.1   PO-SecMCU            CURRENT    2.06   2.06
NOT REQ
0/1/NXR0   NCS1K14-2.4T-K9       0.1   CpuModFw         S   CURRENT   24.32  24.32
NOT REQ
0/2/NXR0   NCS1K4-1.2T-L-K9      0.1   CpuModFw         S   CURRENT   24.32  24.32
NOT REQ
0/2/NXR0   NCS1K4-1.2T-L-K9      0.1   OptModFw         S   CURRENT    1.38   1.38
NOT REQ
0/3/NXR0   NCS1K4-1.2T-L-K9      0.1   CpuModFw         S   CURRENT   24.32  24.32
NOT REQ
0/3/NXR0   NCS1K4-1.2T-L-K9      0.1   OptModFw         S   CURRENT    1.38   1.38
NOT REQ
0/Rack     NCS1014               0.1   ADM-CHASSIS          CURRENT    0.21   0.21
NOT REQ
0/Rack     NCS1014               0.1   IoFpga           S   CURRENT    1.19   1.19
NOT REQ
0/Rack     NCS1014               0.1   IoFpgaGolden     BS  CURRENT           1.05
NOT REQ
0/Rack     NCS1014               0.1   SsdIntelSC2KB    S   CURRENT    1.20   1.20
 0/Rack
RP/0/RP0/CPU0:ios#
```

NCS 1010

Log into the node and enter the **show hw-module fpd** command.

```
RP/0/RP0/CPU0:ios#show hw-module fpd
Fri Aug 30 05:59:44.248 IST

Auto-upgrade:Enabled,PM excluded
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    4.80   4.80
  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    1.13   1.13
  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  SsdMicron5300    S   CURRENT    0.01   0.01
  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        1.0   AP-PriMCU            CURRENT    1.03   1.03
```

```
NOT REQ
0/PM0      NCS1010-AC-PSU        1.0   AP-SecMCU            CURRENT    2.01    2.01
NOT REQ
0/PM1      NCS1010-AC-PSU        1.0   AP-PriMCU            CURRENT    1.03    1.03
NOT REQ
0/PM1      NCS1010-AC-PSU        1.0   AP-SecMCU            CURRENT    2.01    2.01
NOT REQ
0/0/NXR0   NCS1K-E-OLT-R-C       1.0   OLT              S   CURRENT    3.16    3.16
NOT REQ
0/0/NXR0   NCS1K-E-OLT-R-C       1.0   Raman-1          S   CURRENT    3.16    3.16
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    1.19    1.19
NOT REQ
0/Rack     NCS1010-SA            2.1   IoFpgaGolden     BS  CURRENT            1.01
NOT REQ
0/Rack     NCS1010-SA            2.1   SsdMicron5300    S   CURRENT    0.01    0.01
 0/Rack
```

NCS 1004

Log into the node and enter the **show hw-module fpd** command.

QXP Card

