Release Notes for Cisco NCS 4206 and Cisco NCS 4216 Series, Cisco IOS XE Fuji 16.7.x

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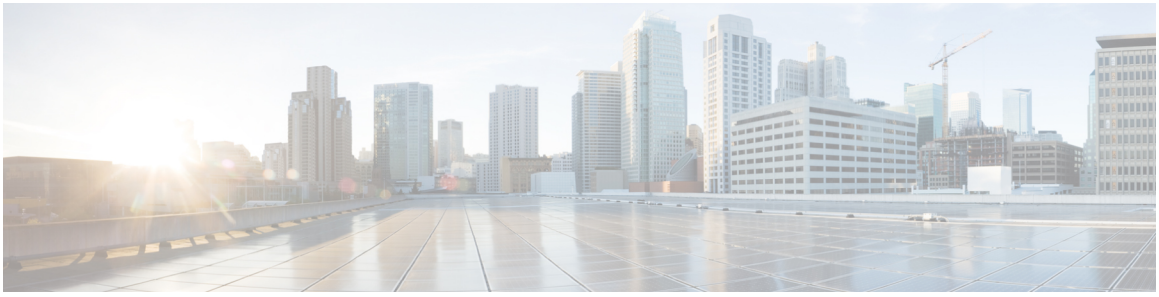

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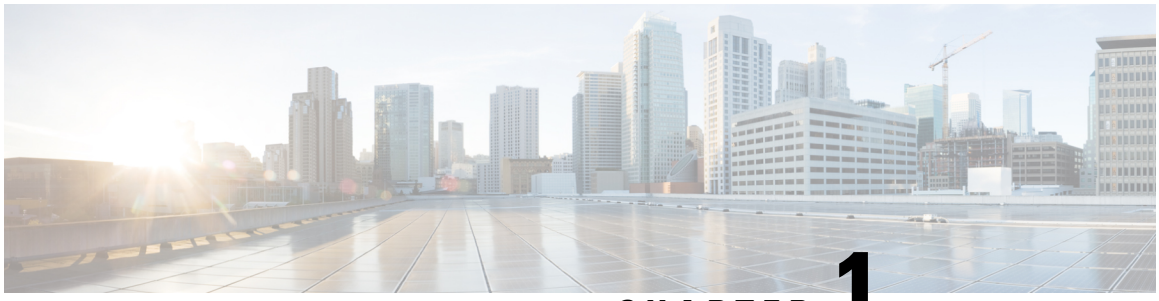


CHAPTER 1

Introduction

The Cisco NCS 4206 and Cisco NCS 4216 are full-featured, modular aggregation platforms designed for the cost-effective delivery of converged mobile, residential, and business services.

This document provides information about the IOS XE software release for the Cisco NCS 4206 and Cisco NCS 4216 beginning with Cisco IOS XE Everest 16.5.1, which is the first supported release in the Release 16 Series.

Overview of Cisco NCS 4206 and NCS 4216

Cisco NCS 4206

The Cisco NCS 4206 is a fully-featured aggregation platform designed for the cost-effective delivery of converged mobile and business services. With shallow depth, low power consumption, and an extended temperature range, this compact 3-rack-unit (RU) chassis provides high service scale, full redundancy, and flexible hardware configuration.

The Cisco NCS 4206 expands the Cisco service provider product portfolio by providing a rich and scalable feature set of Layer 2 VPN (L2VPN) and Layer 3 VPN (L3VPN) services in a compact package. It also supports a variety of software features, including Carrier Ethernet features, Timing over Packet, and pseudowire.

For more information on the Cisco NCS 4206 Chassis, see the Cisco NCS 4206 Hardware Installation Guide.

Cisco NCS 4216

The Cisco NCS 4216 is a seven-rack (7RU) unit chassis that belongs to the Cisco NCS 4200 family of chassis. This chassis complements Cisco's offerings for IP RAN solutions for the GSM, UMTS, LTE and CDMA. Given it's form-factor, interface types and Gigabit Ethernet density the Cisco NCS 4216 can also be positioned as a Carrier Ethernet aggregation platform.

The Cisco NCS 4216 is a cost optimized, fully redundant, centralized forwarding, extended temperature, and flexible pre-aggregation chassis.

For more information about the Cisco NCS 4216 Chassis, see the Cisco NCS 4216 Hardware Installation Guide.

Cisco NCS 4216 14RU

The Cisco NCS 4216 F2B is a 14-rack unit router that belongs to the Cisco NCS 4200 family of routers. This router complements Cisco's offerings for IP RAN solutions for the GSM, UMTS, LTE, and CDMA. Given its form-factor, interface types, and Gigabit Ethernet density the Cisco NCS 4216 14RU can also be positioned as a Carrier Ethernet aggregation platform.

The Cisco NCS 4216 14RU is a cost optimized, fully redundant, centralized forwarding, extended temperature, and flexible pre-aggregation router.

For more information about the Cisco NCS 4216 Chassis, see the Cisco NCS 4216 F2B Hardware Installation Guide.

Feature Navigator

You can use Cisco Feature Navigator to find information about feature, platform, and software image support. To access Cisco Feature Navigator, go to http://www.cisco.com/go/cfn. An account on cisco.com is not required.

Hardware Supported

The following sections list the hardware supported for Cisco NCS 4206 and Cisco NCS 4216 chassis.

