Cisco NCS 2002 and NCS 2006 Release Notes

This Release Notes document contains information about new features and enhancements for Release 10.0, in the Cisco NCS 2002 and Cisco NCS 2006 platforms.

For detailed information regarding features, capabilities, hardware, and software introduced in this release, see the guides listed in the section, Additional References, on page 8.

Cisco also provides Bug Search Tool, a web resource for tracking defects. To access Bug Search Tool, visit this URL: https://tools.cisco.com/bugsearch.

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Revision History

Date	Notes
November 2013	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 systems:

- 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—JRE1.7
- Browser:
  - Internet Explorer
  - Mozilla Firefox
  - Safari
  - Google Chrome

New Features for Release 10.0

This section highlights new features for Release 10.0. For detailed documentation of each of these features, see the user documentation.

Hardware

These hardware units have been introduced in Release 10.0:

Cisco NCS 2002 and Cisco NCS 2006

Cisco NCS 2002 and Cisco NCS 2006 platforms have been introduced as part of Cisco Network Convergence System (NCS). These hardware features are introduced in the Cisco NCS platform:

- Faceplate labels for ancillaries
- Doors and deep panel design
- Air Plenum to conduct air flow, in front to rear direction, to meet the GR-63 issue 4 requirement
- Support of IEEE1588v2 PTP, time-of-day (ToD), and pulse-per-second (PPS) inputs by NCS 2006 ECU

For more information about the NCS 2002 and NCS 2006, see the Cisco NCS 2002 and NCS 2006 Hardware Installation Guide .

EDRA-1-xx and EDRA-2-xx Cards

(NCS 2006 only)

The double-slot EDRA-1-xx and EDRA-2-xx cards are erbium-doped Raman amplifiers (EDRAs) that support Raman amplification on long unregenerated spans. The EDRA cards support an ultra-low noise figure that is critical for long-distance, high-bit-rate transmission. Each EDRA card can manage up to 96 channels, 50-GHz-spaced from 196.1 GHz (1528.77nm) to 191.35 GHz (1566.72 nm). The EDRA cards are plug-in

modules that provide the reach and optical performance required to meet the most demanding distance requirements of service provider and enterprise networks.

The EDRA cards have four versions:

- EDRA1-26 includes an erbium doped pre-amplifier, EDFA1, with a nominal gain of 14 dB. It supports a maximum span of 26 dB on standard single-mode fiber.
- EDRA1-35 includes an erbium doped pre-amplifier, EDFA1, with a nominal gain of 21 dB. It supports a maximum span of 35 dB on standard single-mode fiber.
- EDRA2-26 includes an erbium doped pre-amplifier, EDFA1, and an erbium doped booster amplifier, EDFA2, where EDFA1 has a nominal gain of 14 dB. It supports a maximum span of 26 dB on standard single-mode fiber.
- EDRA2-35 includes an erbium doped pre-amplifier, EDFA1, and an erbium doped booster amplifier, EDFA2, where EDFA1 has a nominal gain of 21 dB. It supports a maximum span of 35 dB on standard single-mode fiber.

For more information about the EDRA cards, see the Provisioning Optical Amplifier Cards chapter in the *Cisco NCS 2002 and NCS 2006 Line Card Configuration Guide, Release 10.x.x*.

16-WXC-FS Card

(NCS 2006 only)

The double-slot cross connect 16-port Flex Spectrum ROADM line card (16-WXC-FS) can be used at the core of the network. The card is used to build ROADM nodes with 96 channels spaced at 50-GHz, flex spectrum channels, or a combination of the two. The card provides the flex spectrum capability, which allows the user the flexibility to allocate channel bandwidth and increase the network scalability. The channel bandwidth is not fixed, but can be defined arbitrarily, with a given granularity and within a given range. Attenuation and power values are defined for each sub-range. The frequency ranges from 191'350 Ghz (1566 .72 nm) to 196'100 Ghz (1528 .77 nm). The 16-WXC-FS card can be used in point-to-point, ring, multi-ring, or mesh topologies. The 16-WXC-FS card supports up to 16 directions for each ROADM node.

