

# Release Notes for Cisco NCS 1001, IOS XR Release 6.2.1

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## Network Convergence System 1001



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

NCS 1001 has the following components:

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

For all the versions of the Release Notes for Cisco NCS 1001, see the [Release Notes](#) URL.

## Features Introduced in Release 6.2.1

### Optical Amplifier Module

The optical amplifier module (NCS1K-EDFA) has pre-amplifier and booster amplifier.

The optical amplifier module provides the following functionality.

- Preamplifier (LINE-RX to COM-TX) - Single preamplifier variant, with switchable gain ranges, according to link loss:
  - Range # 1: 0 to 24 dB gain, Tilt control: 24 to 27 gain, with tilt uncontrolled
  - Range # 2: 20 to 34 dB gain, Tilt control: 34 to 37 dB gain, with tilt uncontrolled
  - 23dBm output power @ COM-TX port

- Booster amplifier (COM-RX to LINE-TX) - True variable gain booster amplifier
  - Gain range: 1 to 20. 20 to 25 uncontrolled tilt.
  - 23dBm output power @ LINE-TX port
- ADD/DROP OSC channel supports both 1510nm and 1610nm +/-10nm
- OCM assesses channel presence and Gain regulation and per channel power monitoring.

## Protection Switching Module

The protection switching module (NCS1K-PSM) provides the following functionality.

- In TX section:
  - Splits input optical channels to both working and protection lines.
  - Forces the switch in the remote site by opening one of the two line paths (by putting the related VOA in AVS).
- In RX section:
  - Selects the signals from working or protection line. Each line is monitored through a PD.
  - Balances the two line losses by changing the VOA attenuation value at the same time of the switch change of state.

## OTS Controller

The Optical Transport Section (OTS) controller holds all the optical parameters for the OTS optical interfaces. The optical interface has different capabilities depending on its hardware components such as photodiode, VOA, amplifier, and OCM. Hence, the parameters enabled or disabled on the OTS controller depend on the actual hardware capability on the specific optical interface. Each parameter might refer to RX or TX section. For example, if a photodiode is present, the OTS controller can read the total optical power. When the controller is created, each hardware capability is enabled or disabled.

## OTS OCH Controller

The Optical Transport Section OCH (OTS OCH) controller represents the OCM device available on the OTS optical interface. This controller is created to have channel granularity over the OTS interface. The OTS OCH controller contains the wavelength information. The controller number starts from 1 and matches with the ITU channel identifier.

## Network Management

Cisco NCS 1001 provides comprehensive management capabilities to support operations, administration, maintenance, and provisioning (OAM&P) capabilities through IOS-XR CLI, SNMP, Syslog, and XML. In addition, iPXE for automated software download and Zero Touch Provisioning (ZTP) for automated configuration download are available for simplified installation. For Machine to Machine configuration and management of NCS 1001, NETCONF, RESTCONF and gRPC transport mechanisms with JSON, XML and GPB encoding are provided. NCS 1001 provides a set of native YANG models as well as the ability to map

into any industry standard or customer defined YANG models. For monitoring, NCS1001 provides a streaming telemetry feature that relies on a push mechanism to disseminate user selected PM and status information at user specified frequencies at granular 30 second intervals. This improves monitoring speed and scale compared to traditional pull based mechanisms such as SNMP.

## Performance Monitoring

Cisco NCS 1001 supports both transparent and nontransparent signal transport performance monitoring. Performance monitoring of optical parameters on the client and DWDM line interface includes Loss of Signal (LOS) and transmit and receive optical power - both aggregate and per channel. Calculation and accumulation of the performance-monitoring data are supported in 15-minute and 24-hour intervals as per G.7710.

## Release Packages for Cisco NCS 1001

Feature Set	Filename	Description
<b>Composite Package</b>		
Cisco IOS XR Core Bundle + Manageability Package	ncs1001-mini-x	Contains required core packages, including OS, 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	Support for Encryption, Decryption, IP Security (IPSec), Secure Shell (SSH), Secure Socket Layer (SSL), and Public-key infrastructure (PKI).

## System Requirement

### Memory Configuration

At least 16 GB RAM.

