Release Notes for Cisco NCS 4000 Series, Cisco IOS XR Release 6.5.33

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The release notes contain information about the new features introduced in the Cisco NCS 4000 Series.

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

What's New in Cisco NCS 4000 Series, Release 6.5.33

Cisco is continuously enhancing the product with every release and this section covers a brief description of key features and enhancements.

Feature	Description
Configuration	
100MHz Grid Spacing for NCS4K-4H-OPW-QC2 line card	In addition to the 50GHZ flex-grid-spacing, you can now configure 100MHz flex-grid-spacing on the CFP2 trunk ports of the NCS4K-4H-OPW-QC2 card. The setup can be done by Cisco Transport Controller (CTC) or CLI. With 100MHz flex-grid-spacing, you can configure up to 761 different wavelengths; which is more than 96 wavelengths that can be done with 50GHZ flex-grid-spacing. Commands added: • dwdm-carrier Commands modified: • show controller optics
AAA Password Security Policies	This feature introduces strong password security policies to strengthen the secret and password configuration of usernames. These policies also have the option of blocking a local user from accessing the router for a configurable amount of time if the maximum number of attempts to login to the device is reached. The feature thus enhances router security by enforcing strong user password policies. Commands added: • policy
BFD on BGP	Bidirectional Forwarding Detection (BFD) is now enabled on the Broad Gateway Protocol (BGP). BFD provides a single, standardized link/device/protocol failure detection method at any protocol layer and over any media. This feature offers quick failure detection between BGP nodes, allowing faster traffic rerouting to an alternate path.
Daisy Chain Support on NCS 4000	Typically the NCS 4000 devices are connected to a switch requiring 1-to-1 connections. From this release, it will be possible to have a Daisy Chain topology. Here multiple NCS 4000 devices are connected to form a chain-like structure, and only the first and last nodes are connected to a switch, thereby reducing the number of connections. Also, there is more redundancy as data is transmitted in both directions. The first connection acts as a primary path and carries the traffic whereas the last connection acts as a backup path. If the primary connection fails, the backup path is activated which allows traffic to continue to transmit in the network.

Feature	Description
Link Layer Discovery Protocol (LLDP) on NCS4K-4H-OPW-QC2 line card	In addition to the existing support on packet interfaces, Link Layer Discovery Protocol (LLDP) is now enabled on the client ports of the NCS4K-4H-OPW-QC2 card that carry Ethernet-over-OTN traffic. This feature allows NCS 4000 to discover peer devices connected either on the OTN ports or the packet interfaces. As a result, it reduces the need to use multiple protocols for network management, especially in a multi-vendor network. Commands added: • show lldp neighbors • show lldp neighbors detail
QoS on Layer 3 VPN.	The L3VPN QoS support on NCS4000 brings the Uniform and Pipe tunneling modes for DSCP/MPLS experimental bits, while the packet travels from one customer edge (CE) router to another across the MPLS core. The tunneling modes allow the customers to set the priority of the IP packets for the MPLS and the core networks.
Stronger Secret Encryption	This feature introduces **secret** command that enables you to choose encryption types, such as Type 5, Type 8, Type 9, and Type 10, for encrypting the Secret. This feature employs hashing algorithms to build a more secure, strong, and robust secret to enhance the device security. Commands added: • secret
NCS 4000 Bundle Convergence Time Improvement	In this release, the bundle convergence time is improved in the event of: • Adding or removing link members • Shut or No Shut operation on the interface • Shut or no Shut operation of the controller This enhancement reduces the traffic outage duration during bundle operational impact.

Caveats

Open Caveats

The following list contains known issues for Release 6.5.33:

Identifier	Headline
CSCwf09360	After SDR reload trigger , DIGI devices getting stuck in OFFLINE state causing datapath impact
CSCwc45234	Upgrade of NCS4K linux kernel

