



Release Notes for Cisco NCS 1004, IOS XR Release 7.3.1

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What's New in Cisco IOS XR Release

Cisco is continuously enhancing the product with every release and this section covers a brief description of key features and enhancements. It also includes links to detailed documentation, where available.

Feature	Description
Configuration	
400 TXP or MXP modes with CFP2 DCO for OTN-XP Card	On the OTN-XP card, you can configure 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.
Encryption Support on 1.2TL Card	AES 256 GCM authenticated OTNSec encryption on 1.2TL line cards is supported. It uses only pre-shared keys for authentication. Optical encryption secures the communications link in and out of a facility, rendering all data undecipherable to hackers who tap into networks.
Enhanced Q-Margin Support	Enhanced Q-Margin is supported for Forward error correction (FEC) and performance monitoring on CoherentDSP Controllers for 1.2T and 1.2TL cards. This enhanced Q-margin value is calculated based on the maximum number of errors for each frame. An attribute that is called instantaneous Q-margin is displayed in the output of the show controllers coherentDSP command. The lower the delta value between the instantaneous Q-margin value with the Q-margin value, the better the FEC performance of the NCS 1004 system. The instantaneous Q-margin values thus help you to optimize the system with continuous error correction in subsea transport networks.

Feature	Description
Fast polling of SOP data	Fast polling of State of Polarization (SOP) data is enabled on the optics controller. NCS 1004 internally polls third-party devices (for example, AC1200) for subsea configuration parameters, such as SOP-S1, SOP-S2, and SOP-S3, and retrieves data every 1.6 seconds. A maximum of 1200 samples are collected in one minute for each trunk port. This feature allows you to analyze the subsea cables and to study the possibility of earthquake occurrences. Commands modified: • controller optics • show controllers
PRBS (Pseudo Random Binary Sequence) on ODU4	1.2T card supports PRBS on the ODU4 controller. This feature allows you to test whether the traffic is error free during link bring up without depending on the peer port.
Register Settings for Submarine Parameters	The register settings feature is supported on the 1.2T and 1.2TL cards and is enabled by default. The feature enables you to provision submarine proprietary parameter values and store them in specific memory locations of NCS 1004 system. These parameters are used for critical testing purposes. For example, you can assign value on how much power is required for the NCS 1004 system hardware so that it can be used for submarine testing to check the exact location of the fiber cut in the cable. This value can also be tuned for shorter or longer distance signal transmission.
Data Models	
NETCONF Support for READ, WRITE, and Execute or Administrative Commands.	Support for IPv4 and IPv6 Ping test using the Cisco-IOS-XR-ping-act YANG model, instead of using CLI commands, is available. RPC (Remote Procedure Call) Request and Response messages are used to do the ping test, which is automated using scripts. This enables you to perform the ping test in a less time-consuming manner and to enhance network scalability.
OC (Open Configuration) Model for Client FEC and Laser Squelch	The OC model for configuring client FEC and Laser Squelch is available. This feature enables you to perform the configuration using scripts, which is less time-consuming. Also, the Open Configuration model supports the use of vendor-neutral data models to configure and manage the network.
OC (Open Configuration) Support for LLDP (Link Layer Discovery Protocol) on Management Port	The OC support for configuring LLDP on a management port is available. This feature enables you to perform the configuration using scripts, which is less time-consuming. Also, the Open Configuration model supports the use of vendor-neutral data models to configure and manage the network.
OC (Open Configuration) Support for Regen option	The OC support for configuring the Line Card in Regen mode is available. This enables you to perform the configuration using scripts, which is less time-consuming. Also, the Open Configuration model supports the use of vendor-neutral data models to configure and manage the network.

Feature	Description
OC (Open Configuration) Terminal Device Revision	The Open Configuration terminal device revision to 1.7.2 allows you to provide LLDP support on the client optics. This feature allows you to learn LLDP neighbors and the topology of the devices for Operations, Administration, and Maintenance (OAM) purposes.
gNOI for BERT	EMS gNOI supports Bit Error Rate Testing (BERT) operations on NCS 1004 for the following remote procedure calls (RPCs): • StartBERT • StopBERT • GetBERTResults gNOI for BERT is a vendor agnostic open configuration method of enabling and testing network links through the Pseudo Random Binary Sequence (PRBS) feature.
OpenROADM	
OpenROADM YANG support	The OpenROADM Multi-Source Agreement (MSA) device management model, which defines interoperability specifications for the control and provisioning of ROADM devices, is supported. The specifications consist of optical interoperability and a NETCONF API that uses YANG models. The goal of the OpenROADM MSA is to provide a common management model to simplify the management of multi-vendor optical network architectures. With the OpenROADM YANG support, you can control and manage the device using an OpenROADM compliant controller and the OpenROADM YANG models.
Hardware	
NCS1K4-2-QDD-C-K9 C-Band Line Card	NCS 1004 supports the NCS1K4-2-QDD-C-K9 C-Band line card. The card has eight client ports (QSFP28 and QSFP-DD) and two DWDM dual sub-channel module trunk ports. Each trunk port is capable of 200, 300, and 400 Gbps line rate with fine control of modulation format, baud-rate, and forward error correction. The trunk ports are software configurable. The line card supports module and slice configurations. Commands added: • controller HundredGigECtrlr
Pluggables Support	The following pluggables are supported: • QSFP-40/100-SRBD • QSFP-100G-ER4L-S • QSFP-DD QDD-400G-FR4-S • QDD-400-AOCxM