Cisco NCS 4206-RSP2 Supported Interface Modules

The following table lists the RSP-2 supported interface modules for Cisco NCS 4206 chassis:

RSP Module	Supported Interface Modules	Part Numbers	Slot
NCS420X-RSP-128	SFP Combo IM-8-port Gigabit Ethernet (8X1GE) + 1-port 10 Gigabit Ethernet Interface Module (1X10GE)	NCS4200-1T8LR-PS	All
	NCS 4200 8X T1/E1 CEM Line Card	NCS4200-8E1T1-CE	All
	1 port OC-48/STM-16 or 4 port OC-12/OC-3 / STM-1/STM-4 + 12 ports T1/E1 + 4 ports T3/E3 or 1xOC48 interface over the high-density port	NCS4200-3GMS	All except 0 and 1

Cisco NCS 4206-RSP3 Supported Interface Modules

The following table lists the RSP-3 supported interface modules for Cisco NCS 4206 chassis:

RSP Module	Supported Interface Modules	Part Numbers	Slot
NCS420X-RSP	SFP Combo IM-8-port Gigabit Ethernet (8X1GE) + 1-port 10 Gigabit Ethernet Interface Module (1X10GE)	NCS4200-1T8LR-PS	All
	8-port 10 Gigabit Ethernet Interface Module (8X10GE)	NCS4200-8T-PS	All
	1-port 100 Gigabit Ethernet Interface Module (1X100GE)	NCS4200-1H-PK=	4 and 5
	2-port 40 Gigabit Ethernet QSFP Interface Module (2X40GE)	NCS4200-2Q-P	4 and 5
	1-Port OC192/STM-64 or 8-Port OC3/12/48/STM-1/-4/-16 Interface Module	NCS4200-1T8S-10CS	2,3, 4 and 5
	48 X T1/E1 CEM Interface Module	NCS4200-48T1E1-CE	All
	48 X T3/E3 CEM Interface Module	NCS4200-48T3E3-CE	All
	1-port 10 Gigabit Ethernet (SFP+) / 1-port Gigabit Ethernet (SFP) / 2-port Gigabit Ethernet (CSFP) + 16-port Gigabit Ethernet (CSFP) / 8-port Gigabit Ethernet (SFP) Module.	NCS4200-1T16G-PS	For slot information, see the **Configuring 1-port 10 Gigabit Ethernet (1 X SFP+) / 1-port Gigabit Ethernet (1 X SFP) / 2-port Gigabit Ethernet (1 X CSFP) and 16-port Gigabit Ethernet (8 X CSFP) / 8-port Gigabit Ethernet (8 X SFP)** chapter of the **Cisco NCS 4200 Series Software Configuration Guide**.

Cisco NCS 4216 and Cisco NCS 4216 14RU RSP Supported Interface Modules

The following table lists the RSP supported interface modules for the Cisco NCS 4216 and Cisco NCS 4216 14RU chassis:

RSP Module	Interface Modules	Part Number	Slot
NCS4216-RSP	SFP Combo IM-8-port Gigabit Ethernet (8X1GE) + 1-port 10 Gigabit Ethernet (1X10GE)	NCS4200-1T8LR-PS	2,5,6,9,10,13,14,15
	1x100G Interface module	NCS4200-1H-PK	7,8
	2x40G Interface module	NCS4200-2Q-P	3,4,7,8,11,12
	8x10G Interface module	NCS4200-8T-PS	3,4,7,8,11,12
	1-Port OC192/STM-64 or 8-Port OC3/12/48/STM-1/-4/-16 Module (10G Mode)	NCS4200-1T8S-10CS	3,4,7,8,11,12
	1-Port OC192/STM-64 or 8-Port OC3/12/48/STM-1/-4/-16 Module (5G Mode)	NCS4200-1T8S-10CS	2,3,4,5,6,7,8,9,10,11,12,13,14,15
	48XT1/E1 Interface module	NCS4200-48T1E1-CE	2,3,4,5,6,7,8,9,10,11,12,13,14,15
	48XT3/E3 Interface module	NCS4200-48T3E3-CE	2,3,4,5,6,7,8,9,10,11,12,13,14,15
	1-port 10 Gigabit Ethernet (SFP+) / 1-port Gigabit Ethernet (SFP) / 2-port Gigabit Ethernet (CSFP) + 16-port Gigabit Ethernet (CSFP) / 8-port Gigabit Ethernet (SFP) Module.	NCS4200-1T16G-PS	For slot information, see the **Configuring 1-port 10 Gigabit Ethernet (1 X SFP+) / 1-port Gigabit Ethernet (1 X SFP) / 2-port Gigabit Ethernet (1 X CSFP) and 16-port Gigabit Ethernet (8 X CSFP) / 8-port Gigabit Ethernet (8 X SFP)** chapter of the **Cisco NCS 4200 Series Software Configuration Guide**.

Restrictions and Limitations for Cisco NCS 4206 and Cisco NCS 4216

- Far end PMON counters are not supported.
- VT PMON is not supported.
- M13 framing (channelized) is not supported on DS3 IM.
- APS is supported across interface modules. But it is not supported on the same interface module.