Identifier	Headline
CSCwf05849	After reload trigger ,OCH trail ciruit status is stuck in undiscover and Partial state on CTC
CSCwc45228	Upgrade of NCS4K services components
CSCwe12355	After Router Reload, DIGI , Denali and MELKOR gets stuck in OFFLINE state causing datapath down
CSCwc45162	Upgrade of NCS4K Utilities component
CSCwc45223	Upgrade of NCS4K libraries
CSCwc95331	With mpls TE techsupport getting "Defaulting message member 'rro_srlg', parent 'cidl_rro' to '0'"
CSCwe34759	After Router/SDR reload trigger, EGQ getting stuck causing packet drop in egress pipeline
CSCwe43955	After SDR reload trigger , One of the Line card NPU has gone for another PON as an ASIC recovery
CSCwe56370	After SDR reload , continious fia_driver crash at kbp_lpm_db_wb_save_state seen on active LC VM
CSCwe19190	After router reload trigger , both LACP and LLDP are down as packets are dropping at SPP
CSCwc45192	Upgrade of NCS4K Qemu component
CSCwe54302	After LC VM SO, ASIC_INIT_FAILURE caused one of the Line card to go for PON causing traffic glitch
CSCvz79771	NCS4K:6.5.28: ONS-QSFP28-LR4 reporting high TX power alarm as threshold values are not as per spec

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.

Using Bug Search Tool

You can use the Cisco Bug Search Tool to search for a specific bug or to search for all bugs in a release.

Procedure

Step 1 Go to the http://tools.cisco.com/bugsearch.

Step 2 Log in using your registered Cisco.com username and password.

The Bug Search page opens.

Step 3 Use any of these options to search for bugs, and then press Enter (Return) to initiate the search:

- To search for a specific bug, enter the bug ID in Search For field.
- To search for bugs based on specific criteria, enter search criteria, such as problem description, a feature or a product name, in the Search For field.
- To search for bugs based on products, enter or select a product from the Product list. For Example, if you enter "WAE," you get several options from which to choose.
- To search for bugs based on releases, in the Releases list select whether to search for bugs affecting a specific release, bugs that were fixed in a specific release, or both. Then enter one or more release numbers in the Release field.

Step 4 When the search results are displayed, use the filter tools to narrow the results. You can filter the bugs by status, severity, and so on. To export the results to a spreadsheet, click **Export Results to Excel**.

Supported FPD Version

The following command lists the FPD versions supported in Release 6.5.33

```
RP/0/RP1:router#show fpd package

================================= ==============================================
                                       Field Programmable Device Package
                                  ==============================================
                                           Req      SW       Min Req   Min Req
Card Type            FPD Description       Reload   Ver      SW Ver    Board Ver
==================== ========================= ====== ======= ======== =========
--------------------------------------------------------------------------------
NCS4009-FC-S         CCC-FPGA(A)               NO      1.05    1.05     0.1
                     CCC-Power-On(A)           NO      1.03    1.03     0.1
                     PLX-8608(A)               YES     0.03    0.03     0.1
                     SB Certificates(A)        NO      1.00    1.00     0.0
--------------------------------------------------------------------------------
NCS4009-FC2-S        CCC-FPGA(A)               NO      2.05    2.05     0.1
                     CCC-Power-On(A)           NO      1.03    1.03     0.1
                     PLX-8714(A)               YES     0.04    0.04     0.1
                     SB Certificates(A)        NO      1.00    1.00     0.0
--------------------------------------------------------------------------------
NCS4009-FC2-SP       CCC-FPGA(A)               NO      1.11    1.11     0.1
                     CCC-Power-On(A)           NO      1.03    1.03     0.1
                     PLX-8608(A)               YES     0.03    0.03     0.1
                     SB Certificates(A)        NO      1.00    1.00     0.0
--------------------------------------------------------------------------------
NCS4009-FC2F-S       CCC-FPGA(A)               NO      2.05    2.05     0.1
                     CCC-Power-On(A)           NO      1.03    1.03     0.1
                     PLX-8714(A)               YES     0.04    0.04     0.1
                     SB Certificates(A)        NO      1.00    1.00     0.0
--------------------------------------------------------------------------------
NCS4016-FC-M         CCC-FPGA(A)               NO      4.40    4.40     0.1
                     CCC-Power-On(A)           NO      1.14    1.14     0.1
                     PLX-8649(A)               YES     0.08    0.08     0.1
                     SB Certificates(A)        NO      1.00    1.00     0.0
--------------------------------------------------------------------------------
NCS4016-FC-S         CCC-FPGA(A)               YES     0.05    0.01     0.1
                     CCC-Power-On(A)           YES     1.12    1.08     0.1
                     PLX-8649(A)               YES     0.08    0.08     0.1
```