```
RP/0/RP0/CPU0:ios#show hw-module fpd
Fri Aug 30 12:47:31.279 UTC

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   243.10    243.10

0/0        NCS1K4-QXP-K9         3.0   LC_QSFPDD_PORT_0      CURRENT    70.13011  70.13011

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

0/0        NCS1K4-QXP-K9         3.0   LC_QSFPDD_PORT_14     CURRENT    70.13011  70.13011

0/0        NCS1K4-QXP-K9         3.0   LC_QSFPDD_PORT_2      CURRENT    70.13011  70.13011

0/0        NCS1K4-QXP-K9         3.0   LC_QSFPDD_PORT_4      CURRENT    70.13011  70.13011

0/0        NCS1K4-QXP-K9         2.0   LC_QSFPDD_PORT_8      CURRENT    61.2332   61.2332

0/RP0      NCS1K4-CNTLR-K9       8.0   CSB_IMG            S  CURRENT     0.200     0.200

0/RP0      NCS1K4-CNTLR-K9       8.0   TAM_FW                CURRENT    36.08     36.08

0/RP0      NCS1K4-CNTLR-K9       1.14  BIOS               S  CURRENT     6.40      6.40

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

0/RP0      NCS1K4-CNTLR-K9       8.0   CPU_FPGA              CURRENT     1.14      1.14

0/RP0      NCS1K4-CNTLR-K9       5.5   CPU_SSD               CURRENT     1.00      1.00

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
```

OTN-XP Card

```
RP/0/RP0/CPU0:ios#sh hw-module fpd
Fri Aug 30 12:50:28.483 UTC

Auto-upgrade:Enabled
                                                                        FPD Versions
                                                                        ==============
Location   Card type            HWver FPD device       ATR Status    Running   Programd
-------------------------------------------------------------------------------------
0/0        NCS1K4-OTN-XP        3.0   LC_CFP2_PORT_0       CURRENT     1.46      1.46

0/0        NCS1K4-OTN-XP        3.0   LC_CFP2_PORT_1       CURRENT     1.46      1.46

0/0        NCS1K4-OTN-XP        3.0   LC_CPU_MOD_FW        CURRENT   243.10    243.10

0/0        NCS1K4-OTN-XP        7.0   LC_DP_MOD_FW         CURRENT     3.10      3.10

0/0        NCS1K4-OTN-XP        2.0   LC_QSFPDD_PORT_9     CURRENT    61.2332   61.2332

0/1        NCS1K4-OTN-XP        3.0   LC_CFP2_PORT_0       CURRENT     1.46      1.46

0/1        NCS1K4-OTN-XP        2.0   LC_CFP2_PORT_1       CURRENT     1.80      1.80

0/1        NCS1K4-OTN-XP        3.0   LC_CPU_MOD_FW        CURRENT   243.10    243.10

0/1        NCS1K4-OTN-XP        3.0   LC_DP_MOD_FW         CURRENT    15.10     15.10

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     6.40      6.40

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
```

1.2T, 1.2T-L, 2-QDD-C, and 2-QDD-L Cards

```
RP/0/RP0/CPU0:ios#sh hw-module fpd
Mon Sep  2 16:09:28.656 UTC

Auto-upgrade:Enabled
                                                                        FPD Versions
                                                                        ==============
Location   Card type            HWver FPD device       ATR Status    Running   Programd
-------------------------------------------------------------------------------------
0/0        NCS1K4-2-QDD-C-K9    0.0   LC_CPU_MOD_FW        CURRENT   243.10    243.10
```

0/0	NCS1K4-2-QDD-C-K9	1.0	LC_OPT_MOD_FW		CURRENT	1.38	1.38
0/1	NCS1K4-1.2T-K9	2.0	LC_CPU_MOD_FW		CURRENT	243.10	243.10
0/1	NCS1K4-1.2T-K9	1.0	LC_OPT_MOD_FW		CURRENT	1.38	1.38
0/2	NCS1K4-1.2TL-K9	3.0	LC_CPU_MOD_FW		CURRENT	243.10	243.10
0/2	NCS1K4-1.2TL-K9	1.0	LC_OPT_MOD_FW		CURRENT	1.38	1.38
0/3	NCS1K4-2-QDD-CK9L	1.0	LC_CPU_MOD_FW		CURRENT	243.10	243.10
0/3	NCS1K4-2-QDD-CK9L	1.0	LC_OPT_MOD_FW		CURRENT	1.38	1.38
0/RP0	NCS1K4-CNTLR-K9	8.0	CSB_IMG	S	CURRENT	0.200	0.200
0/RP0	NCS1K4-CNTLR-K9	8.0	TAM_FW		CURRENT	36.08	36.08
0/RP0	NCS1K4-CNTLR-K9	1.14	BIOS	S	CURRENT	6.40	6.40
0/RP0	NCS1K4-CNTLR-K9	5.4	BP_SSD		CURRENT	75.00	75.00
0/RP0	NCS1K4-CNTLR-K9	8.0	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

Supported MIBs

The MIB Locator tool on Cisco Feature Navigator (CFN) provides access to the supported MIBs.