- VT loopback is not supported if T1 is configured for the VT mode.
- DS1/DS3 SF/SD is not supported.
- Alternate 0's and 1's BERT pattern is not supported for DS1.
- All zeros BERT pattern on system side does not get in sync on DS3.
- DS3/OCx MDL does not interoperate with legacy Q.921 standards.
- APM is not supported with EPAR on CEP.
- FDL is not supported.
- STS24-c is not supported on OCx.
- Port restriction on OCx. If you have OC48 configured on a port, you cannot use the neighboring port.
- Bellcore remote loopbacks are not supported for DS1/DS3. Only T1.403 remote loopbacks are supported.
- DS3 over CEP is not supported on DS3 IM.
- CEP MIB is not supported.
- HSPW is not supported on DS3/DS1/OCX card.
- The **ip cef accounting** command is not supported on the chassis.
- Crash may be observed on the chassis when EoMPLS, CEM, ATM and IMA Pseudowire Redundancy (PW-redundancy) configurations exist while switchover and fail back of the pseudowires are being triggered, and the **show platform hardware pp active pw eompls** command is executed.
- Configuration sync does not happen on the Standby RSP when the active RSP has Cisco Software Licensing configured, and the standby RSP has Smart Licensing configured on the chassis. If the active RSP has Smart Licensing configured, the state of the standby RSP is undetermined. The state could be pending or authorized as the sync between the RSP modules is not performed.
- Evaluation mode feature licenses may not be available to use after disabling, and enabling the smart licensing on the Cisco NCS 4206. A reload of the chassis is required.
- Ingress counters are not incremented for packets of the below format on the RSP3 module for the 10 Gigabit Ethernet interfaces, 100 Gigabit Ethernet interfaces, and 40 Gigabit Ethernet interfaces:

  Packet format

  MAC header---->Vlan header---->Length/Type

  When these packets are received on the RSP3 module, the packets are not dropped, but the counters are not incremented.
- T1 SAToP, T3 SAToP, and CT3 are supported on an UPSR ring only with local connect mode. Cross connect of T1, T3, and CT3 circuits to UPSR are not supported.
- Traffic is dropped when packets of size 64 to 100 bytes are sent on 1G and 10G ports.
  - For 64-byte packets, traffic drop is seen at 70% and beyond of the line rate.
  - For 90-byte packets, traffic drop is seen at 90% and beyond of the line rate.
  - For 95-byte packets, traffic drop is seen at 95% and beyond of the line rate.

Traffic is dropped when:

- Traffic is sent on a VRF interface.
- Traffic is sent across layer 2 and layer 3.

However, traffic is not dropped when the packet size is greater than 100 bytes, even if the packets are sent bidirectionally at the line rate.

- Effective with Cisco IOS XE Everest 16.6.1, the Port-channel (PoCH) scale is reduced to 24 from 48 for Cisco ASR 900 RSP3 module.

Note The PoCH scale for Cisco NCS 4216 routers is 48.

Determining the Software Version

You can use the following commands to verify your software version:

- Consolidated Package—**show version**
- Individual sub-packages—**show version installed** (lists all installed packages)

Upgrading to a New Software Release

Only Cisco IOS XE 3S consolidated packages can be downloaded from Cisco.com; users who want to run the chassis using individual subpackages must first download the image from Cisco.com and extract the individual subpackages from the consolidated package.

Supported FPGA Versions for NCS 4206 and NCS 4216

Use the **show hw-module all fpd** command to display the IM FPGA version on the chassis.

Use the **show platform software agent iomd** [*slot/subslot*] **firmware cem-fpga** command to display the CEM FPGA version on the chassis.

The table below lists the FPGA version for the software releases.

Note During ISSU, TDM interface modules are reset for FPGA upgrade.

Table 1: Supported FPGA Versions for NCS 4206-RSP3 and NCS 4216

	Cisco IOS XE Release	48 X T1/E1 CEM Interface Module FPGA	48 X T3/E3 CEM Interface Module FPGA	OC-192 Interface Module + 8-port Low Rate Interface Module FPGA	NCS4200-3GMS	8x10G FPGA	2x40G FPGA	1x100G FPGA
IM FPGA	3.18SP	1.22	1.22	1.12	—	0.17 (0x1100 H)	0.22 (0x1600 H)	0.19 (0x1300 H)
CEM FPGA		4.6	4.6	6.6	—	—	—	—
IM FPGA	3.18.1SP	1.22	1.22	1.12	—	0.17 (0x1100 H)	0.22 (0x1600 H)	0.19 (0x1300 H)
CEM FPGA		4.6	4.6	7.0	—	—	—	—
IM FPGA	16.5.1	1.22	1.22	1.15	—	0.21 (0x1500 H)	0.22 (0x1600 H)	0.20 (0x1400 H)
CEM FPGA		0x46310046	0x46310046	5G mode: 0x10070059 10G mode: 0x10050073	—	—	—	—
IM FPGA	16.6.1	1.22	1.22	1.15	—	0.21 (0x1500 H)	0.22 (0x1600 H)	0.20 (0x1400 H)
CEM FPGA		0x46310046	0x46310046	5G mode: 0x10070059 10G mode: 0x10050073	—	—	—	—
IM FPGA	16.7.1	1.22	1.22	1.15	2.0	0.21 (0x1500 H)	0.22 (0x1600 H)	0.20 (0x1400 H)
CEM FPGA		0x46410046	0x46410046	5G mode: 0x10780059 10G mode: 0x10120076	0x10230039	—	—	—

Deferrals

Cisco IOS software images are subject to deferral. We recommend that you view the deferral notices at the following location to determine whether your software release is affected: http://www.cisco.com/en/US/products/products_security_advisories_listing.html.

Field Notices and Bulletins

- Field Notices—We recommend that you view the field notices for this release to determine whether your software or hardware platforms are affected. You can find field notices at http://www.cisco.com/en/US/support/tsd_products_field_notice_summary.html.
- Bulletins—You can find bulletins at http://www.cisco.com/en/US/products/sw/iosswrel/ps5012/prod_literature.html.

MIB Support

The below table summarizes the supported MIBs on the Cisco NCS 4206 and Cisco NCS 4216.

