Release Notes for Network Convergence System 1000 Series, Release 25.3.1

Network Convergence System 1000 Series, Release 25.3.1

Cisco IOS XR Release 25.3.1 is a new feature release for Cisco NCS 1000 Series.

For more details on the Cisco IOS XR release model and associated support, see Software Lifecycle Support Statement - IOS XR.

New software features

This section provides a brief description of the new software features introduced in this release.

Table 1. New software features for Network Convergence System 1000 Series, Release 25.3.1

Product impact	Feature	Description
NCS 1014 System Setup and Software Installation		
Software Reliability	Audit logging and monitoring	With audit logging and monitoring, you enhance your network's security and compliance by automatically logging specific actions and changes. This feature utilizes the Linux Audit Daemon to monitor relevant security events and can forward logs to a remote syslog server for centralized analysis. You can customize audit rules to track activities that align with your security requirements. CLI: These new commands are introduced: • **linux security audit monitor** *group-keyword* • **linux security audit logging syslog** • **logging** *remote-server-ipvrf remote-server-ip* • **show linux security audit monitor status** • **show linux security audit logging syslog**
NCS 1014 configuration		
Software Reliability	AppSel code provisioning	You can now configure and select application codes directly on a QSFP-DD module connected to a QXP-K9 card using the CLI. The pluggable module supported is DP04QSDD-ULH-A. This enhancement simplifies provisioning by allowing you to choose from advertised application modes such as 400ZR, OpenZR+, and others directly through the interface. Once selected, the host device activates the appropriate code, ensuring compatibility and streamlining configuration. CLI: • The **appsel simple code** keyword is introduced in the **controller optics** command. • The **appsel advertised**, **appsel active**, and **appsel detailed** keywords are introduced in the show controller optics command.
Software Reliability	Loop-and-drop mechanism on coherentDSP controller	The internal and line loopback configurations on the coherentDSP controller are enhanced to activate a loop-and-drop mechanism. This mechanism prevents traffic from flowing beyond the trunk port to the far end router in case of internal loopback, and

Product impact	Feature	Description
		connected router in case of the line loopback. This loop-and-drop mechanism is implemented by: Internal: Propagating local fault to the far-end node by modifying the 64th byte of TTI. Line Inserting a local fault alarm signal toward clients associated with the trunk where the loopback is applied in the current node. This feature is supported on these cards: • NCS1K14-2.4T-L-K9 • NCS1K14-2.4TXL-K9 • NCS1K14-2.4T-K9 • NCS1K14-2.4TX-K9 The loop-and-drop feature provides a clear indication to the user that if traffic is not active on the router port, it is due to either a fault or an existing configuration that is preventing the traffic from coming up.
Software Reliability	SSH Session Timeout	You can securely connect to your NCS 1000 nodes without hitting the SSH session limit. The session timeout introduces new CLI commands and YANG models to set a timeout for both SSH connections and individual channels. **SSH Connection timeout**: This timeout setting enables the NCS 1000 nodes to terminate SSH connections that have inactive channels and no new channels from the SSH clients. Set SSH connection timeout using: **CLI**: • ssh server timeout connection <sec> **YANG Data Models**: • Cisco-IOS-XR-crypto-ssh-cfg.yang data model was modified. • Cisco-IOS-XR-um-ssh-cfg.yang data model was modified. **SSH Channel timeout**: This setting improves SSH connection efficiency by closing SSH channels after a predetermined period of inactivity. This timeout enables the NCS 1000 nodes to keep the parent SSH connection active with only active SSH channels, preventing stale SSH connections and improving the connectivity for nodes. Set SSH channel timeout using: **CLI**: • ssh server timeout channel <sec>

