Release Notes for Cisco NCS 1001, 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	
10sec PM buckets	Performance monitoring parameters for the OTS and OTS OCH controllers in 10 second intervals are available. This new bucket for performance monitoring allows you to gather, store, and report performance data with higher granularity. Commands modified: • controller ots • show controllers
Amplifier Behaviour	Grid mode configuration for the optical amplifier has been extended to support 75GHz spaced channels. You can optimize the optical spectrum and granularity using the gridless configuration. You can provision channels with arbitrary channel frequencies and channel widths. Up to 96 channels can be configured using the gridless configuration. Commands modified: • hw-module • show controllers
Fault Profiles	This feature allows you to create a fault profile for faults on the system or on the line card. Each fault profile can contain one or more faults with user-defined severities. Commands added: • fault-profile • fault-profile apply
LLDP over OSC	LLDP is supported on the OSC management interface for point-to-point local link discovery through OSC channel. This helps you to gather information about the neighboring devices in the network.

Feature	Description
OTDR ML (Machine Learning)	OTDR ML (Machine Learning) can be enabled on the OTDR card. When ML is enabled, the OTDR measurement shows more information about the events present on the fiber.
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) support for LLDP (Link Layer Discovery Protocol) on Management Port	Open Configuration support for configuring LLDP on management port is available. RPC (Remote Procedure Call) Request and Response messages are used to configure LLDP on management port, which is automated using scripts. This makes the task, less time-consuming.
Hardware	
Inventory Support	A new passive device with PID NCS1K-MD-64-C (NCS 1000 64 channels Odd Multiplexer or Demultiplexer Patch Panel-C-band) is supported.

Supported Packages and System Requirements

Release 7.3.1 Packages

Table 1: Release 7.3.1 Packages

Feature Set	Filename	Description
Composite Package		
Cisco IOS XR Core Bundle + Manageability Package	ncs1001-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 Optional Packages		

Cisco IOS XR Security Package	ncs1001-k9sec-1.0.0.0-r731.x86_64.rpm (part of ncs1k-iosxr-px-k9-7.3.1.tar)	Support for Encryption, Decryption, IP Security (IPsec), Secure Shell (SSH), Secure Socket Layer (SSL), and Public-key infrastructure (PKI).

See Install Packages.

System Requirements

Memory Configuration

At least 16 GB RAM

Determine Software Version

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

```
RP/0/RP0/CPU0:ios#show version
Mon Feb 28 15:52:01.424 UTC
Cisco IOS XR Software, Version 7.3.1
Copyright (c) 2013-2020 by Cisco Systems, Inc.

Build Information:
Built By     : deenayak
Built On     : Mon Jul 28 01:19:52 PST 2020
Built Host   : iox-lnx-071
Workspace    : /auto/srcarchive15/prod/7.3.1/ncs1001/ws
Version      : 7.3.1
Location     : /opt/cisco/XR/packages/
Label        : 7.3.1
cisco NCS-1001 () processor
```

Note The output that is obtained by the **show version** command may be different from the preceding example.

Determine Firmware Support

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

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.

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
Thu Jan 16 15:28:28.146 CEST
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       1.56
    1.56
0/2           NCS1K-PSM             0.0       FW_PSMv1                 CURRENT       1.51
    1.51
0/3           NCS1K-EDFA            0.0       FW_EDFAv1                CURRENT       1.56
    1.56
0/RP0         NCS1K-CNTLR2          0.1       BIOS_Backup        BS    CURRENT      14.60
   14.60
0/RP0         NCS1K-CNTLR2          0.1       BIOS_Primary       S     CURRENT      14.60
   14.60
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/CPU0:150#show hw-module fpd
Thu Jan 16 15:28:31.146 CEST
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_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
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 1.

```
RP/0/RP0/CPU0:150#show hw-module fpd
Thu Jul 16 15:28:31.146 CEST
......
0/1        NCS1K-OTDR            0.0   FW_OTDR_p           CURRENT    6.03    6.03
0/1        NCS1K-OTDR            0.0   FW_OTDR_s           CURRENT    1.51    1.51
.....
```

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

```
sysadmin-vm:0_RP0# show hw-module fpd
Fri Feb  5  15:36:47.562 UTC+00:00
                                                                    FPD Versions
                                                                   ==============
Location  Card type         HWver FPD device       ATR Status   Run    Programd
-------------------------------------------------------------------------------
.........
0/PM0     NCS1K-2KW-AC2     0.0   PO-PriMCU           CURRENT    4.00    4.00
0/PM1     NCS1K-2KW-AC2     0.0   PO-PriMCU           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:0_RP0# show hw-module fpd
Fri Feb  5  15:33:51.528 UTC+00:00
                                                                          FPD Versions
                                                                         ==============
Location  Card type         HWver FPD device       ATR Status    Run     Programd
-------------------------------------------------------------------------------
.........
0/PM0     NCS1K-2KW-DC      0.2   PO-PriMCU            CURRENT  1.14    1.14
0/PM1     NCS1K-2KW-DC      0.2   PO-PriMCU            CURRENT  1.14    1.14
```

Other Important Information

Supported MIBs

The following MIBs are supported in NCS 1001:

- 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