



# Release Notes for Cisco NCS 1000 Series, IOS XR Release 7.5.1

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## What's New in Cisco NCS 1000 Series, IOS XR Release 7.5.1

### NCS 1004

| Feature  | Description  |
|--|--|
| <b>Data Models</b>   |  |
| <a href="#">Unified YANG Models</a>                            | CLI-based Yang data models, also known as unified YANG models, are introduced in this release. The unified YANG models provide a complete coverage of the router functionality, and serve as an abstraction for YANG and CLI commands.   |
| <a href="#">OC Support for 400G TXP/MXP</a>                    | This feature allows you to configure the 400G TXP and 400G MXP using CFP2 DCO. On the OTN-XP card, you can configure OC datapath on a single 400GE or 4x100G payload that is received over the client port as a 400G signal over DWDM on the line side. The card improves efficiency, performance, and flexibility for customer networks allowing 400GE or 4x100G client transport over 400G WDM wavelength. |
| <b>Configuration</b>   |  |
| <b>OTN-XP Card</b>   |  |
| <a href="#">2X100GE MXP modes with QDD ZRP for OTN-XP Card</a> | <p>On the OTN-XP card, you can configure two 2x100GE payloads that are received over the client port as a 200GE signal over DWDM on the line side.</p> <p>The 2x100GE-MXP-DD muxponder mode improves efficiency, performance, and flexibility for customer networks allowing 2x100GE client transport over 200GE WDM wavelength.</p>   |
| <a href="#">3x100GE MXP modes with QDD ZRP for OTN-XP Card</a> | <p>On the OTN-XP card, you can configure two 3x100GE payloads that are received over the client port as a 300GE signal over DWDM on the line side.</p> <p>The 3x100GE-MXP-DD muxponder mode improves efficiency, performance, and flexibility for customer networks allowing 3x100GE client transport over 300GE WDM wavelength.</p>   |

| Feature  | Description   |
|--|---|
| <a href="#">400GE TXP mode with QDD ZRP for OTN-XP Card</a>  | On the OTN-XP card, you can configure two 400GE payloads that are received over the client port as a 400GE signal over DWDM on the line side.<br><br>The 400GE-TXP-DD muxponder mode improves efficiency, performance, and flexibility for customer networks allowing 400GE client transport over 400GE WDM wavelength. |
| <a href="#">Support for 10x10G + 2 x 100G, 20x10G + 1 x 100G, and 30x10G + 1 x 100G Hybrid Modes</a> | You can configure different client rates across the ports depending on the bandwidth requirement, using the following hybrid modes: <ul style="list-style-type: none"> <li>• 30x10G + 1 x 100G</li> <li>• 10x10G + 2 x 100G</li> <li>• 20x10G + 1 x 100G</li> </ul>   |
| <b>2-QDD-C Card</b>  |   |
| <a href="#">Mixed Client Traffic Mode Configuration</a>  | You can now configure the client traffic mode on each trunk port of the 2-QDD-C card independently. This feature provides flexibility to carry both OTN and Ethernet client traffic on the 2-QDD-C card at the same time across two slices.   |
| <a href="#">Support for n x 50G Rate</a>   | You can now configure sub 50G muxponder mode in a combination of trunk and client rates for 2-QDD-C cards.  |
| <b>Hardware</b>  |   |
| <a href="#">NCS1K4-CNTRLR-B-K9 Controller Card</a>   | NCS 1004 supports the NCS1K4-CNTRLR-B-K9 controller card. The card supports a default of 9600 baud rate on the RS232 console port and runs on BIOS version 5.10.  |

### NCS 1001, NCS 1002, and NCS 1004

| Feature   | Description   |
|---|---|
| <b>System Setup</b>   |   |
| <a href="#">Supported Software Upgrade or Downgrade IOS XR Versions</a> | You can determine whether a software version can be upgraded or downgraded to another version using this functionality. Before an actual upgrade or downgrade process, you can also view the hardware or software limitations that could cause the upgrade or downgrade to fail. This feature helps you plan successful software upgrades or downgrades.<br><br>This feature introduces the <b>show install upgrade-matrix</b> command. |

## Release 7.5.1 Packages

Table 1: Release 7.5.1 Packages for Cisco NCS 1004

| Feature Set              | Filename | Description |
|--------------------------|----------|-------------|
| <b>Composite Package</b> |          |             |

|  |   |  |
|--|---|--|
| Cisco IOS XR Core Bundle + Manageability Package | ncs1004-iosxr-px-k9-7.5.1.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. |
| <b>Individually Installable Packages</b>         |   |  |
| Cisco IOS XR Security Package                    | ncs1004-k9sec-1.0.0.0-r751.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-7.5.1-r751.x86_64.rpm<br>(part of ncs1004-iosxr-px-k9-7.5.1.tar) | Install the ncs1004-sysadmin-otn-xp-dp-7.5.1-r751.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-r751.rpm  | Install the ncs1004-tp-sw-1.0.0.0-r751.rpm package for OpenROADM configuration.  |

