



# Release Notes for Cisco NCS 1000 Series, IOS XR Release 7.5.2

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## Network Convergence System 1000 Series

### What's New in Cisco NCS 1000 Series, IOS XR Release 7.5.2

#### NCS 1004

Feature	Description
<b>Alarms</b>	
Health check to report any crash in LCAPP	The new LC-DISCONNECTED alarm is raised in IOS XR if the Line Card Application (LCAPP) crashes or restarts. At the same time, older core files are deleted while retaining only the most recent ones to free up memory space. This enhancement speeds up the fault notification process and reduces LCAPP downtime.
<b>System Setup and Software Installation</b>	
<a href="#">FPD Upgrade Support for SSDs</a>	The FPDs of two SSDs on the chassis and on the route processor can be upgraded. This feature allows you to maintain the FPD versions of SSDs with latest firmware included with enhancements and bug fixes. If an FPD upgrade is due, the <i>One Or More FPDs Need Upgrade Or Not In Current State</i> alarm is raised on the route processor.
<a href="#">Health Check for Proper Backup ISO Image</a>	This feature primitively validates the backup ISO image to be used during Disaster Recovery. The validation happens before copying the image to the CPU disk and motherboard disks, and thereafter the copied image is audited every 12 hours. Image corruption triggers the <i>Disaster recovery is disabled due to corrupted ISO</i> alarm. This Health Check feature ensures error-free booting of NCS 1004 chassis during disaster recovery operations.
<b>Data Models</b>	
<a href="#">OC Support for 10G Grey Mux</a>	You can now configure a 10x10G muxponder on each slice of the OTN-XP line card. The 10x10G muxponder multiplexes ten 10G clients and map it to a grey OTU4 trunk signal. This feature improves efficiency, performance, and flexibility for customer networks allowing 10x10G client transport over 100G WDM wavelength.
<b>OpenROADM</b>	

Feature	Description
<a href="#">100G TXP Configurations</a>	It is now possible to configure 100G data rates for a TXP interface on the OTN-XPL line card. This configuration allows the signal to travel longer distances before a need for regeneration.
<a href="#">16 QAM Modulation Format for 200G MXP Interfaces</a>	200G MXP interfaces on the OTN-XPL line card now support the 16 QAM modulation format. This format uses a lower baud rate. As a result, it permits the use of a smaller channel spacing of 50GHz.
<a href="#">Bookended Configuration for 400G Trunk Rates</a>	Bookended configurations are Cisco proprietary configurations where the same network element is present on the near and far end nodes. Bookended configurations are supported for 400G trunk rates on the OTN-XPL line card, resulting in better optical reach than the standard configuration.
<a href="#">REGEN Configurations for 200G and 400G Interfaces</a>	3R regeneration improves optical signal quality by reamplifying, reshaping, and retiming the data pulses. The 200G and 400G interfaces on the OTN-XPL line card now support REGEN configurations. This functionality overcomes the effects of optical signal degradation during long-haul optical transmission.
<a href="#">Support for QSFP-100G-FR-S and QSFP-100G-LR-S pluggables for Open ROADM configurations</a>	You can now control and manage the QSFP-100G-FR-S and QSFP-100G-LR-S pluggable modules installed on the OTN-XPL line card using an Open ROADM-compliant controller. This functionality extends the programmability benefits of the Open ROADM controller to configure these pluggable modules at scale.
<a href="#">Untimed Granularity Ethernet PMs</a>	Untimed granularity PMs are PMs that are collected continuously till the interface is deprovisioned and are used for performance monitoring. The following untimed ethernet PMs are supported on the OTN-XPL line card: <ul style="list-style-type: none"> <li>• 100G: codeViolations, inFramesErrored, outFrames, inFrames, fecCorrectedCodewords, fecUncorrectedCodewords</li> <li>• 400G: fecCorrectedCodewords, fecUncorrectedCodewords</li> </ul>
<b>Hardware</b>	
<a href="#">Pluggables Support</a>	The following pluggables are supported: <ul style="list-style-type: none"> <li>• QSFP-100G-LR-S</li> <li>• DP04CFP2-M25-K9</li> </ul>
<b>Configuration</b>	
<a href="#">DAC Configuration Support for 400GE, 4x100G, or 400G Regen modes</a>	On the OTN-XP card, you can configure the Digital-to-Analog (DAC) rate for the 400GE, 4x100G, or 400G Regen modes with CFP2 DCO pluggable. Based on the DAC rate configured, pulse shaping and modem setting is set on the CFP2 DCO trunk pluggable.