	SB Certificates(A)	NO	1.00	1.00	0.0
	CCC-FPGA(A)	NO	5.07	5.07	0.1
	CCC-Power-On(A)	NO	1.01	1.01	0.1
	PLX-8649(A)	YES	0.08	0.08	0.1
	SB Certificates(A)	NO	1.00	1.00	0.0
NCS4016-FC2-M	CCC-FPGA(A)	NO	1.35	1.35	0.1
	CCC-Power-On(A)	NO	1.03	1.03	0.1
	LTC2978_420848_ISP(A)	YES	1.00	1.00	0.0
	PLX-8649(A)	YES	1.00	1.00	0.1
	SB Certificates(A)	NO	1.00	1.00	0.0
NCS4K-20T-O-S	Backup-ZYNQ	YES	1.68	1.00	0.1
	CCC-FPGA(A)	NO	3.27	3.27	0.1
	CCC-Power-On(A)	NO	1.19	1.19	0.1
	DIGI1	YES	2.03	2.03	0.1
	DIGI2	YES	2.03	2.03	0.1
	Ethernet-Switch(A)	YES	1.41	1.41	0.1
	GENNUM	YES	3.01	3.01	0.1
	PLX-8618(A)	YES	0.09	0.09	0.1
	Primary-ZYNQ	NO	1.68	1.68	0.1
	SB Certificates(A)	NO	1.00	1.00	0.0
NCS4K-24LR-O-S	Backup-ZYNQ	YES	4.15	0.01	0.1
	CCC-FPGA(A)	NO	4.39	4.39	0.1
	CCC-Power-On(A)	NO	1.21	1.21	0.1
	Ethernet-Switch(A)	YES	1.38	1.38	0.1
	PLX-8618(A)	YES	0.11	0.11	0.1
	Primary-ZYNQ	NO	4.20	4.20	0.1
	SB Certificates(A)	NO	1.00	1.00	0.0
NCS4K-2H-O-K	Backup-ZYNQ	YES	1.55	0.01	0.1
	CCC-FPGA(A)	NO	3.38	3.38	0.1
	CCC-Power-On(A)	NO	1.19	1.19	0.1
	DIGI1	YES	2.03	2.03	0.1
	DIGI2	YES	2.03	2.03	0.1
	Ethernet-Switch(A)	YES	1.41	1.41	0.1
	GENNUM	YES	3.01	3.01	0.1
	LEPTON	NO	4.02	4.02	0.1
	PLX-8618(A)	YES	0.10	0.10	0.1
	Primary-ZYNQ	NO	1.56	1.56	0.1
	SB Certificates(A)	NO	1.00	1.00	0.0
NCS4K-2H-W	Backup-ZYNQ	NO	1.60	1.00	0.1
	CCC-FPGA(A)	NO	4.34	4.34	0.1
	CCC-Power-On(A)	NO	1.20	1.20	0.1
	EAGLE-0-FPD	NO	5.05	5.05	0.1
	EAGLE-1-FPD	NO	5.05	5.05	0.1
	Ethernet-Switch(A)	YES	1.35	1.35	0.1
	GN2411-FPD-1	YES	3.05	3.05	0.1
	GN2411-FPD-2	YES	3.05	3.05	0.1
	GN2411-FPD-3	YES	3.05	3.05	0.1
	GN2411-FPD-4	YES	3.05	3.05	0.1
	PLX-8608(A)	YES	0.10	0.10	0.1
	Primary-ZYNQ	NO	1.60	1.60	0.1
	SB Certificates(A)	NO	1.00	1.00	0.0
NCS4K-2H10T-OP-KS	Backup-ZYNQ	YES	1.91	1.00	0.1
	CCC-FPGA(A)	NO	1.50	1.50	0.1
	CCC-Power-On(A)	NO	1.14	1.14	0.1
	DIGI1	YES	2.03	2.03	0.1
	DIGI2	YES	2.03	2.03	0.1
	Ethernet-Switch(A)	YES	1.02	1.02	0.1
	GRIMA	YES	1.51	1.51	0.1