Product impact	Feature	Description
		YANG Data Models: • Cisco-IOS-XR-crypto-ssh-cfg.yang data model was modified. • Cisco-IOS-XR-um-ssh-cfg.yang data model was modified.
Software Reliability	QPSK modulation support for 400G trunk rate	The NCS1K4-2.4T-K9, NCS1K14-2.4T-X-K9, NCS1K14-2.4TXL-K9, and NCS1K14-2.4T-L-K9 cards now support QPSK modulation configuration for 400G trunk rate on CIM8 pluggables at a baud rate of 118 GBd. This enhancement delivers improved performance and extended reach for long-distance and subsea applications.
NCS 1014 Data models		
Software Reliability	Enhancement in OC support for EDFA2 card	The EDFA2 card OC model offers enhanced management and monitoring capabilities through the following updates to the transport line common model and the introduction of a new YANG model: • **Threshold leaves:** Configuration and state support for OTS ports, OSC-4, Optics OSC, and Coherent Probe ports. • **Admin-state leaves:** Configuration and state support for OTS ports, OSC-4, Optics OSC, and Coherent Probe ports. • **Supervisory-channels leaves:** Power monitoring support for the OSC-4 port. • **New YANG model:** Support for the *openconfig-terminal-device.yang* model, enabling Coherent Probe configuration.
Cisco Optical Site Manager		
Ease of Use	NFV Map View Enhancements	The NFV map view now features a clearer and more organized site optical diagram with updated icons, improved data flow representation, and streamlined functional block layout. Omnidirectional blocks are grouped for efficient navigation, and the OXC view is always expanded horizontally for consistent data flow visualization.
Ease of Setup	Additional Card Modes for OTN-XP Card	The **Card Configuration Wizard** now supports configuring these card modes for NCS1K4-OTN-XP card: • 400G-TXP-DD • 4x100GE-MXP-DD • OTU-N-REGEN

New hardware features

This section provides a brief description of the new hardware features introduced in this release.

Table 2. New hardware feature for NCS 1014, Release 25.3.1

Product impact	Feature	Description
Hardware Reliability	Pluggable support	The NCS1K4-QXP-K9 line card now supports the new DP04QSDD-E26-A1 and DP04QSDD-ULH-A1 trunk pluggables. These trunk pluggables provide lower power consumption.

Open issues

This table lists the open issues in this specific software release.

Note: This software release may contain open bugs first identified in other releases. To see additional information, click the bug ID to access the Cisco Bug Search Tool.

NCS 1014

Table 3. Open issues for Cisco NCS 1014

Bug ID	Description
CSCwq60149	Observed line cards remaining in platform initialized state following rack reload

NCS 1004

Table 4. Open issues for Cisco NCS 1004

Bug ID	Description
CSCwp31782	NCS1004: Encryption: After reload and process restarts, inbound/outbound SPIs are not displayed
CSCwq29712	Observed 'LC Disconnected' declared and cleared, then cma_server crash after software upgrade

Cisco Optical Site Manager

Table 5. Open issues for Cisco Optical Site Manager

Bug ID	Description
CSCwp11028	[COSM] Software upgrade from releases 24.3.1/25.1.1/25.2.1 to 25.3.1 fails on multiple devices

Bug ID	Description
CSCwq83729	[COSM]: NCS1004 UI shows " Activation Failed" as bridge SMU installation takes over three minutes
CSCwq86238	[COSM]: In HA setup repo, multiple packages with the same version appear for the same platform
CSCwr01420	[COSM]: SU fails when mini ISO is selected for upgrade from COSM on NCS1004
CSCwp92870	NCS1010:COSM:2531:Software Activation discrepancy for NCS1014 hosted along with NCS1010
CSCwq41922	NCS1010:COSM:2531: Unknown-chassis-type shown in devices page
CSCwq50724	NCS1010:COSM:2531:Restore file not present post HA switchover
CSCwq83789	[COSM]: Diagnostic collection interrupted from COSM due to default watchDog timeout
CSCwq91981	COSM HA: Activation status remains stuck as enqueued even after successful completion of the device activation
CSCwr00129	[COSM]: Cannot handle multiple GISO files for the same platform and version

Supported hardware

The pluggables DP04QSDD-E26-A1 and DP04QSDD-ULH-A1 are supported on NCS 1014.

Supported software packages

This section provides information about the release packages associated with NCS 1000 series

NCS 1014

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

Table 6. Software packages for NCS 1014, Release 25.3.1

Feature Set	Filename	Description
Composite package		
Cisco IOS XR Core Bundle + Manageability Package	ncs1010-x64-25.3.1.iso	IOS 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. XR Base Image
Individually installable packages		
Cisco IOS XR Telnet Packages	xr-telnet-25.3.1v1.0.0-1.x86_64.rpm xr-telnet-ncs1014-25.3.1v1.0.0-1.x86_64.rpm	Install these packages to support Telnet.

