



Release Notes for Cisco NCS 4000 Series, Cisco IOS XR Release 5.2.4

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Revision History

Date	Notes
May 2015	This is the first release of this publication.

Software and Hardware Requirements

Before you begin to install the software, you must check whether your system meets the minimum software and hardware requirements.

- Hardware— Intel Core i5, i7, or faster processor. A minimum of 4 GB RAM, 100 GB hard disk with 250 MB of available hard drive space.
- One of these operating System:
 - Windows 7, Windows Server 2008, or later.
 - Apple Mac OS X
 - UNIX workstation with Solaris Version 9 or 10 on an UltraSPARC-III or faster processor, with a minimum of 1 GB RAM and a minimum of 250 MB of available hard drive space.
 - Ubuntu 12.10
- Java Runtime Environment—Java Runtime Environment Version 1.8.
- Browser:
 - Internet Explorer
 - Mozilla
 - Safari
 - Google Chrome

New Features for Release 5.2.4

This section highlights new NCS 4000 features for Release 5.2.4. For detailed documentation of each of these features, see the user documentation

- Hardware
- New Software Features

Hardware

Cisco NCS 4009 and Cisco NCS 4016 chassis have been introduced as part of Cisco NCS 4000 Series.

Route Processor Card

The route processor card provides the intelligence of the system by functioning as the shelf controller for NCS4K-2H-W or OTN applications and by providing route processing and chassis management. The route processor card also monitors system alarms and control the system fans.

Fabric Card

The fabric card provides the switch fabric for the routing system and perform the cross-connect function of the routing system, connecting every line card to each other. The switch fabric receives ingress user data from one line card slot and performs the switching necessary to route the data to the appropriate egress LC slot.

24-Port Low-Rate OTN Line Card

The 24-port low-rate OTN (NCS4K-24LR-O-S) line card supports up to:

- Twenty-four 1GE interfaces through SFP pluggable optics
- Sixteen OC-48/STM-16/OTU1 interfaces through SFP pluggable optics
- Four 10GE/OC-192/OTU2 interfaces through SFP+ pluggable optics
- Twenty-four 1GE interfaces through SFP pluggable optics

20-Port 10GE OTN Line Card

The 20-port 10GE OTN LC (NCS4K-20T-O-S) line card supports any combination of the following interfaces, up to:

- Twenty 10GE interfaces through SFP+ pluggable optics
- Twenty OC-192/STM-64 interfaces through SFP+ pluggable optics
- Twenty OTU2 interfaces through SFP+ pluggable optics

2-Port 100GE OTN Line Card

The 2-port 100GE OTN LC (NCS4K-2H-O-K) supports any combination of 100GE and OTU4 interfaces using Cisco NCS4K-2H-O-K pluggable optics.

2-Port 100GE NCS4K-2H-W Line Card

The 2-port 100GE NCS4K-2H-W line card (NCS4K-2H-W) card is a tunable NCS4K-2H-W trunk card, which simplifies the integration and transport of two 100 Gigabit Ethernet or OTU-4 signals into enterprises or service provider networks. The card is ITU-T G.709 compliant and supports 96 wavelengths, spaced at 50-GHz over the entire C band. The card also features two NCS4K-2H-O-K pluggable optics that can map each client signal to a single NCS4K-2H-W line interface

Software Packages

The following software packages are present in Cisco NCS 4000, Cisco IOS XR Release 5.2.4:

- ncs4k-mgbl.pkg-5.2.4
- ncs4k-mpls.pkg-5.2.4
- ncs4k-k9sec.pkg-5.2.4
- ncs4k-mini-x.iso-5.2.4
- ncs4k-usb-boot-5.2.4.zip



Note For more information on firmware and packages, see the *System Setup and Software Installation Guide for Cisco NCS 4000 Series guide*

New Software Features

These software features have been introduced in Release 5.2.4:

ODU and ODU Cross Connections

In the case of channelization, ODU is created as a sub controller of an OTU controller Optical Channel Data unit (ODU) allows you to support tandem connection monitoring (TCM), path monitoring (PM) and automatic protection switching (APS) of OTN traffic. End-to-end path supervision and client adaptation is made possible by using the OPU. The ODU provides two important overheads : the PM overhead and the TCM.

OSPF

Open Shortest Path First (OSPF) is a routing protocol designed to run an autonomous system. It maintains an identical database describing the topology of an autonomous system. From the identical database, a shortest path-tree calculates the routing table. OSPF-TE allows controlling the data packet's path.