Supported MIBs		
BGP4-MIB (RFC 1657)	CISCO-IMAGE-LICENSE-MGMT-MIB	MPLS-LDP-STD-MIB (RFC 3815)
CISCO-BGP-POLICY-ACCOUNTING-MIB	CISCO-IMAGE-MIB	MPLS-LSR-STD-MIB (RFC 3813)
CISCO-BGP4-MIB	CISCO-IPMROUTE-MIB	MPLS-TP-MIB
CISCO-BULK-FILE-MIB	CISCO-LICENSE-MGMT-MIB	MSDP-MIB
CISCO-CBP-TARGET-MIB	CISCO-MVPN-MIB	NOTIFICATION-LOG-MIB (RFC 3014)
CISCO-CDP-MIB	CISCO-NETSYNC-MIB	OSPF-MIB (RFC 1850)
CISCO-CEF-MIB	CISCO-OSPF-MIB (draft-ietf-ospf-mib-update-05)	OSPF-TRAP-MIB (RFC 1850)
CISCO-CLASS-BASED-QOS-MIB	CISCO-OSPF-TRAP-MIB (draft-ietf-ospf-mib-update-05)	PIM-MIB (RFC 2934)
CISCO-CONFIG-COPY-MIB	CISCO-PIM-MIB	RFC1213-MIB
CISCO-CONFIG-MAN-MIB	CISCO-PROCESS-MIB	RFC2982-MIB
CISCO-DATA-COLLECTION-MIB	CISCO-PRODUCTS-MIB	RMON-MIB (RFC 1757)
CISCO-EMBEDDED-EVENT-MGR-MIB	CISCO-PTP-MIB	RSVP-MIB
CISCO-ENHANCED-MEMPOOL-MIB	CISCO-RF-MIB	SNMP-COMMUNITY-MIB (RFC 2576)
CISCO-ENTITY-ALARM-MIB	CISCO-RTTMON-MIB	SNMP-FRAMEWORK-MIB (RFC 2571)

Supported MIBs		
CISCO-ENTITY-EXT-MIB	CISCO-SONET-MIB	SNMP-MPD-MIB (RFC 2572)
CISCO-ENTITY-FRU-CONTROL- MIB	CISCO-SYSLOG-MIB	SNMP-NOTIFICATION-MIB (RFC 2573)
CISCO-ENTITY-SENSOR-MIB	DS1-MIB (RFC 2495)	SNMP-PROXY-MIB (RFC 2573)
CISCO-ENTITY-VENDORTYPE-OID-MIB	ENTITY-MIB (RFC 4133)	SNMP-TARGET-MIB (RFC 2573)
CISCO-FLASH-MIB	ENTITY-SENSOR-MIB (RFC 3433)	SNMP-USM-MIB (RFC 2574)
CISCO-FTP-CLIENT-MIB	ENTITY-STATE-MIB	SNMPv2-MIB (RFC 1907)
CISCO-IETF-ISIS-MIB	EVENT-MIB (RFC 2981)	SNMPv2-SMI
CISCO-IETF-PW-ATM-MIB	ETHERLIKE-MIB (RFC 3635)	SNMP-VIEW-BASED-ACM-MIB (RFC 2575)
CISCO-IETF-PW-ENET-MIB	IF-MIB (RFC 2863)	SONET-MIB
CISCO-IETF-PW-MIB	IGMP-STD-MIB (RFC 2933)	TCP-MIB (RFC 4022)
CISCO-IETF-PW-MPLS-MIB	IP-FORWARD-MIB	TUNNEL-MIB (RFC 4087)
CISCO-IETF-PW-TDM-MIB	IP-MIB (RFC 4293)	UDP-MIB (RFC 4113)
CISCO-IF-EXTENSION-MIB	IPMROUTE-STD-MIB (RFC 2932)	CISCO-FRAME-RELAY-MIB
CISCO-IGMP-FILTER-MIB	MPLS-LDP-GENERIC-STD-MIB (RFC 3815)	

The below table summarizes the unverified and supported MIBs on the Cisco NCS 4206 and Cisco NCS 4216.

Unverified MIBs		
ATM-MIB	CISCO-IETF-DHCP-SERVER-EXT-MIB	EXPRESSION-MIB
CISCO-ATM-EXT-MIB		HC-ALARM-MIB
CISCO-ATM-IF-MIB	CISCO-IETF-PPVPN-MPLS-VPN-MIB	HC-RMON-MIB
CISCO-ATM-PVC-MIB	CISCO-IP-STAT-MIB	IEEE8021-CFM-MIB
CISCO-ATM-PVCTRAP-EXTN-MIB	CISCO-IPSLA-ETHERNET-MIB	IEEE8021-CFM-V2-MIB
CISCO-BCP-MIB	CISCO-L2-CONTROL-MIB	IEEE8023-LAG-MIB
CISCO-CALLHOME-MIB	CISCO-LAG-MIB	INT-SERV-GUARANTEED-MIB
CISCO-CIRCUIT-INTERFACE-MIB	CISCO-MAC-NOTIFICATION-MIB	INTEGRATED-SERVICES-MIB
CISCO-CONTEXT-MAPPING-MIB	CISCO-MEMORY-POOL-MIB	MPLS-L3VPN-STD-MIB (RFC 4382)
CISCO-EIGRP-MIB	CISCO-NHRP-EXT-MIB	MPLS-LDP-ATM-STD-MIB (RFC 3815)
CISCO-ERM-MIB	CISCO-NTP-MIB	MPLS-LDP-MIB
CISCO-ETHER-CFM-MIB	CISCO-PING-MIB	MPLS-TE-STD-MIB
CISCO-ETHERLIKE-EXT-MIB	CISCO-RESILIENT-ETHERNET-PROTOCOL-MIB	MPLS-VPN-MIB