Feature Set	Filename	Description
Cisco IOS XR Security Package	xr-k9sec-pid-eb216ea0977bb9c7-25.3.1.38Iv1.0.0-1.x86_64.rpm xr-k9sec-25.3.1.38Iv1.0.0-1.x86_64.rpm xr-k9sec-pid-ncs1014-25.3.1.38Iv1.0.0-1.x86_64.rpm xr-k9sec-f544c7c7d37890ec-25.3.1.38Iv1.0.0-1.x86_64.rpm	Support for Encryption, Decryption, IP Security (IPsec), Secure Socket Layer (SSL), and Public-key infrastructure (PKI).
Cisco IOS XR Cisco Discovery Protocol (CDP) Packages	xr-cdp-25.3.1v1.0.0-1.x86_64.rpm xr-cdp-ncs1014-25.3.1v1.0.0-1.x86_64.rpm xr-cdp-f544c7c7d37890ec-25.3.1v1.0.0-1.x86_64.rpm xr-telnet-f544c7c7d37890ec-25.3.1v1.0.0-1.x86_64.rpm	Install these packages to support CDP.

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Table 7. Software packages for NCS 1004, Release 25.3.1

Feature Set	Filename	Description
Composite package		
Cisco IOS XR Core Bundle + Manageability Package	NCS1004-iosxr-px-k9-25.3.1.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-r2531.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 -24.5.1-r2411.x86_64.rpm (part of ncs1004-iosxr-px-k9-24.5.1.tar)	Install this data path FPD packages on the OTN-XP card. This package is mandatory for datapath bring up.

Determine software version

NCS 1014

Log into the node and enter the show version command.

```
 RP/0/RP0/CPU0:IOS#show version
Wed Sep  3 12:10:51.522 IST
Cisco IOS XR Software, Version 25.3.1.38I LNT
Copyright (c) 2013-2025 by Cisco Systems, Inc.

Build Information:
Built By     : swtools
Built On     : Wed Aug 27 21:37:24 UTC 2025
Build Host   : iox-lnx-008
Workspace    : /auto/iox-lnx-008-san1/prod/25.3.1.38I.SIT_IMAGE/ncs1010/ws
Version      : 25.3.1.38I
Label        : 25.3.1.38I-v1

cisco NCS1010 (C3758R @ 2.40GHz)
cisco NCS1014 (C3758R @ 2.40GHz) processor with 32GB of memory
MOLS_SIT2 uptime is 5 days, 19 hours, 8 minutes
NCS 1014 - Chassis
```

NCS 1004

```
RP/0/RP0/CPU0:IOS#show version
Wed Sep  3 12:10:05.976 UTC
Cisco IOS XR Software, Version 25.3.1.38I
Copyright (c) 2013-2025 by Cisco Systems, Inc.

Build Information:
Built By     : swtools
Built On     : Wed Aug 27 09:12:37 PDT 2025
Built Host   : iox-lnx-007
Workspace    : /auto/iox-lnx-007-san2/prod/25.3.1.38I.SIT_IMAGE/ncs1004/ws
Version      : 25.3.1.38I
Location     : /opt/cisco/XR/packages/
Label        : 25.3.1.38I-PROD_BUILD_25_3_1_38I_SIT_IMAGE

cisco NCS-1004 () processor
System uptime is 5 days 1 hour 41 minutes
```

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 Programmed version must be the same.

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 Sep 05 21:23:01.682 IST

Auto-upgrade:Enabled,PM included
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  1.0 ADM-DB CURRENT 2.10 2.10 NOT REQ
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 ADM-MB CURRENT 2.30 2.30 NOT REQ
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 BIOS S CURRENT 5.00 5.00 0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 BIOS-Golden BS CURRENT 4.70 0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 CpuFpga S CURRENT 1.17 1.17 0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 CpuFpgaGolden BS CURRENT 1.09 0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 SsdIntelSCKKBGZ S CURRENT 1.30 1.30 0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 TamFw S CURRENT 9.04 9.04 0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 TamFwGolden BS CURRENT 9.04 0/RP0
0/PM0      NCS1K4-AC-PSU-2   1.1 PO-PriMCU CURRENT 1.03 1.03 NOT REQ
0/PM0      NCS1K4-AC-PSU-2   1.1 PO-SecMCU CURRENT 1.05 1.05 NOT REQ
0/PM1      NCS1K4-AC-PSU-2   0.1 PO-PriMCU CURRENT 1.03 1.03 NOT REQ
0/PM1      NCS1K4-AC-PSU-2   0.1 PO-SecMCU CURRENT 1.05 1.05 NOT REQ
0/1/NXR0   NCS1K14-2.4T-K9   0.1 CpuModFw S CURRENT 253.100 253.100 NOT REQ
0/3/NXR0   NCS1K14-2.4T-X-K9 1.0 CpuModFw S CURRENT 253.100 253.100 NOT REQ
0/Rack     NCS1014           1.1 ADM-CHASSIS CURRENT 0.21 0.21 NOT REQ
0/Rack     NCS1014           1.1 IoFpga S CURRENT 2.26 2.26 NOT REQ
0/Rack     NCS1014           1.1 IoFpgaGolden BS CURRENT 1.05 NOT REQ
0/Rack     NCS1014           1.1 SsdIntelSC2KB S CURRENT 1.30 1.30 0/Rack
0/4        NCS1K-MD-32E-CE   0.2 MD-32-LUM S CURRENT 2.20 2.20 NOT REQ
```

QXP card