	PLX-8649(A)	YES	0.11	0.11	0.1
	Primary-ZYNQ	NO	1.91	1.91	0.1
	SB Certificates(A)	NO	1.00	1.00	0.0
NCS4K-4H-OP-K	Backup-ZYNQ	YES	0.09	0.09	0.1
	CCC-FPGA(A)	YES	2.02	2.02	0.1
	CCC-Power-On(A)	YES	1.09	1.09	0.1
	DIGI1	NO	2.03	2.03	0.1
	DIGI2	NO	2.03	2.03	0.1
	Ethernet-Switch(A)	YES	1.01	1.01	0.1
	LEPTON	NO	5.00	5.00	0.1
	PLX-8649(A)	YES	0.01	0.01	0.1
	Primary-ZYNQ	NO	1.09	1.09	0.1
	SB Certificates(A)	NO	1.00	1.00	0.0
NCS4K-4H-OPW-QC2	Backup-MELKOR	YES	6.00	6.00	0.1
	Backup-ZYNQ	NO	4.11	4.11	0.1
	CCC-FPGA(A)	NO	1.01	1.01	0.1
	CCC-Power-On(A)	NO	1.12	1.12	0.1
	DENALI	NO	13.48	13.48	0.1
	DIGI1	YES	2.02	2.02	0.1
	DIGI2	YES	2.02	2.02	0.1
	Ethernet-Switch(A)	YES	1.51	1.51	0.1
	PLX-8750(A)	YES	0.10	0.10	0.1
	Primary-MELKOR	NO	6.01	6.01	0.1
	Primary-ZYNQ	NO	4.11	4.11	0.1
	SB Certificates(A)	NO	1.00	1.00	0.0
	SMAUG	YES	0.10	0.10	0.1
NCS4K-AC-PSU	AB-PriMCU(A)	NO	1.31	1.31	0.1
	AB-Sec54vMCU(A)	NO	1.49	1.49	0.1
	AB-Sec5vMCU(A)	NO	1.43	1.43	0.1
	DT-PriMCU(A)	NO	3.00	3.00	1.0
	DT-PriMCU(A)	NO	1.06	1.06	0.2
	DT-PriMCU(A)	NO	2.01	2.01	0.3
	DT-Sec54vMCU(A)	NO	4.00	4.00	1.0
	DT-Sec54vMCU(A)	NO	2.03	2.03	0.2
	DT-Sec54vMCU(A)	NO	3.02	3.02	0.3
	DT-Sec5vMCU(A)	NO	3.01	3.01	1.0
	DT-Sec5vMCU(A)	NO	1.09	1.09	0.2
	DT-Sec5vMCU(A)	NO	2.02	2.02	0.3
NCS4K-CRAFT	Craft-NCS4009(A)	NO	1.04	1.04	0.1
	Craft-NCS4016(A)	NO	1.04	1.04	0.1
NCS4K-DC-PSU-V1	AB-PriMCU(A)	NO	4.01	4.01	0.1
	AB-Sec54vMCU(A)	NO	4.02	4.02	0.1
	AB-Sec5vMCU(A)	NO	4.03	4.03	0.1
	DT-Pri2MCU(A)	NO	3.02	3.02	1.0
	DT-PriMCU(A)	NO	3.02	3.02	1.0
	DT-Sec54v2MCU(A)	NO	3.01	3.00	1.0
	DT-Sec54vMCU(A)	NO	3.01	3.00	1.0
	DT-Sec5vMCU(A)	NO	3.08	3.08	1.0
NCS4K-ECU	ECU-FPGA(A)	NO	3.01	3.01	0.1
NCS4K-ECU2	ECU-FPGA(A)	NO	5.01	5.01	0.1
NCS4K-FTA	Fantray-FPGA(A)	NO	3.01	3.01	0.1
NCS4K-RP	Backup-BIOS(A)	YES	14.04	1.00	0.1
	Backup-CCC-PwrOn(A)	YES	1.22	1.00	0.1
	Backup-EthSwitch(A)	YES	1.36	1.00	0.1
	Backup-Timing(A)	YES	5.01	3.00	0.1