Unverified MIBs		
CISCO-EVC-MIB	CISCO-RTTMON-ICMP-MIB	NHRP-MIB
CISCO-HSRP-EXT-MIB	CISCO-RTTMON-IP-EXT-MIB	RFC2006-MIB (MIP)
CISCO-HSRP-MIB	CISCO-RTTMON-RTP-MIB	RMON2-MIB (RFC 2021)
CISCO-IETF-ATM2-PVCTRAP-MIB	CISCO-SNMP-TARGET-EXT-MIB	SMON-MIB
CISCO-IETF-ATM2-PVCTRAP-MIB-EXTN	CISCO-TCP-MIB	VRRP-MIB
CISCO-IETF-BFD-MIB	CISCO-VRF-MIB	
CISCO-IETF-DHCP-SERVER-MIB	ETHER-WIS (RFC 3637)	

MIB Documentation

To locate and download MIBs for selected platforms, Cisco IOS and Cisco IOS XE releases, and feature sets, use Cisco MIB Locator found at the following location: http://tools.cisco.com/ITDIT/MIBS/servlet/index

To access Cisco MIB Locator, you must have an account on Cisco.com. If you have forgotten or lost your account information, send a blank e-mail to cco-locksmith@cisco.com. An automatic check will verify that your e-mail address is registered with Cisco.com. If the check is successful, account details with a new random password will be e-mailed to you. Qualified users can establish an account on Cisco.com by following the directions found at the following location:

http://tools.cisco.com/RPF/register/register.do

Open Source License Notices

For a listing of the license notices for open source software used in Cisco IOS XE 3S Releases, see the documents accessible from the License Information page at the following location:

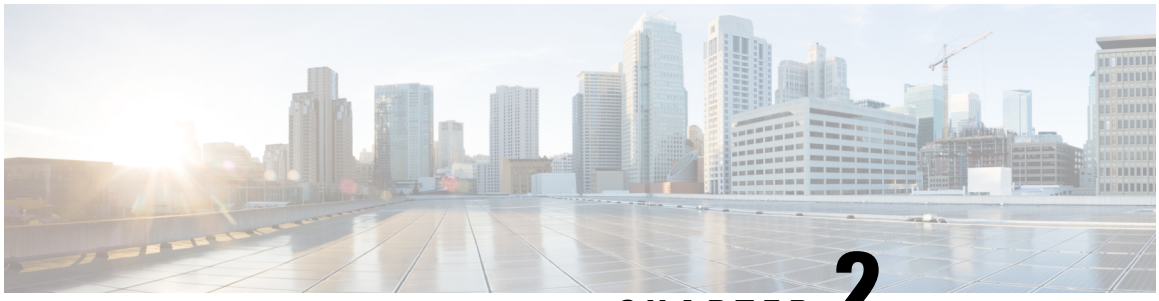
http://www.cisco.com/en/US/products/ps11174/products_licensing_information_listing.html

Communications, Services, and Additional Information

- To receive timely, relevant information from Cisco, sign up at Cisco Profile Manager.
- To get the business impact you're looking for with the technologies that matter, visit Cisco Services.
- To submit a service request, visit Cisco Support.
- To discover and browse secure, validated enterprise-class apps, products, solutions and services, visit Cisco Marketplace.
- To obtain general networking, training, and certification titles, visit Cisco Press.
- To find warranty information for a specific product or product family, access Cisco Warranty Finder.

Cisco 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.



CHAPTER 2

New Features

This chapter describes the new hardware and software features supported on the Cisco NCS 4200 Series in this release.

New Software Features for NCS 4206 and NCS 4216 in Cisco IOS XE Fuji 16.7.2

There are no new software features in this release.

New Hardware Features for NCS 4206 and NCS 4216 in Cisco IOS XE Fuji 16.7.2

There are no new hardware features in this release.

New Software Features for NCS 4206 and NCS 4216 in Cisco IOS XE Fuji 16.7.1

- **3G SDH Support on the 1 port OC48/ 4 port OC12/OC3 + 12 port T1/E1 + 4 port T3/E3 CEM Interface Module**

  Synchronous Digital Hierarchy (SDH) is supported on the 4 Port OC481/OC12/OC3 + 12 Port A900-IMA3G-IMSGT1/E1 + 4 Port T3/E3 CEM Interface Module.

  Note SNCP feature is not supported.

Note You can configure STM-1 or STM-4 on all four ports. If you configure rate STM-16 on any of the four ports, others ports are not available.

- **5G SDH Support on the 1-Port OC192/STM-64 or 8-Port OC3/12/48/STM-1/-4/-16 Interface Module**

  Synchronous Digital Hierarchy (SDH) is supported on the 5G Mode on 1-Port OC192/STM-64 or 8-Port OC3/12/48/STM-1/-4/-16 Interface Module.

  Note The OC-192/STM-64 port is disabled in 5G mode

  Ports 0-7 are available as STM-16, STM-4, and STM-1 ports. To achieve 5G traffic on the card, four ports are grouped. For example, 0-3 and 4-7 can provide a maximum traffic of 2.5G.

- **Card Protection for 48-port T1/E1 CEM Interface Module and 48-port T3/E3 CEM Interface Module**

  The card protection feature protects traffic when the interface module is out of service, a software failure occurs, or hardware issues are observed. Card protection is supported on primary and backup cards. Traffic is switched to the backup interface module when the primary interface module does not respond and vice versa. A new Y-cable is introduced to support the feature. The following maintenance commands are added in this release:

  - lockout
  - Force
  - Manual

  Note This feature does not require any change in the patch panel of the interface modules.