```
RP/0/RP0/CPU0:ios#show hw-module fpd
Fri Sep 05 21:23:01.682 IST

Auto-upgrade:Enabled,PM included
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  1.0 ADM-DB CURRENT 2.10 2.10 NOT REQ
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 ADM-MB CURRENT 2.30 2.30 NOT REQ
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 BIOS S CURRENT 5.00 5.00 0/RP0
```

```
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 BIOS-Golden BS CURRENT 4.70 0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 CpuFpga S CURRENT 1.17 1.17 0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 CpuFpgaGolden BS CURRENT 1.09 0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 SsdIntelSCKKBGZ S CURRENT 1.30 1.30 0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9     1.0 TamFw S CURRENT 9.04 9.04 0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 TamFwGolden BS CURRENT 9.04 0/RP0
0/PM0      NCS1K4-AC-PSU-2   1.1 PO-PriMCU CURRENT 1.03 1.03 NOT REQ
0/PM0      NCS1K4-AC-PSU-2   1.1 PO-SecMCU CURRENT 1.05 1.05 NOT REQ
0/PM1      NCS1K4-AC-PSU-2   0.1 PO-PriMCU CURRENT 1.03 1.03 NOT REQ
0/PM1      NCS1K4-AC-PSU-2   0.1 PO-SecMCU CURRENT 1.05 1.05 NOT REQ
0/2/NXR0   NCS1K4-QXP-K9     0.2 CpuModFw S CURRENT 253.100 253.100 NOT REQ
0/Rack     NCS1014           1.1 ADM-CHASSIS CURRENT 0.21 0.21 NOT REQ
0/Rack     NCS1014           1.1 IoFpga S CURRENT 2.26 2.26 NOT REQ
0/Rack     NCS1014           1.1 IoFpgaGolden BS CURRENT 1.05 NOT REQ
0/Rack     NCS1014           1.1 SsdIntelSC2KB S CURRENT 1.30 1.30 0/Rack
0/4        NCS1K-MD-32E-CE   0.2 MD-32-LUM S CURRENT 2.20 2.20 NOT REQ
```

EDFA2 card

```
RP/0/RP0/CPU0:ios#show hw-module fpd
Fri Sep 05 21:23:01.682 IST

Auto-upgrade:Enabled,PM included
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  1.0 ADM-DB CURRENT 2.10 2.10 NOT REQ
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 ADM-MB CURRENT 2.30 2.30 NOT REQ
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 BIOS S CURRENT 5.00 5.00 0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 BIOS-Golden BS CURRENT 4.70 0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 CpuFpga S CURRENT 1.17 1.17 0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 CpuFpgaGolden BS CURRENT 1.09 0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 SsdIntelSCKKBGZ S CURRENT 1.30 1.30 0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 TamFw S CURRENT 9.04 9.04 0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 TamFwGolden BS CURRENT 9.04 0/RP0
0/PM0      NCS1K4-AC-PSU-2   1.1 PO-PriMCU CURRENT 1.03 1.03 NOT REQ
0/PM0      NCS1K4-AC-PSU-2   1.1 PO-SecMCU CURRENT 1.05 1.05 NOT REQ
0/PM1      NCS1K4-AC-PSU-2   0.1 PO-PriMCU CURRENT 1.03 1.03 NOT REQ
0/PM1      NCS1K4-AC-PSU-2   0.1 PO-SecMCU CURRENT 1.05 1.05 NOT REQ
0/0/NXR0   NCS1K14-EDFA2     0.1 CpuModFw S CURRENT 253.100 253.100 NOT REQ
0/0/NXR0   NCS1K14-EDFA2     0.1 OptModFw S CURRENT 2.08 2.08 NOT REQ
0/Rack     NCS1014           1.1 ADM-CHASSIS CURRENT 0.21 0.21 NOT REQ
0/Rack     NCS1014           1.1 IoFpga S CURRENT 2.26 2.26 NOT REQ
0/Rack     NCS1014           1.1 IoFpgaGolden BS CURRENT 1.05 NOT REQ
0/Rack     NCS1014           1.1 SsdIntelSC2KB S CURRENT 1.30 1.30 0/Rack
0/4        NCS1K-MD-32E-CE   0.2 MD-32-LUM S CURRENT 2.20 2.20 NOT REQ
```

2-QDD-C-K9 C