For more information about the 16-WXC-FS card, see the Provisioning Reconfigurable Optical Add/Drop Cards chapter in the *Cisco NCS 2002 and NCS 2006 Line Card Configuration Guide, Release 10.x.x*.

Passive Optical Modules

(NCS 2002 and NCS 2006)

A new generation of passive optical modules can be used to accommodate ROADM nodes built with the 16-WXC-FS and EDRA cards. Three types of modules are available: patch panel modules, add/drop modules, and adapter modules. All the modules fit into four slots of a 1-rack-unit (1RU) mechanical frame chassis (MF-1RU). Their passive nature helps ensure extremely high availability in a small, low-power footprint. ECU3 is required for these passive modules.

The passive modules are:

- 5-Degree Patch Panel Module (MF-DEG-5)
- 4-Degree Upgrade Patch Panel Module (MF-UPG-4)
- 16-channel Colorless Omnidirectional Add/Drop (MF-16AD-CFS)
- 4-channel Colorless Omnidirectional Add/Drop (MF-4X4-COFS)
- MPO-8xLC Adapter (MF-MPO-8LC)

For more information about the ROADM passive modules, see the Installing the Cisco NCS 2002 and NCS 2006 Passive Optical Modules document.

100G-CK-C and 100ME-CKC Cards

(NCS 2002 and NCS 2006)

The 100G-CK-C and 100ME-CKC cards are tuneable over the entire C-band. The 100G-CK-C card works similar to the 100G-LC-C card. The 100G-CK-C card has the new CPAK client interface replacing the CXP client interface of the 100G-LC-C card.

The 100G-CK-C and 100ME-CKC cards support the CPAK-100G-SR10 client interface with 100GE/OTU4 and 40GE/OTU3 payloads. Both the cards support the CPAK-100G-LR4 client interface with 100GE/OTU4 payloads. The CPAK client interface enables different payload combinations such that the 100G-CK-C card can be used instead of the 100G-LC-C and CFP-LC cards.

The 100ME-CKC is a metro edge version of the 100G-CK-C card. The 100ME-CKC card has chromatic dispersion of +/-5000 ps/nm and does not support 20% FEC.

For more information about the 100G-CK-C and 100ME-CKC cards, see the Provisioning Transponder and Muxponder Cards chapter in the *Cisco NCS 2002 and NCS 2006 Line Card Configuration Guide, Release 10.x.x*.

Pluggable Port Modules Support

The Pluggable Port Modules supported on the 100G-CK-C and 100ME-CKC cards are:

- CPAK-100G-LR4
- CPAK-100G-SR10

For more information about the Pluggable Port Modules support, see the *I*nstalling the GBIC, SFP, SFP+, XFP, CXP, and CFP Optical Modules in Cisco NCS Platforms document.

Card Support in Cisco NCS

These cards are not supported in Cisco NCS 2002 and Cisco NCS 2006 platforms:

32-MUX-O	32-DMX-O	AD-1C-xx.x	AD-2C-xx.x
AD-4C-xx.x	AD-1B-xx.x	AD-4B-xx.x	OPT-AMP-L
OPT-BST-L	32-WSS-L	32-DMX-L	MS-ISC-100T
AIC-I	TCC2	TCC2P	TCC3
MMU			

New Software Features

These software features have been introduced in Release 10.0:

Restoration Based on LSP Priority

The control plane supports the Label Switch Path (LSP) priority signaling on the UNI interface. The LSP priority can be set using CTC or TL1. The LSP priority is used to resolve a conflict on any network resource when two or more LSPs are set at the same time, and requires the same resources. The LSP priority is critical during circuit creation and restoration.