- **CESoPSN Support on the Cisco RSP3 Module**

  Effective Cisco IOS XE Fuji 16.7.x, the Cisco RSP3 module supports Circuit Emulation Service over Packet Switched Network (CESoPSN) features on the T1/E1, T3/E3, and OCx modules. The CESoPSN features include CEM group configuration, Bit-Error Rate Testing (BERT), Adaptive Clock Recovery (ACR), and Differential Clock Recovery (DCR).

  For more information, see 48-Port T1/E1 CEM Interface Module Configuration Guide, 48-Port T3/E3 CEM Interface Module Configuration Guide, and 1-Port OC-192 or 8-Port Low Rate CEM Interface Module Configuration Guide, Cisco IOS XE Fuji 16.7.x.

- **EVC Egress Filtering Support on the Cisco RSP3 Module**

  EVC filtering is used to filter out packets that are going out on an attachment or Access circuit (AC) when the packets do not match a given tag format. The packets are filtered based on the matching tag format at the ingress point of the AC. At the egress point of the AC, the packets are matched based on

VLAN parameters. If the packets do not match the expected VLAN tag format, then the packets are dropped.

For more information, see Carrier Ethernet Configuration Guide, Cisco IOS XE Fuji 16.7.x

- **FPGA based SAT Support on the Cisco RSP3 Module**

  The Cisco RSP3 Module now supports FPGA based SAT. In FPGA based SAT, the FPGA generates and terminates the packets based on the IP SLA configurations. All measurement are performed in FPGA.

  For more information, see IP SLAs Configuration Guide, Cisco IOS XE Fuji 16.7.x.

- **MAC Limiting Support on the Cisco RSP3 Module**

  The MAC address limiting on the bridge domain is now supported on the Cisco RSP3 module.

  For more information, see Layer 2 Configuration Guide, Cisco IOS XE Fuji 16.7.x.

- **Port Licensing Support on the 1 port OC48/ 4 port OC12/OC3 + 12 port T1/E1 + 4 port T3/E3 CEM Interface Module**

  The Cisco Software License Activation feature is a set of processes and components to activate Cisco IOS XE software feature sets by obtaining and validating fee-based Cisco software licenses. You should enable the license only for OCx ports. Use the **platform enable controller Mediatype** command to enable a particular license type on the controller port.

  Note License is not required for the ports 0-15 (DSx ports).

- **Programmability**

  - Yet Another Next Generation (YANG) data-modelling language—A Data Modelling Language for the Network Configuration Protocol (NETCONF), which replaces the process of manual configuration with a programmatic and standards-based way of writing configurations to any network device. It supports the automation of configuration for multiple switches across the network using data models.
  - RESTCONF—Provides a programmatic interface based on standard mechanisms for accessing configuration data, state data, data-model-specific Remote Procedure Call (RPC) operations and event notifications defined in the YANG model.
  - YANG Data Models—For the list of Cisco IOS XE YANG models available with this release, navigate to https://github.com/YangModels/yang/tree/master/vendor/cisco/xe/1671.

    Revision statements embedded in the YANG files indicate if there has been a model revision. The README.md file in the same github location highlights changes that have been made in the release.

    For more information, see Programmability Configuration Guide, Cisco IOS XE Fuji 16.7.x.

- **Support for BFD over IPv6 on the Cisco RSP3 Module**

  BFD over IPv6 is now supported on the Cisco RSP3 module.

  For more information, see IP Routing: BFD Configuration Guide, Cisco IOS XE Fuji 16.7.x.

New Hardware Features for NCS 4206 and NCS 4216 in Cisco IOS XE Fuji 16.7.1

- **4-port OC48/OC12/OC3 + 12-port T1/E1 + 4-port T3/E3 CEM Interface Module**

  The NCS4200-3GMS interface module supports 12xDS1/E1 + 4xDS3/E3/STS-1e + 4xOC3/12/1GE or 1xOC48 interface over the high-density port.

  For more information on supported ports, see Cisco NCS 4206 Hardware Installation Guide.

- **8/16-port 1 Gigabit Ethernet (SFP / SFP) + 1-port 10 Gigabit Ethernet (SFP+) / 2-port 1 Gigabit Ethernet (CSFP) Interface Module**

  The NCS4200-1T16G-PS interface module has the flexibility to support SFP+/SFP/CSFP on the modules as mentioned below:

  - 1-port 10 Gigabit Ethernet Small Form-Factor Pluggable (SFP+) interface supports one of three modules as 1xSFP+, 1xSFP or 1xCSFP
  - 8-port Gigabit Ethernet Small Form-Factor Pluggable (SFP) interface supports as either 8xSFP or 8xCSFP

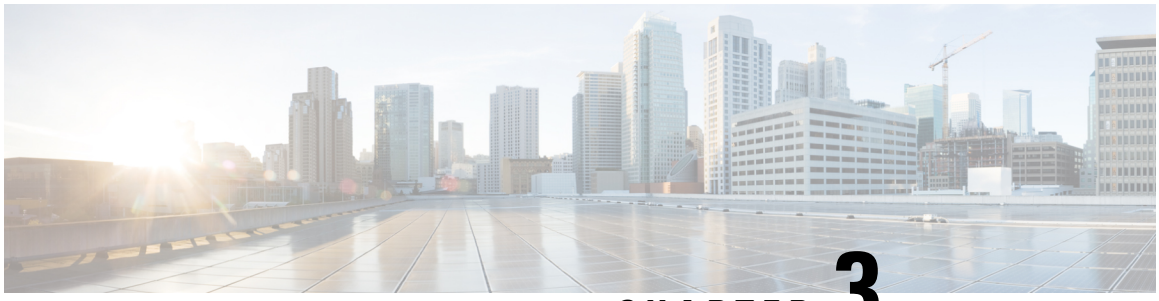
  For more information on supported ports, see Cisco NCS 4206 Hardware Installation Guide, Cisco NCS 4216 Hardware Installation Guide or Cisco NCS 4216 14RU Hardware Installation Guide.