Feature	Description
<a href="#">FC-MXP Mode Support on the OTN-XP Card</a>	The OTN-XP card now supports FC-MXP LC mode for Fiber Channel (FC) support. You can configure 16G FC with 400G trunk rate.
<a href="#">Idle Insertion for Ethernet Controllers</a>	Idle insertion for Ethernet controllers feature performs end-to-end link verification between 100GE or 400GE Ethernet controllers before bringing up the actual traffic. This feature enables you to perform pre-provisioning checks to isolate link errors in advance without any Ethernet testers. This feature is supported on the 1.2T C band, 1.2T L band, and 800G QSFP-DD Transponder line cards.
<a href="#">Regeneration Mode support on the OTN-XP Card</a>	The OTN-XP card now supports the OTUCn-REGEN LC mode for regeneration. This mode allows regeneration of the DWDM channels across trunk ports of the OTN-XP card and significantly extends the reach of the service. You can configure 200G and 400G trunk rates on the card.
<a href="#">Split Client Port Mapping</a>	A new trunk port to client port mapping for sub 50G configurations is now available on the 1.2T C band, 1.2T L band, and 800G QSFP-DD Transponder line cards. In this mapping, the same shared client port is used for all Sub 50G trunk data rates, eliminating recabling while changing the data rates.

### NCS 1001

There are no new features introduced in this release.

## Release 7.5.2 Packages

**Table 1: Release 7.5.2 Packages for Cisco NCS 1004**

Feature Set	Filename	Description
<b>Composite Package</b>		
Cisco IOS XR Core Bundle + Manageability Package	ncs1004-iosxr-px-k9-7.5.2.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.
<b>Individually Installable Packages</b>		
Cisco IOS XR Security Package	ncs1004-k9sec-1.0.0.0-r752.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-7.5.2-r752.x86_64.rpm (part of ncs1004-iosxr-px-k9-7.5.2.tar)	Install the ncs1004-sysadmin-otn-xp-dp-7.5.2-r752.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-r752.rpm	Install the ncs1004-tp-sw-1.0.0.0-r752.rpm package for OpenROADM configuration.

**Table 2: Release 7.5.2 Packages for Cisco NCS 1001**

Feature Set	Filename	Description
<b>Composite Package</b>		
Cisco IOS XR Core Bundle + Manageability Package	ncs1001-iosxr-px-k9-7.5.2.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.
<b>Individually Installable Optional Packages</b>		
Cisco IOS XR Security Package	ncs1001-k9sec-1.1.0.0r752_x86_64.rpm (part of ncs1k-iosxr-px-k9-7.5.2.tar)	Support for Encryption, Decryption, IP Security (IPsec), Secure Socket Layer (SSL), and Public-key infrastructure (PKI).

See [Install Packages](#).

### System Requirement

At least 16 GB RAM

## Caveats

### Open Caveats

#### NCS 1004

The following table lists the open caveats for NCS 1004:

Identifier	Headline
<a href="#">CSCwa96132</a>	Open configuration-platform provides wrong port details if Line card is in shut state.
<a href="#">CSCvz82021</a>	Unable to reach node after RP reload.

Identifier	Headline
<a href="#">CSCwb01852</a>	MDS 32G FC interoperability:- Link doesn't come up due to TTS disabled
<a href="#">CSCwa33451</a>	FPD upgrade all skips keys update
<a href="#">CSCwb11667</a>	Inventory data missing pluggable removal and insertion
<a href="#">CSCvz57846</a>	OTN-XP card automatically becomes operational after shutdown

### NCS 1001

The following table lists the open caveats for NCS 1001:

Identifier	Headline
<a href="#">CSCwb53705</a>	IPV6 iPXE support is not working

## 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.

## Determine Software Version

### NCS 1004

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

```
RP/0/RP0/CPU0:ios#show version
Wed Apr 27 06:24:08.692 UTC
Cisco IOS XR Software, Version 7.5.2
Copyright (c) 2013-2022 by Cisco Systems, Inc.

Build Information:
Built By      : ingunawa
Built On     : Tue Apr 26 17:25:28 PDT 2022
Built Host   : iox-lnx-054
Workspace    : /auto/srcarchive14/prod/7.5.2/ncs1004/ws
Version      : 7.5.2
Location     : /opt/cisco/XR/packages/
Label       : 7.5.2

cisco NCS-1004 () processor
System uptime is 1 hour 35 minutes
```

### NCS 1001

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

```
RP/0/RP0/CPU0:ios#show version
Wed Apr 27 14:45:28.768 CEST
Cisco IOS XR Software, Version 7.5.2
Copyright (c) 2013-2022 by Cisco Systems, Inc.
```

```
Build Information:
Built By      : ingunawa
Built On     : Tue Apr 26 18:18:53 PDT 2022
Built Host   : iox-lnx-012
Workspace    : /auto/srcarchive14/prod/7.5.2/ncs1001/ws
Version      : 7.5.2
Location     : /opt/cisco/XR/packages/
Label       : 7.5.2
```

```
cisco NCS-1001 () processor
System uptime is 3 hours 13 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; Running and Programed version must be the same.

### NCS 1004

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

```
RP/0/RP0/CPU0:ios#show hw-module fpd
Fri Apr 22 18:03:03.914 IST
```

```
Auto-upgrade:Disabled
```

Location	Card type	HWver	FPD device	ATR Status	FPD Versions	
					Running	Program
0/1	NCS1K4-OTN-XP	3.0	LC_CFP2_PORT_0	CURRENT	1.25	1.25
0/1	NCS1K4-OTN-XP	3.0	LC_CFP2_PORT_1	CURRENT	1.25	1.25
0/1	NCS1K4-OTN-XP	3.0	LC_CPU_MOD_FW	CURRENT	75.20	75.20
0/1	NCS1K4-OTN-XP	2.0	LC_DP_MOD_FW	CURRENT	11.10	11.10
0/RP0	NCS1K4-CNTLR-K9	7.0	CSE_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	5.50	5.50
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 EDFA (slot 1 and 3) and PSM (slot 2) of vendor 1.