	BP-FPGA(A)	NO	3.21	3.21	0.1
	CCC-Bootloader(A)	YES	4.29	4.08	0.1
	CCC-FPGA(A)	YES	4.29	4.29	0.1
	CCC-Power-On(A)	YES	1.23	1.23	0.1
	CPU-Complex-BckKey(A)	YES	1.00	1.00	0.1
	CPU-Complex-Boot(A)	YES	2.09	2.04	0.1
	CPU-Complex-FPGA(A)	YES	2.09	2.09	0.1
	CPU-Complex-PriKey(A)	YES	1.00	1.00	0.1
	Ethernet-Switch(A)	YES	1.36	1.36	0.1
	PLX-8649(A)	YES	0.08	0.08	0.1
	PLX-8696(A)	YES	0.05	0.05	0.1
	Primary-BIOS(A)	YES	14.04	14.04	0.1
	SB Backup Key(A)	NO	1.00	1.00	0.0
	SB Certificates(A)	NO	1.00	1.00	0.0
	SB Primary Key(A)	NO	1.00	1.00	0.0
	SMART-iSATA(A)	NO	7.05	7.05	0.0
	SMART-SATA(A)	NO	7.05	7.05	0.0
	Timing-FPGA(A)	YES	5.01	5.01	0.1
NCS4KF-CRAFT	Craft-NCS4K-FCC(A)	NO	1.07	1.07	0.1
NCS4KF-FC2-C	Back-CRE-FPGA-MB(A)	YES	1.05	1.05	0.0
	CCC-FPGA(A)	YES	1.26	1.26	0.1
	CCC-Power-On(A)	YES	1.05	1.05	0.1
	CRE-FPGA-MB(A)	YES	1.05	1.05	0.0
	LTC2978_42094A_ISP(A)	YES	1.00	1.00	0.0
	LTC3882_42094A_ISP(A)	YES	1.00	1.00	0.0
	PLX-8713(A)	YES	0.06	0.06	0.1
	SB Certificates(A)	NO	1.00	1.00	0.0
	Back-CRE-FPGA-MB(A)	YES	1.05	1.05	0.0
	CCC-FPGA(A)	YES	1.26	1.26	0.1
	CCC-Power-On(A)	YES	1.05	1.05	0.1
	CRE-FPGA-MB(A)	YES	1.05	1.05	0.0
	LTC2978_42094A_ISP(A)	YES	1.00	1.00	0.0
	LTC2978_42094E_ISP(A)	YES	1.00	1.00	0.0
	LTC3882_42094A_ISP(A)	YES	1.00	1.00	0.0
	LTC3882_42094E_ISP(A)	YES	1.00	1.00	0.0
	PLX-8713(A)	YES	0.06	0.06	0.1
	SB Certificates(A)	NO	1.00	1.00	0.0
NCS4KF-FTA	Backup-Fantray(A)	NO	2.03	2.03	0.1
	Fantray-FPGA(A)	NO	2.04	2.04	0.1
NCS4KF-RPMC	Backup-BIOS(A)	YES	14.09	14.00	0.0
	Backup-CCC-PwrOn(A)	NO	2.01	1.38	0.0
	Backup-EthSwitch(A)	YES	1.33	1.33	0.0
	CCC-Bootloader(A)	YES	3.07	2.01	0.0
	CCC-FPGA(A)	YES	3.07	3.07	0.0
	CCC-Power-On(A)	NO	2.01	2.01	0.0
	CPU Backup_Key(A)	NO	1.00	1.00	0.0
	CPU Primary_Key(A)	NO	1.00	1.00	0.0
	CPU-Complex-BOOT(A)	YES	4.09	4.04	0.1
	CPU-Complex-FPGA(A)	YES	4.09	4.09	0.1
	Ethernet-Switch(A)	YES	1.33	1.33	0.0
	LTC2977_1F0807_DB_ISP.hex(	YES	1.00	1.00	0.0
	LTC2977_1F0807_MB_ISP.hex(	YES	1.00	1.00	0.0
	PLX-8625(A)	YES	0.05	0.05	0.0
	Primary-BIOS(A)	YES	14.09	14.09	0.0
	SB Backup Key(A)	NO	1.00	1.00	0.0
	SB Certificates(A)	NO	1.00	1.00	0.0
	SB Primary Key(A)	NO	1.00	1.00	0.0
	SMART-iSATA(A)	NO	7.05	7.05	0.0
	SMART-SATA(A)	NO	7.05	7.05	0.0

```
NCS4KF-RPMC (SW)      CCC-FPGA(A)                YES     2.06    2.06    0.0
                      CCC-Power-On(A)            NO      2.01    2.01    0.0
                      LTC2977_1F0808_MB_ISP.hex( YES     1.00    1.00    0.0
                      PLX-8614(A)                YES     0.06    0.06    0.0
                      SB Certificates(A)         NO      1.00    1.00    0.0
--------------------------------------------------------------------------------
P-S-FANTRAY           Fantray-FPGA(A)            NO      2.04    2.04    0.2
RP/0/RP1:router#
```