The LSP priority is used to decide the GMPLS restoration in a multiple channel setup, and optimizes the restoration time for an LSP with a higher priority. The restoration is dynamic, managed by the head node and simplifies network operations. In a circuit failure, the dynamic optical restoration enables the automatic re-routing of the optical circuit over a new route. The GMPLS intelligence embedded in the circuit enables the DWDM layer to dynamically validate the feasibility of the new route. This ensures a successful network connectivity and eliminates the dependancy on additional design tools.

LSP Setup with Regenerators

The regenerators in the network minimize the signal loss, and helps to establish an uninterrupted connection between the source and destination. The control plane uses LSP setup and the regenerators in the circuit to create segments during failure in the optical path. A regenerator connects each segment in the network. The wavelength changes at each regenerator, if the wavelength continuity between the two end points is not available. A regenerator failure triggers the restoration process.

Control Plane in Coherent Networks

The optical impairments in full coherent networks follow the LOGO model (Local Optimization Global Optimization) that is applicable to 100G full coherent networks. The optical impairment is calculated node by node, and can be identified by adding the local contribution penalty of the nodes or spans in the path. The crosstalk between optical channels can be pre-defined in network design phase and considered as a constant by the control plane. The need to signal the values of all the optical parameters to the egress node (to calculate the channel feasibility and the residual margins of existing channels) is eliminated. Each add or drop domain is associated a value that represents the penalty calculated due to signal loss. This operation is done during network setup or network upgrade.

Patchcord Duplication

CTC notifies the user when duplicate patchcords are created, either manually or by using the NE Update configuration file. The user can choose to retain the existing patchcord or overwrite the existing patchcord with the new patchcord.

For more information about the software enhancements, see the Provisioning Transponder and Muxponder Cards chapter in the *Cisco NCS 2002 and NCS 2006 Line Card Configuration Guide, Release 10.x.x*.

Transaction Language 1 (TL1)

This section contains a list of new commands, command syntax changes, and command response changes that have been introduced in Release 10.0. For detailed information on TL1, see the Cisco NCS TL1 Command Guide.

New TL1 Commands

These TL1 commands are added in Release 10.0:

- ED-PRBS

- RTRV-PRBS

Command Syntax Changes

The syntax of these commands have changed in Release 10.0:

CHG-EQPT	DLT-OPMODE	DLT-RMONTH-MOD2	DLT-RMONTH-OTU
ED-CPS	ED-EQPT	ED-OCH	ED-OPMODE
ED-OTS	ED-OTU	ED-UNICFG	ED-WDMANS
ENT-CPS	ENT-EQPT	ENT-OPMODE	ENT-RMONTH-OTU
ENT-UNICFG	ENT-WDMANS	INIT-REG-MOD2	REPT-ALM-EQPT
REPT-ALM-MOD2ALM	REPT-ALM-SYNCN	REPT-EVT-EQPT	REPT-EVT-MOD2ALM
REPT-EVT-SYNCN	REPT-PM-MOD2	SET-TH-MOD2	

Command Response Changes

The command responses of these commands have changed in Release 10.0:

RTRV-CPS	RTRV-EQPT	RTRV-MAP-NETWORK	RTRV-NE-WDMANS
RTRV-OCH	RTRV-OMS	RTRV-OPMODE	RTRV-OTS
RTRV-OTU	RTRV-PM-ALL	RTRV-PM-MOD2	RTRV-RMONTH-OTU
RTRV-TH-ALL	RTRV-TH-MOD2	RTRV-UNICFG	RTRV-WDMANS

Cisco NCS Software Packages

Caution Do not download and activate the Cisco NCS software package on a Cisco ONS 15454 shelf.

The Cisco NCS software is shipped in two packages:

- NCS Flex: contains software that supports flex cards and configurations in NCS 2002 and NCS 2006. WSON is supported in this package.
- NCS Fixed Grid: contains software that supports fixed grid cards and configurations in NCS 2002 and NCS 2006. WSON is supported in this package.