```
RP/0/RP0/CPU0:ios#show hw-module fpd all
Wed Apr 6 11:23:41.105 CEST
```

```
Auto-upgrade:Disabled
```

Location	Card type	HWver	FPD device	ATR Status	FPD Versions	
					Running	Program

```

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      0.43  0.43
0/2      NCS1K-PSM      0.0  FW_PSMv1      CURRENT      1.51  1.51
0/3      NCS1K-EDFA      0.0  FW_EDFAv2      CURRENT      0.43  0.43
0/RP0    NCS1K-CNTLR2     0.1  BIOS_Backup     BS  CURRENT      15.10  15.10
0/RP0    NCS1K-CNTLR2     0.1  BIOS_Primary    S  CURRENT      0.20  0.20
0/RP0    NCS1K-CNTLR2     0.1  Daisy_Duke_BKP BS  CURRENT      0.20  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 EDFA (slot 1 and 3) and PSM (slot 2) of vendor 2.

```
RP/0/RP0/CPU0:IOS#show hw-module fpd all
Wed Apr 6 11:25:27.808 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  15.10
0/RP0    NCS1K-CNTLR2     0.1  BIOS_Primary    S  CURRENT      0.20  0.20
0/RP0    NCS1K-CNTLR2     0.1  Daisy_Duke_BKP BS  CURRENT      0.20  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 EDFA vendor 1 (slot 1 and 3) and OTDR (slot 2).

```
RP/0/RP0/CPU0:IOS#show hw-module fpd all
Wed Apr 6 11:26:26.204 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  15.10
0/RP0    NCS1K-CNTLR2     0.1  BIOS_Primary    S  CURRENT      0.20  0.20
0/RP0    NCS1K-CNTLR2     0.1  Daisy_Duke_BKP BS  CURRENT      0.20  0.20
0/RP0    NCS1K-CNTLR2     0.1  Daisy_Duke_FPGA S  CURRENT      0.20  0.20

```

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.

# Other Important Information and References

## Supported MIBs

NCS 1004 supports the following MIBs:

- CISCO-AM-SNMP-MIB
- CISCO-CONFIG-MAN-MIB
- CISCO-FLASH-MIB
- CISCO-ENTITY-REDUNDANCY-MIB
- CISCO-SYSTEM-MIB
- CISCO-ENTITY-ASSET-MIB
- EVENT-MIB
- DISMAN-EXPRESSION-MIB
- CISCO-FTP-CLIENT-MIB
- NOTIFICATION-LOG-MIB
- CISCO-RF-MIB
- RADIUS-AUTH-CLIENT-MIB
- RADIUS-ACC-CLIENT-MIB
- IEEE8023-LAG-MIB
- CISCO-TCP-MIB
- UDP-MIB
- CISCO-BULK-FILE-MIB
- CISCO-CONTEXT-MAPPING-MIB
- CISCO-OTN-IF-MIB
- CISCO-ENHANCED-MEMPOOL-MIB
- CISCO-PROCESS-MIB
- CISCO-SYSLOG-MIB
- ENTITY-MIB
- CISCO-ENTITY-FRU-CONTROL-MIB
- CISCO-IF-EXTENSION-MIB
- RMON-MIB
- HC-RMON-MIB



- CISCO-OPTICAL-MIB
- CISCO-ENTITY-SENSOR-MIB
- LLDP-MIB
- CISCO-ALARM-MIB

NCS 1001 supports the following MIBs:

- CISCO-OPTICAL-OTS-MIB
- CISCO-CONFIG-MAN-MIB
- CISCO-FLASH-MIB
- CISCO-ENTITY-REDUNDANCY-MIB
- CISCO-SYSTEM-MIB
- CISCO-ENTITY-ASSET-MIB
- EVENT-MIB
- DISMAN-EXPRESSION-MIB
- CISCO-FTP-CLIENT-MIB
- NOTIFICATION-LOG-MIB
- CISCO-RF-MIB
- CISCO-TCP-MIB
- UDP-MIB
- CISCO-OTN-IF-MIB
- CISCO-ENHANCED-MEMPOOL-MIB
- CISCO-PROCESS-MIB
- CISCO-SYSLOG-MIB
- ENTITY-MIB
- CISCO-ENTITY-FRU-CONTROL-MIB
- CISCO-IF-EXTENSION-MIB
- RMON-MIB
- CISCO-OPTICAL-MIB
- CISCO-ENTITY-SENSOR-MIB

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