Table 2: Release 7.5.1 Packages for Cisco NCS 1001

| Feature Set                                       | Filename  | Description  |
|---|---|--|
| <b>Composite Package</b>                          |   |  |
| Cisco IOS XR Core Bundle + Manageability Package  | ncs1001-iosxr-px-k9-7.5.1.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. |
| <b>Individually Installable Optional Packages</b> |   |  |
| Cisco IOS XR Security Package                     | ncs1001-k9sec-1.1.0.0r751_x86_64.rpm<br>(part of ncs1k-iosxr-px-k9-7.5.1.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="#">CSCvz35033</a> | On Commit-replace, Configuration not matched with LC capability on 2-QDD-C card              |
| <a href="#">CSCvz73400</a> | 732/751: Post lcapp restart with encryption observing traffic glitch                         |
| <a href="#">CSCvz95314</a> | NCS1004[751]-TAM and CSB in not ready state after RP Cold reload script                      |
| <a href="#">CSCwa35459</a> | 751:- otn_ma respawn seen while running telemetry for 4-5 days                               |
| <a href="#">CSCwa19042</a> | Login banner text is missing on Cisco-IOS-XR-um-banner-cfg when text exceeds 1015 characters |

### NCS 1001

There are no open caveats for NCS 1001 in this release.

## 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
Mon Nov 22 22:50:09.240 IST
Cisco IOS XR Software, Version 7.5.1
Copyright (c) 2013-2021 by Cisco Systems, Inc.

Build Information:
Built By      : xxxxxxxx
Built On     : Sun Nov 21 23:25:35 PST 2021
Built Host   : iox-lnx-054
Workspace    : /auto/srcarchive15/prod/7.5.1/ncs1004/ws
Version      : 7.5.1
Location     : /opt/cisco/XR/packages/
Label       : 7.5.1

cisco NCS-1004 () processor
```

System uptime is 2 minutes

## NCS 1001

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

```
RP/0/RP0/CPU0:ios#show version
Mon Nov 22 21:26:10.929 CET
Cisco IOS XR Software, Version 7.5.1
Copyright (c) 2013-2021 by Cisco Systems, Inc.

Build Information:
Built By      : xxxxxxxx
Built On     : Mon Nov 22 00:17:22 PST 2021
Built Host   : iox-lnx-061
Workspace    : /auto/srcarchive15/prod/7.5.1/ncs1001/ws
Version      : 7.5.1
Location     : /opt/cisco/XR/packages/
Label       : 7.5.1

cisco NCS-1001 () processor
System uptime is 46 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
Mon Nov 22 22:51:09.099 IST

Auto-upgrade:Disabled
```

| Location | Card type         | HWver | FPD device    | ATR | Status    | FPD Versions |          |
|----------|-------------------|-------|---------------|-----|-----------|--------------|----------|
|          |                   |       |               |     |           | Running      | Programd |
| 0/0      | NCS1K4-1.2T-L-K9  | 2.0   | LC_CPU_MOD_FW |     | CURRENT   | 75.10        | 75.10    |
| 0/0      | NCS1K4-1.2T-L-K9  | 1.0   | LC_OPT_MOD_FW |     | CURRENT   | 1.25         | 1.25     |
| 0/1      | NCS1K4-2-QDD-C-K9 | 1.0   | LC_CPU_MOD_FW |     | CURRENT   | 75.10        | 75.10    |
| 0/1      | NCS1K4-2-QDD-C-K9 | 1.0   | LC_OPT_MOD_FW |     | CURRENT   | 1.26         | 1.26     |
| 0/2      | NCS1K4-1.2TL-K9   | 3.0   | LC_CPU_MOD_FW |     | CURRENT   | 75.10        | 75.10    |
| 0/2      | NCS1K4-1.2TL-K9   | 1.0   | LC_OPT_MOD_FW |     | CURRENT   | 1.25         | 1.25     |
| 0/3      | NCS1K4-1.2T-L-K9  | 2.0   | LC_CPU_MOD_FW |     | CURRENT   | 75.10        | 75.10    |
| 0/3      | NCS1K4-1.2T-L-K9  | 1.0   | LC_OPT_MOD_FW |     | CURRENT   | 1.25         | 1.25     |
| 0/RP0    | NCS1K4-CNTLR-K9   | 4.0   | CSB_IMG       | S   | CURRENT   | 0.200        | 0.200    |
| 0/RP0    | NCS1K4-CNTLR-K9   | 4.0   | TAM_FW        |     | CURRENT   | 36.08        | 36.08    |
| 0/RP0    | NCS1K4-CNTLR-K9   | 1.14  | BIOS          | S   | CURRENT   | 5.30         | 5.30     |
| 0/RP0    | NCS1K4-CNTLR-K9   | 4.0   | CPU_FPGA      |     | CURRENT   | 1.14         | 1.14     |
| 0/PM0    | NCS1K4-AC-PSU     |       | PO-PrimMCU    |     | NOT READY |              |          |
| 0/PM1    | NCS1K4-AC-PSU     | 0.1   | PO-PrimMCU    |     | NEED UPGD | 2.68         | 2.68     |
| 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
Tue Nov 16 08:48:04.531 CET
```