- **NCS420X-RSP-128 Modules and Interface Modules**

  The RSP2 module NCS420X-RSP-128 is supported on the NCS 4206 system. The interface modules introduced on the RSP are:

  - SFP Combo IM—8-port Gigabit Ethernet (8X1GE) + 1-port 10 Gigabit Ethernet Interface Module (1X10GE)
  - 8-port T1/E1 Interface Module

  For more information, see Cisco NCS 4206 Hardware Installation Guide.



CHAPTER 3

Caveats

This chapter describes open and resolved severity 1 and 2 caveats and select severity 3 caveats:

- The "Open Caveats" sections list open caveats that apply to the current release and may apply to previous releases. A caveat that is open for a prior release and is still unresolved applies to all future releases until it is resolved.
- The "Resolved Caveats" sections list caveats resolved in a specific release, but open in previous releases.

The bug IDs are sorted alphanumerically.

Note The Caveats section includes the bug ID and a short description of the bug. For details on the symptoms, conditions, and workaround for a specific caveat you must use the Bug Search Tool.

Cisco Bug Search Tool

Cisco Bug Search Tool (BST), the online successor to Bug Toolkit, is designed to improve effectiveness in network risk management and device troubleshooting. You can search for bugs based on product, release, and keyword, and aggregates key data such as bug details, product, and version. For more details on the tool, see the help page located at http://www.cisco.com/web/applicat/cbsshelp/help.html

Open Caveats – Cisco IOS XE Fuji 16.7.2

Caveat ID Number	Description
CSCve00923	SR_OSPF::High conv observed with LDP labeled in primary path and unlabeled/imp null backup path

Caveat ID Number	Description
CSCvf72165	Router crash after "debug platform condition" command is applied.
CSCvg06222	~30sec traffic loss for EOMPLS services during ReOpt after TE Node Protection trigger
CSCvg06788	3-10sec traffic loss for FlexLsp Tunnels (unidirectional) from HE to TE on Active path cutover
CSCvh10730	BFD stuck at init state for Sessin ID 1023 alone on RSP3C after link flap
CSCvh51026	Router unresponsive and hangs during boot-up while loading router with package image file
CSCvh67319	Router unresponsive during bootup with the packages.conf file
CSCvi06358	Label and outgoing interface programmed wrongly for prefix in RSP3
CSCvi41441	Monitor session configuration without destination interface blocks ISIS on source interface

Resolved Caveats – Cisco IOS XE Fuji 16.7.2

Caveat ID Number	Description
CSCvc27630	Tx Packets or Tx Bytes generated is always lesser than configured rate-steps
CSCve55089	BGP crashes at bgp_ha_sso_enable_ssomode
CSCvf03157	RSP3:PC stays in suspended state on IM OIR
CSCvf46252	Crash in cylon_mgr when MPLS TE interface shut down
CSCvf59201	IP SLA tracks are down, but IP reachability is up
CSCvf72154	RSP3 - PIM neighborship down on BDI interface due to packets ASIC loop.
CSCvf80724	VPLS A-S PW : Complete traffic drop (imp and disp) over VPLS Act PW
CSCvg14965	L3VPN traffic marking is getting effected with conditional marking policy-map
CSCvg21893	Unexpected traffic was sent out from access port from REP ring
CSCvg21899	Traffic forwarding not happening for VLANs added via "encap dot1q add" command in TEFP
CSCvg36200	IPv4 deny ACL applied in the BDI is blocking L2 switched traffic under certain conditions
CSCvg43975	RSP3: Leak in G8032 IOS TDL Messaging on Flapping the Ring
CSCvg53877	Egress QOS Fails when speed is changed at interface via nego auto, speed cli command

Caveat ID Number	Description
CSCvg84664	Port does not come up with hard loopback inserted
CSCvg85163	ZTP not triggered with Gratuitous ARP
CSCvg86559	Cylon_Mgr Resources Leaked on Multiple Occurrences of Primary Core BFD Session Flaps
CSCvg95992	Change syslog message for RSP3 on fan removal
CSCvh04843	G.8275.1: Unable to scale the number of ports beyond 8.
CSCvh08220	RSP3: Crash in IOSD chasfs task on Defaulting and Removing IMA-1X
CSCvh41777	Removal of the policy from the service instance under a tengig interface causes traffic loss
CSCvh55399	T1 Service Latency is Asymmetric in a Simple Linear Topology
CSCvh76761	RSP module crashes while MPLS TE tunnel interfaces comes up
CSCvi06424	Traffic fails after moving/relearning mac-address from EFP to Xconnect interface
CSCvi13675	l2protocol forward option dropping L2 control protocols over xconnect with 3 lablels
CSCvi44683	Not able to achieve less than 50ms convergence
CSCvi52798	ISSU COMPAT CHECK enablement for RSP3 and RSP2
CSCvi58812	NCS4200 Reloads when removing sonet mode from controller

Open Caveats – Cisco IOS XE Fuji 16.7.1

Caveat ID Number	Description
CSCuz24819	Crash seen when WAN-PHY mode is enabled in RSP3
CSCvc38475	Serdes not locking with ISSU and reload
CSCvc94414	RSP3: Incorrect traffic rate recieved with specific values of CIR/PIR in HQOS policy
CSCvd38391	Standby Router: uea_mgr crashed @ ml2vpn_provision_pw_and_ac
CSCvd77735	RSP3 - Small loss (6-10ms) observed for VPLS traffic when BGP backup peer is powered down
CSCve05859	Exxx EIN: G.8275.1 testing: Clock loop forming between synce and ptp
CSCvf09940	RSP3_2x10GE: output netsync drifting after SSO when locked to 2x10GE
CSCvf62903	NCS4202 and NCS4201 warning seen when valid image copied to bootflash