Note You can download the NCS fixed grid package on a NCS flex node and vice versa. The node database is deleted during the activation. After the activation, it is recommended to relaunch CTC to view the new package that is activated.

This table describes the node controller and shelf controller for NCS packages.

Package	Node Type	Node Controller	Shelf Controller
NCS Flex	Flex NCS Node	TNC/TNCE/TSC/TSCE	TNC/TNCE/TSC/TSCE
NCS Fixed Grid	Fixed Grid Node	TNC/TNCE/TSC/TSCE	TNC/TNCE/TSC/TSCE

NCS Upgrade Paths from MSTP Releases

Nodes installed with R9.6.0.4 (ANSI), R9.80 (ANSI or ETSI), or R10.0 MSTP software can be upgraded to NCS fixed grid or NCS flex software. To upgrade a node from any release prior to R9.6.0.4, to NCS fixed grid or NCS flex software, perform a step upgrade to R9.6.0.4 or R9.8.0.

Caution Do not attempt to upgrade a configuration that contains Cisco ONS 15454 nodes to Cisco NCS software.

Limitations

- When a node is upgraded from R10.0 MSTP to NCS flex, the database is automatically deleted during the upgrade.
- When a node is upgraded from R9.6.0.4 or R9.8 to NCS flex, the database must be deleted prior the upgrade. Database deletion can be done in either of the two ways:

  1 Perform these steps:

    a Remove the standby control card.
    b Remove the line cards.
    c Download the NCS flex software.
    d Activate the NCS flex software. The database is deleted during activation.
    e Insert the standby control card removed in Step a.
    f Insert the supported line cards. The supported line cards are described at Card Support.

  2 Log into the Technical Support Website at http://www.cisco.com/cisco/web/support/index.html for more information or call Cisco TAC (1 800 553-2447) to request for database deletion.

  Note When a node is upgraded from R9.6.0.4 or R9.8 or R10.0 MSTP to NCS fixed grid, the database is retained during the upgrade.

- When a node is upgraded from R9.6.0.4 (ANSI), R9.80 (ANSI or ETSI), R10.0 MSTP to NCS flex or NCS fixed grid, the database backup taken from the originating release cannot be restored after the upgrade.

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.

The BST is available at Bug Search. To search for a specific bug, go to https://tools.cisco.com/bugsearch/bug/*bugid*. For more information on BST, see Bug Search Help.

Additional References

Related Documents

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

Link	Description
Cisco NCS Documentation Roadmap	Provides quick access to publications of Cisco NCS releases.
Cisco NCS 2002 and NCS 2006 Configuration Guides	Provides background and reference material, procedures for installation, turn up, provisioning, and maintenance of Cisco NCS 2002 and Cisco NCS 2006 systems.
Cisco NCS 2002 and NCS 2006 Troubleshooting Guide	Provides general troubleshooting instructions, alarm troubleshooting instructions, and a list of error messages that apply to the Cisco NCS 2002 and Cisco NCS 2006 systems.
Cisco NCS 2002 and NCS 2006 Hardware Installation Guide	Provides installation information about the Cisco NCS 2002 and Cisco NCS 2006 hardware.
Installing the Cisco NCS 2002 and NCS 2006 Passive Optical Modules	Provides installation information about the Cisco NCS 2002 and NCS 2006 passive optical modules.
Cisco NCS 2002 and NCS 2006 Licensing Configuration Guide	Provides information about installing and managing Cisco NCS licenses.
Cisco NCS TL1 Command Guide	Provides a comprehensive list of TL1 commands.
Installing the GBIC, SFP, SFP+, XFP, CXP, CFP, and CPAK Optical Modules in Cisco NCS Platforms	Provides information about the Pluggable Port Modules support.

Technical Assistance

Link	Description
http://www.cisco.com/support	The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies. 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. Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.