### Supported Hardware

For a complete list of supported optics, hardware and ordering information, see the *Cisco NCS 1001 Data Sheet*.

## Determine Software Version

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

```
RP/0/RP0/CPU0:ios# show version
Fri Sep 15 22:41:46.782 CEST

Cisco IOS XR Software, Version 6.2.1
Copyright (c) 2013-2017 by Cisco Systems, Inc.

Build Information:
  Built By       : ahoang
  Built On      : Wed Sep 13 17:56:42 PDT 2017
  Build Host    : iox-ucs-022
  Workspace     : /auto/srcarchive11/production/6.2.1/ncs1001/workspace
  Version      : 6.2.1
  Location      : /opt/cisco/XR/packages/

cisco NCS-1001 () processor
System uptime is 21 minutes
```

## Determine Firmware Support

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

```
RP/0/RP0/CPU0:ios#show hw-module fpd
Tue Sep 12 16:33:31.476 CEST
```

Location	Card type	HWver	FPD device	ATR	Status	FPD Versions	
						Running	Programd
0/0	NCS1001-K9	0.1	Control_BKP	B	CURRENT	1.09	1.09
0/0	NCS1001-K9	0.1	Control_FPGA		CURRENT	1.09	1.09
0/1	NCS1K-EDFA	0.0	FW_EDFAv1		CURRENT	1.43	1.43
0/2	NCS1K-PSM	0.0	FW_PSMv1		CURRENT	1.43	1.43
0/3	NCS1K-EDFA	0.0	FW_EDFAv1		CURRENT	1.43	1.43
0/RP0	NCS1K-CNTLR2	0.1	BIOS_Backup	BS	CURRENT	13.80	13.80
0/RP0	NCS1K-CNTLR2	0.1	BIOS_Primary	S	CURRENT	13.80	13.80
0/RP0	NCS1K-CNTLR2	0.1	Daisy_Duke_BKP	BS	CURRENT	0.17	0.17
0/RP0	NCS1K-CNTLR2	0.1	Daisy_Duke_FPGA	S	CURRENT	0.17	0.17

The above show output lists the hardware components that are supported in current release with their status. The status of the hardware must be CURRENT; Running and Programd version must be similar.

When the user upgrades the FPD on the EDFA module (FW\_EDFAv1) from 1.38 to 1.43 version, traffic is impacted. All the other FPD upgrades do not impact the traffic.

## Open Caveats for NCS 1001

The following table describes the open caveats of R6.2.1.

Caveat ID Number	Description
<a href="#">CSCvb05348</a>	The show environment query gives UI memory leak on calvados.
<a href="#">CSCvb19543</a>	Increase memory consumption after 10 parallel telnet connections.

Caveat ID Number	Description
<a href="#">CSCvc28186</a>	Memory leak in process ots_driver after eight hours of idle time.
<a href="#">CSCvc38902</a>	Amplifier, Open Config and OCM Raw Data telemetry.
<a href="#">CSCvc62466</a>	Wrong AlarmTimeStamp format in NCS 1001 SNMP traps.
<a href="#">CSCvc97797</a>	Wrong range in help menu for optical Rx power.
<a href="#">CSCvd08553</a>	The show ampli-trail-view command displays values are not clamped.
<a href="#">CSCvd14603</a>	BIOS_Backup fw upgrade failed using the "upgrade hw-module location all fpd all" command.
<a href="#">CSCvd22423</a>	The upgrade hw-module location all fpd PO-PriMCU force command does not upgrade the PSUs.
<a href="#">CSCvd28991</a>	openconfig-optical-amplifier.yang need newest openconfig-transport-line-common.yang.
<a href="#">CSCvd40566</a>	Wrong and duplicated traps on OTS if optical trap are enabled.
<a href="#">CSCvd50852</a>	The "hw-module location 0/0 reload" command causes test bed restart.
<a href="#">CSCvd53344</a>	PAM Calvados fpd-serv Memleak observed with 36I image longevity.
<a href="#">CSCvd53396</a>	The show controllers ots-Och xxxx summary command displays wrong output.
<a href="#">CSCvd53406</a>	No alarms indication are available when the EDFA is in continuous reboot.

## Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see [What's New in Cisco Product Documentation](#).

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