Auto-upgrade:Disabled

| Location | Card type    | HWver | FPD device      | ATR | Status  | FPD Versions |          |
|----------|--------------|-------|-----------------|-----|---------|--------------|----------|
|          |              |       |                 |     |         | 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 | 1.60         | 1.60     |
| 0/2      | NCS1K-PSM    | 0.0   | FW_PSMv1        |     | CURRENT | 1.51         | 1.51     |
| 0/3      | NCS1K-EDFA   | 0.0   | FW_EDFAv1       |     | CURRENT | 1.60         | 1.60     |
| 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 EDFA (slot 1 and 3) and PSM (slot 2) of vendor 2.

```
RP/0/RP0/CPU0:ios#show hw-module fpd
Tue Nov 16 08:56:40.594 CET
```

Auto-upgrade:Disabled

| Location | Card type    | HWver | FPD device      | ATR | Status  | FPD Versions |          |
|----------|--------------|-------|-----------------|-----|---------|--------------|----------|
|          |              |       |                 |     |         | 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 | 0.43         | 0.43     |
| 0/2      | NCS1K-PSM    | 0.0   | FW_PSMv2        |     | CURRENT | 0.16         | 0.16     |
| 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    |
| 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 with the OTDR card in slot 2.

```
RP/0/RP0/CPU0:ios#show hw-module fpd
Tue Nov 16 09:00:21.385 CET
```

Auto-upgrade:Disabled

| Location | Card type    | HWver | FPD device   | ATR | Status  | FPD Versions |          |
|----------|--------------|-------|--------------|-----|---------|--------------|----------|
|          |              |       |              |     |         | 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 | 1.60         | 1.60     |
| 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 | 1.60         | 1.60     |
| 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-CNTRLR2      0.1  Daisy_Duke_BKP  BS  CURRENT      0.20
0/RP0      NCS1K-CNTRLR2      0.1  Daisy_Duke_FPGA  S  CURRENT      0.20  0.20

```

The following shows the output of **show hw-module fpd** command entered from admin in case of AC PEM:

```

sysadmin-vm:ios# show hw-module fpd
Thu Nov 18 07:29:33.711 UTC+00:00

```

| Location | Card type     | HWver | FPD device      | ATR | Status  | FPD Versions |          |
|----------|---------------|-------|-----------------|-----|---------|--------------|----------|
|          |               |       |                 |     |         | 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-CNTRLR2 | 0.1   | BIOS_Backup     | BS  | CURRENT |              | 15.10    |
| 0/RP0    | NCS1K-CNTRLR2 | 0.1   | BIOS_Primary    | S   | CURRENT | 15.10        | 15.10    |
| 0/RP0    | NCS1K-CNTRLR2 | 0.1   | Daisy_Duke_BKP  | BS  | CURRENT |              | 0.20     |
| 0/RP0    | NCS1K-CNTRLR2 | 0.1   | Daisy_Duke_FPGA | S   | CURRENT | 0.20         | 0.20     |
| 0/PM0    | NCS1K-2KW-AC2 | 0.0   | PO-PrimMCU      |     | CURRENT | 4.00         | 4.00     |
| 0/PM1    | NCS1K-2KW-AC2 | 0.0   | PO-PrimMCU      |     | CURRENT | 4.00         | 4.00     |

Then the following shows the output of **show hw-module fpd** command entered from admin in case of DC PEM :

```

sysadmin-vm:ios# show hw-module fpd
Thu Nov 18 08:44:19.962 UTC+00:00

```

| Location | Card type     | HWver | FPD device      | ATR | Status  | FPD Versions |          |
|----------|---------------|-------|-----------------|-----|---------|--------------|----------|
|          |               |       |                 |     |         | 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-CNTRLR2 | 0.1   | BIOS_Backup     | BS  | CURRENT |              | 15.10    |
| 0/RP0    | NCS1K-CNTRLR2 | 0.1   | BIOS_Primary    | S   | CURRENT | 15.10        | 15.10    |
| 0/RP0    | NCS1K-CNTRLR2 | 0.1   | Daisy_Duke_BKP  | BS  | CURRENT |              | 0.20     |
| 0/RP0    | NCS1K-CNTRLR2 | 0.1   | Daisy_Duke_FPGA | S   | CURRENT | 0.20         | 0.20     |
| 0/PM0    | NCS1K-2KW-DC  | 0.2   | PO-PrimMCU      |     | CURRENT | 2.01         | 2.01     |
| 0/PM1    | NCS1K-2KW-DC  | 0.2   | PO-PrimMCU      |     | 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.

## 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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