Caveat ID Number	Description
CSCvf64393	After BD MAC limit is exceeded on Trunk EFP Learning gets enabled after adding/removing an encap
CSCvf72154	RSP3 - PIM neighborship down on BDI interface due to packets ASIC loop.
CSCvf72165	RSP3 - Router crash after "debug platform condition" command is applied.
CSCvf76893	CFM statistics is not getting updated for PC and UP Mep's in server-client model
CSCvf77914	clock-recovery: Incorrect TUG3 displayed in log, show recovered-clock output
CSCvf82663	RSP3C crashed at dl_callback
CSCvf95955	3G : MSP : APS Inactive iff pull out work active cable when lockout of protection
CSCvf96566	30-80sec traffic drop for EOMPLS Service during re-opt (after unshutting the primary interface)
CSCvf96598	RSP2 : ~15sec loss traffic for /HSPW service on ISSU/sso
CSCvf99088	RSP3: UP MEP CFM packets to bypass ingress QOS processing
CSCvg01577	LineStatusChange notification with not proper for clear event and problem event
CSCvg01605	RSP3 : Pending Objects wrt to RPW BDI interfaces (cleanup is not proper when adj download fails)
CSCvg06222	RSP3: ~30sec traffic loss for EOMPLS services during ReOpt after TE Node Protection trigger
CSCvg06788	RSP3:3-10sec traffic loss for FlexLsp Tunnels (unidirectional) from HE to TE on Active path cutover
CSCvg10313	Cu clock source still squelched on interface bring up after two SSOs
CSCvg14825	Require varbind entSensorPrecision,Scale & Type along with trap entSensorThresholdNotification
CSCvg22098	Celeborn: Dev_pluggable inconsistent console log seen in THS
CSCvg26930	Ten Gig interface going into admin down state after one gig shut down
CSCvg28351	VPLS with Segment Routing not flowing traffic.
CSCvg29464	OSPFv3 neighbors stuck in EXSTART state when ingress ACL references IPv6 headers
CSCvg30892	License:observing ptp command failure error as part of moving from CSL to SL
CSCvg35782	MPLSoRPW: Console msg "RPW's exceeded supported limit 128" appears with 128 RPWs configured
CSCvg36086	100G driver switchover failure on forced SSO crash scenario causing serdes lock/ping failures

Caveat ID Number	Description
CSCvg42248	MPLSoRPW: Crash@kbp_acl_mp_db_delete_entry seen during plain soak run
CSCvg47430	VZ_Sol : Stanby RSP crashes on no-card type when issued before clearing the alarms
CSCvg47991	IM crash convergence time is higher
CSCvg51739	Service instance packet counter SNMP poll returns excessive value
CSCvg55061	RSP3 goes for reset, if soft-error occurs in ASIC memory where punt-keep alive is configured

Resolved Caveats – Cisco IOS XE Fuji 16.7.1

Caveat ID Number	Description
CSCvb96943	Offset from master jumps to Huge value with SPAN
CSCvd75495	Wrong marking for locally generated packet of BFD,LDP, and BGP
CSCvd89421	RMEP failure due to CFM HW table corruption
CSCve10095	Traffic is getting dropped in both direction due to hw programming went for toss
CSCve75491	TE auto-bw: Incorrect bandwidth requested on soaking with traffic
CSCve87759	RSP3: Link flaps on configuring G8275.1
CSCvf03157	RSP3:PC stays in suspended state on IM OIR
CSCvf34496	RSP3-QIP:Error objects on Stby cfm_mp_ifh 16794673 sid 3001 download to CPP failed seen upon IM-OIR
CSCvf55743	ifHCInBroadcastPkts, ifHCOutBroadcastPkts return incorrect decreasing values for portchannel
CSCvf57056	T3 framed satop reporting parity errors on L-bit instead of AIS
CSCvf62586	FAN missing in RSP2 chassis
CSCvf68040	labels not programmed on stby RSP for t1 circuits for denether IM
CSCvf68605	DHCP Snooping Database restore/renew failing on all variants
CSCvf75494	IOT: Session status for RawSocket Server is not correctly displayed.
CSCvf75503	IOT: CLI Allows same TCP port to be configured for the clients and servers.
CSCvf77295	MAC limit EXCEED is not received and MAC learning is not disabled after BD shut/no shut
CSCvf79693	RSP3: BGP support over Router PW.

Caveat ID Number	Description
CSCvf85222	[RSP3] CFM over PC scale to be reduced to free up 1 Port Scheduler from each ARAD
CSCvf87314	IOT: Raw-Socket TCP Session details is displaying the truncated VRF Names
CSCvf90854	configured priority2 under ptp clock is not sent downstream when T- BC selected VP
CSCvf91437	Ping to the loopback IP of remote fails with explicit null configuration.
CSCvf97942	VZ_Sol : syslog messages for PATH alarm clear not coming for all 48 paths
CSCvg01577	LineStatusChange notification with not proper for clear event and problem event
CSCvg03308	[RSP3-DHCP-Relay]:unicast dhcp relay is getting dropped in transparent case with HSRP/VRRP/GLBP
CSCvg28721	RSP3:uea-mgr crashed while trying to install a label entry in kbp(update case)
CSCvg43975	RSP3: Leak in G8032 IOS TDL Messaging on Flapping the Ring