Caveats

Open Caveats

The following table lists the open caveats for NCS 1004:

Table 1: Open Caveats

Caveat ID Number	Description
CSCvu28750	Default thresholds for Trunk and Client Optics must be as per supported specifications
CSCvw34282	Optics Controller does not show the admin state disable when the optics is shutdown
CSCvw83968	show alarms brief system active command hangs with EDM timeout after a long time
CSCvw90737	Traffic drop seen rarely, if we do datapath delete and recreate while warm restart is in progress
CSCvx24262	Performing CFP2 OIR while CFP2 FPD Upgrade is in progress, makes CFP2 FPD Entry missing in FPD List
CSCvx29803	Traffic is not recovered after clearing PRBS while warm restart is in progress
CSCvx30174	The LLDP leaf-value is not proper under OC-terminal-device

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.

Supported Packages and System Requirements

Release 7.3.1 Packages

Table 2: Release 7.3.1 Packages

Feature Set	Filename	Description
Composite Package		

Cisco IOS XR Core Bundle + Manageability Package	ncs1004-iosxr-px-k9-7.3.1.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-2.1.0.0-r731.x86_64.rpm (part of ncs1004-iosxr-px-k9-7.3.1.tar)	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-7.3.1-r731.x86_64.rpm (part of ncs1004-iosxr-px-k9-7.3.1.tar)	Install the ncs1004-sysadmin-otn-xp-dp-7.3.1-r731.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-r731.rpm	Install the ncs1004-tp-sw-1.0.0.0-r731.rpm package for OpenROADM configuration.

See [Install Packages](#).

System Requirement

At least 16 GB RAM

Determine Software Version

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

```
RP/0/RP0/CPU0:ios#show version
Fri Feb 26 14:09:39.632 IST
Cisco IOS XR Software, Version 7.3.1
Copyright (c) 2013-2021 by Cisco Systems, Inc.

Build Information:
Built By : ingunawa
Built On : Thu Feb 25 19:10:10 PST 2021
Built Host : iox-lnx-070
Workspace : /auto/srcarchive17/prod/7.3.1/ncs1004/ws
Version : 7.3.1
Location : /opt/cisco/XR/packages/
Label : 7.3.1

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

Determine Firmware Support

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

```
RP/0/RP0/CPU0:ios#show hw-module fpd
Fri Feb 5 16:52:00.151 IST
Auto-upgrade:Enabled
```

FPD Versions

=====						
Location	Card type	HWver	FPD device	ATR Status	Running Program	
0/0	NCS1K4-2-QDD-C-K9	1.0	LC_CPU_MOD_FW	CURRENT	73.10	73.10
0/0	NCS1K4-2-QDD-C-K9	1.0	LC_OPT_MOD_FW	CURRENT	1.23	1.23
0/1	NCS1K4-1.2T-K9	2.0	LC_CPU_MOD_FW	CURRENT	73.10	73.10
0/1	NCS1K4-1.2T-K9	1.0	LC_OPT_MOD_FW	CURRENT	1.20	1.20
0/2	NCS1K4-1.2TL-K9	2.0	LC_CPU_MOD_FW	CURRENT	73.10	73.10
0/2	NCS1K4-1.2TL-K9	1.0	LC_OPT_MOD_FW	CURRENT	1.20	1.20
0/3	NCS1K4-2-QDD-C-K9	1.0	LC_CPU_MOD_FW	CURRENT	73.10	73.10
0/3	NCS1K4-2-QDD-C-K9	1.0	LC_OPT_MOD_FW	CURRENT	1.23	1.23
0/3	NCS1K4-OTN-XP	2.0	LC_CFP2_PORT_0	CURRENT	1.10	1.10
0/3	NCS1K4-OTN-XP	2.0	LC_CFP2_PORT_1	CURRENT	1.10	1.10
0/3	NCS1K4-OTN-XP	3.0	LC_CPU_MOD_FW	CURRENT	73.10	73.10
0/3	NCS1K4-OTN-XP	2.0	LC_DP_MOD_FW	CURRENT	10.10	10.10
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	4.70	4.70
0/RP0	NCS1K4-CNTLR-K9	4.0	CPU_FPGA	CURRENT	1.14	1.14
0/PM0	NCS1K4-AC-PSU		PO-PrimCU	NOT READY		
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

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



Caution Do not upgrade the FPDs by force using the **upgrade hw-module location {rack/slot | all} fpd all force** command. Otherwise, FPD status becomes UPGD FAIL.

Other Important Information

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