Payloads

Based on definitions for G.709, the following payloads are supported:

- ODU4
- ODU2, ODU2e
- ODU1e, ODU1
- ODU0

- ODUFlex

Tandem Connection Monitoring

Tandem Connection Monitoring (TCM) application is performed at ODUk layer, some bytes of the overhead are reserved for applications.

TCM application allows you to setup and monitor the Trail Trace Identifier (TTI) as well as the BIP-8 error monitoring to receive alarms or manage statistics.

Multiplex Container

Based on definitions for G.709, the following multiplex containers are supported:

- ODU4H
- ODU3H
- ODU2H
- ODU1H

Multiplex Mapping and Rate Adaptation

Based on definitions for G.709, the following multiplex mapping and rate adaptation are supported:

- 2-Stage Mux/Demux
- BMP, AMP and GMP
- Support of 1G25 and 2G5 timeslots
- Simultaneous Support for legacy ODTUjk and new ODTUk.ts multiplexing

Overheads

Based on definitions for G.709, the following are supported:

- 2-Stage Mux/Demux
- BMP, AMP and GMP
- Support of 1G25 and 2G5 timeslots
- Simultaneous Support for legacy ODTUjk and new ODTUk.ts multiplexing

GCC Management

General Communication Channel (GCC) is an in-band side channel that carries transmission management and signaling information within optical transport network elements. Maximum 30 channels are supported in GCC links.

ISSU Upgrade

In-Service Software Upgrade (ISSU) is a technique used to update the software packages on a network device without affecting the traffic. By using ISSU, you can apply bug fixes and deploy new features and services of the complete Cisco IOS XR Software image.

GMPLS

Generalized Multi-Protocol Label Switching (GMPLS) allows to define and view the fiber and alien wavelength parameters that are used during GMPLS circuit creation. It ranges the packet based data on MPLS protocol to allow the creation and maintenance of channels across the networks. It contains non-packet switching devices.

CTC

Cisco Transport Controller (CTC) is used to perform operations, administration, maintenance and provisioning activities of the system. For more information on CTC, see the *System Setup and Software Installation Guide for Cisco NCS 4000 Series guide*.

Cisco Bug Search Tool

Use the Bug Search Tool (BST) to view the list of outstanding and resolved bugs in a release.

BST, the online successor to Bug Toolkit, is designed to improve the effectiveness in network risk management and device troubleshooting. The tool allows partners and customers to search for software bugs based on product, release, and keyword, and aggregates key data such as bug details, product, and version. The tool has provision to filter bugs based on credentials to provide external and internal bug views for the search input.

Search Bugs in BST

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- Step 1** Go to <https://tools.cisco.com/bugsearch/>. You will be prompted to log into Cisco.com. After successful login, the Bug Toolkit page open.
- Step 2** To search for release 5.2.4 bugs, enter the following parameters in the page:
- Search For – Enter NCS 4000 in the text box.
 - Releases – Enter 5.2.4.
 - Show Bugs – Select Affecting or Fixed in these Releases
- Step 3** Press Enter.
- By default, the search results include bugs with all severity levels and statuses, and bugs that were modified during the life cycle of the bug. After you perform a search, you can filter your search results to meet your search requirements.
 - An initial set of 25 search results is shown in the bottom pane. Drag the scroll bar to display the next set of 25 results. Pagination of search results is not supported.
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Additional References

Related Documents

Use this document in conjunction with the other release-specific documentation listed in this table:

Link	Description
Cisco Network Convergence System 4000 Series Hardware Installation Guide	Provides installation information about the Cisco NCS 4009 and Cisco NCS 4016 chassis.
Cisco Network Convergence System 4000 Series Unpacking, Moving, and Securing Guide	Provides instructions for unpacking the Cisco NCS 4009 and Cisco NCS 4016 chassis, moving the chassis to its permanent location, and mounting the chassis in a rack.
Regulatory Compliance and Safety Information for the Cisco Network Convergence System 4000 Series Chassis	Provides the international agency compliance, safety, and statutory information that apply to Cisco NCS 4009 and Cisco NCS 4016 chassis.
OTN and WDM Configuration Guide for Cisco NCS 4000 Series	Provides background and reference material, procedures to configure and maintain the Cisco NCS 4009 and Cisco NCS 4016 chassis.
OTN and WDM Command Reference for Cisco NCS 4000 Series	Provides the various commands available to configure and maintain the Cisco NCS 4009 and Cisco NCS 4016 chassis.
System Setup and Software Installation Guide for Cisco NCS 4000 Series	Provides instructions to set up the system and perform software installation.

Technical Assistance

Link	Description
http://www.cisco.com/cisco/web/support/index.html	<p>The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies.</p> <p>To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds</p> <p>Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.</p>

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