```
RP/0/RP0/CPU0:ios#show hw-module fpd
Fri Sep 05 21:23:01.682 IST

Auto-upgrade:Enabled,PM included
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  1.0 ADM-DB CURRENT 2.10 2.10 NOT REQ
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 ADM-MB CURRENT 2.30 2.30 NOT REQ
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 BIOS S CURRENT 5.00 5.00 0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 BIOS-Golden BS CURRENT 4.70 0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 CpuFpga S CURRENT 1.17 1.17 0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 CpuFpgaGolden BS CURRENT 1.09 0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 SsdIntelSCKKBGZ S CURRENT 1.30 1.30 0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 TamFw S CURRENT 9.04 9.04 0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  1.0 TamFwGolden BS CURRENT 9.04 0/RP0
0/PM0      NCS1K4-AC-PSU-2   1.1 PO-PriMCU CURRENT 1.03 1.03 NOT REQ
0/PM0      NCS1K4-AC-PSU-2   1.1 PO-SecMCU CURRENT 1.05 1.05 NOT REQ
0/PM1      NCS1K4-AC-PSU-2   0.1 PO-PriMCU CURRENT 1.03 1.03 NOT REQ
0/PM1      NCS1K4-AC-PSU-2   0.1 PO-SecMCU CURRENT 1.05 1.05 NOT REQ
0/3/NXR0   NCS1K4-2-QDD-C-K9 0.1 CpuModFw S CURRENT 253.100 253.100 NOT REQ
0/Rack     NCS1014           1.1 ADM-CHASSIS CURRENT 0.21 0.21 NOT REQ
0/Rack     NCS1014           1.1 IoFpga S CURRENT 2.26 2.26 NOT REQ
0/Rack     NCS1014           1.1 IoFpgaGolden BS CURRENT 1.05 NOT REQ
0/Rack     NCS1014           1.1 SsdIntelSC2KB S CURRENT 1.30 1.30 0/Rack
0/4        NCS1K-MD-32E-CE   0.2 MD-32-LUM S CURRENT 2.20 2.20 NOT REQ
```

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 Sep 05 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   253.10    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 Sep 05 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    253.100    253.100
0/0         NCS1K4-OTN-XP          2.0   LC_DP_MOD_FW           CURRENT     14.10      14.10
0/1         NCS1K4-OTN-XP          3.0   LC_CFP2_PORT_0         CURRENT      1.46       1.46
0/1         NCS1K4-OTN-XP          3.0   LC_CFP2_PORT_1         CURRENT      1.46       1.46
0/1         NCS1K4-OTN-XP          3.0   LC_CPU_MOD_FW          CURRENT    253.100    253.100
0/1         NCS1K4-OTN-XP          4.0   LC_DP_MOD_FW           CURRENT      7.10       7.10
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
Fri Sep 05 16:09:28.656 UTC
Auto-upgrade:Enabled
                                                                    FPD Versions
                                                                    ==============
Location   Card type              HWver FPD device       ATR Status    Running   Programd
-------------------------------------------------------------------------------------------
0/3/NXR0   NCS1K4-2-QDD-C-K9      0.1   CpuModFw              CURRENT   253.100   253.100
0/0        NCS1K4-2-QDD-C-K9      1.0   LC_OPT_MOD_FW         CURRENT     1.38      1.38
0/0        NCS1K4-1.2T-L-K9       2.0   LC_CPU_MOD_FW         CURRENT   253.100   253.100
0/0        NCS1K4-1.2T-L-K9       1.0   LC_OPT_MOD_FW         CURRENT     1.38      1.38
0/1        NCS1K4-1.2TL-K9        3.0   LC_CPU_MOD_FW         CURRENT   253.100   253.100
0/1        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
```

Related resources

These links provide access to related documents and resources associated with this release:

- For the supported upgrade and downgrade paths, see Software Upgrade and Downgrade Matrix.
- For the complete list of documentation for the release, see Cisco Network Convergence System 1000 Series.

Legal information